



PUBLIC WORKS DEPARTMENT

**SPECIAL PROVISIONS
FOR**

**SMITH CANAL FOOTBRIDGE
FENCING MAINTENANCE PLAN**
Project No. WC21014

BID OPENING: March 31, 2022, 2:00 p.m.

**Prepared for
City of Stockton**

Dated January 6, 2022

SMITH CANAL FOOTBRIDGE FENCING MAINTENANCE PLAN

Project No. WC21014

The special provisions contained herein have been prepared by, or under the direct supervision of, the following Registered Engineer:

CIVIL ENGINEERING

SIGNED: 
Rhett S. Kilgore, P.E.

DATE: 1/6/2022



TABLE OF CONTENTS

DIVISION I GENERAL PROVISIONS.....	1
SECTION 1 - SPECIFICATIONS AND PLANS	1
1-1.01 SPECIFICATIONS	1
1-1.02 PLANS	2
1-1.03 TERMS AND DEFINITIONS	2
SECTION 2 – BIDDING AND BID PROTESTS	3
2-1.01 GENERAL.....	3
2-1.02 BID PROTEST	3
SECTION 3 – CONTRACT AWARD AND EXECUTION	3
SECTION 4 – SCOPE OF WORK.....	4
4-1.01 CHANGES AND EXTRA WORK	4
4-1.02 DIFFERING SITE CONDITIONS (23 CFR 635.109)	4
4-1.03 CLEANUP	5
SECTION 5 – CONTROL OF WORK	5
5-1.01 CONTRACT COMPONENTS.....	5
5-1.02 SUBCONTRACTING	5
5-1.03 COORDINATION WITH OTHER ENTITIES.....	5
5-1.03A PERMITS.....	5
5-1.04 SUBMITTALS	6
5-1.05 JOB SITE APPEARANCE	8
5-1.06 STAGING AREA	9
5-1.07 CONSTRUCTION STAKING	9
5-1.08 INCREASED OR DECREASED QUANTITIES	9
5-1.09 STOP NOTICE WITHHOLDS	10
5-1.10 RIGHTS IN LAND	10
5-1.11 AS-BUILT/RECORD DRAWINGS	10
5-1.12 NOTICE OF POTENTIAL CLAIM	10
5-1.13 RECORDS	11
5-1.14 NONCOMPLIANT AND UNAUTHORIZED WORK.....	12
5-1.15 PROPERTY AND FACILITY PRESERVATION.....	12

5-1.16 PRE-CONSTRUCTION SURVEY	12
5-1.17 COOPERATION.....	14
SECTION 6 – CONTROL OF MATERIALS.....	16
6-1.01 BUY AMERICA REQUIREMENTS	16
6-1.02 QUALITY ASSURANCE PROGRAM	16
6-1.03 TESTING.....	16
6-1.04 PRE-QUALIFIED AND TESTED SIGNING AND DELINEATION MATERIAL	16
SECTION 7 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC.....	17
7-1.01 GENERAL.....	17
7-1.02 MAINTAINING PUBLIC CONVENIENCE AND SAFETY	17
7-1.03 TRENCH SAFETY	18
7-1.04 PUBLIC CONVENIENCE.....	18
7-1.05 PUBLIC SAFETY	19
7-1.06 INDEMNIFICATION AND INSURANCE	19
SECTION 8 – PROSECUTION AND PROGRESS	20
8-1.01 TIME OF COMPLETION	20
8-1.02 LIQUIDATED DAMAGES	21
8-1.03 PROGRESS SCHEDULE	21
8-1.04 FEDERAL LOBBYING RESTRICTIONS	23
8-1.05 PRE-CONSTRUCTION MEETING.....	23
8-1.06 POST-CONSTRUCTION MEETING	23
SECTION 9 – PAYMENT.....	23
9-1.01 SCHEDULE OF VALUES	24
9-1.02 DESCRIPTION OF WORK.....	24
9-1.03 QUANTITIES.....	26
9-1.04 UNSATISFACTORY PROGRESS	27
9-1.05 MOBILIZATION.....	27
9-1.06 INCREASE OR DECREASE QUANTITIES	27
9-1.07 STOP NOTICE	28
9-1.08 QUANTITIES.....	28
9-1.09 ALTERNATIVE DISPUTE RESOLUTION	28
DIVISION II GENERAL CONSTRUCTION	28

SECTION 10 – GENERAL	29
10-1.01 ORDER OF WORK	29
10-1.02 ALTERNATIVE EQUIPMENT	30
10-1.03 INSPECTIONS	30
10-1.04 OBSTRUCTIONS	30
10-1.05 SYSTEM OUTAGE REQUEST, CITY OF STOCKTON FACILITIES	32
10-1.06 SHEETING AND SHORING	33
10-1.07 SURFACE RESTORATION	33
SECTION 11 – BLANK	34
SECTION 12 – BLANK	34
SECTION 13 – BLANK	34
SECTION 14 – ENVIRONMENTAL STEWARDSHIP	34
14-1.01 CONSTRUCTION SITE WASTE MATERIALS MANAGEMENT	34
14-1.02 AIR POLLUTION CONTROL	35
14-1.03 DUST CONTROL, APPLY WATER, SITE MAINTENANCE, AND CLEANUP	36
14-1.04 SOUND CONTROL REQUIREMENTS	36
14-1.05 CULTURAL RESOURCES	38
SECTION 15 – EXISTING FACILITIES	38
15-1.01 EXISTING FACILITIES	38
DIVISION III EARTHWORK AND LANDSCAPE	40
SECTION 19 – EARTHWORK	40
19-1.01 SITE CLEARING & DEMOLITION	40
19-1.02 EXCAVATING, FILLING, COMPACTING & GRADING	42
SECTION 20 – BLANK	49
SECTION 21 – EROSION CONTROL	49
DIVISIONS VI STRUCTURES	49
SECTION 52 – REINFORCEMENT	49
52-1.01 CONCRETE REINFORCING	49
DIVISION VIII – MISCELLANEOUS CONSTRUCTION	53
SECTION 75 – MISCELLANEOUS METAL	53
75-1.01 STRUCTURAL STEEL	53
75-1.02 METAL FABRICATIONS	57

SECTION 76 – BLANK	65
SECTION 77 – BLANK	65
SECTION 78 – BLANK	65
SECTION 79 – BLANK	65
SECTION 80 – FENCES	65
80-1.01 WELDED WIRE FENCES & GATES	65
80-1.02 EXPANDED METAL FENCES & GATES	68
DIVISION XI MATERIALS	71
SECTION 90 – CONCRETE	71
90-1.01 CAST IN PLACE CONCRETE	71

**SPECIAL PROVISIONS
FOR
SMITH CANAL FOOTBRIDGE FENCING MAINTENANCE PLAN
PROJECT NO. WC21014**

DIVISION I GENERAL PROVISIONS

SECTION 1 - SPECIFICATIONS AND PLANS

1-1.01 SPECIFICATIONS

The work described herein shall be done in accordance with the current City of Stockton, Department of Public Works Standard Specifications and Plans, and the latest Editions of the State of California, Department of Transportation Standard Specifications and Standard Plans, California MUTCD, as referenced therein, and in accordance with the following Special Provisions. To the extent the California Department of Transportation Standard Specifications implement the STATE CONTRACT ACT, (or certain provisions of the Public Contracts code which are inapplicable to charter cities) they shall not be applicable.

In case of conflict or discrepancy between any of the Contract Documents, the order of documents listed below shall be the order of precedence, with the first item listed having the highest precedence.

1. Contract, Including Change Orders (changes last in time are first in precedence)
 - a. Project Special Provisions
 - b. Project Plans
 - c. City of Stockton Standard Specifications
 - d. City of Stockton Standard Drawings
 - e. Revised Caltrans Standard Specifications
 - f. Caltrans Standard Specifications
 - g. Revised Caltrans Standard Plans
 - h. Caltrans Standard Plans
 - i. Supplemental Project Information

Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these specifications, the special provisions, or the plans, the contractor shall apply to the Engineer in writing for such further explanations as may be necessary and shall conform to them as part of the contract. In the event of any doubt or question arising respecting the true meaning of these specifications, the special provisions or the plans, reference shall be made to the Engineer, whose decision thereon shall be final. With regards to discrepancies or conflicts between written dimensions given on drawings and the scaled measurements, the written dimensions shall govern. With regards to discrepancies or conflicts between large-scale drawings and small-scale drawings, the larger scale shall govern. With regards to discrepancies or conflicts between detailed drawings and referenced standard drawings or plans, the

detailed drawings shall govern. In the event where provisions of codes, safety orders, contract documents, referenced manufacturer’s specifications or industry standards are in conflict, the more restrictive and higher quality shall govern.

1-1.02 PLANS

The bidder's attention is directed to the provisions in Section 1-1.03 "Definitions", of the Standard Specifications and Section 1-1.07 "Definitions", of the Standard Specifications.

See Instructions to Bidders for complete instructions and documentation forms.

1-1.03 TERMS AND DEFINITIONS

Wherever in the Standard Specifications, Special Provisions, Notice to Contractors, Proposal, Contract, or other contract documents the following terms are used, the intent and meaning shall be interpreted as follows:

City or Owner -	City of Stockton
Director -	Director of Public Works, City of Stockton
Standard Specifications -	Current City of Stockton, Standard Plans and Specifications, inclusive of all current revisions, and amendments, unless otherwise stated.
Caltrans Specifications -	State of California, Department of Transportation, Current Standard Plans and Specifications, inclusive of all current revisions, and amendments, unless otherwise stated.
Laboratory -	City of Stockton Department of Public Works Laboratory or consultant's laboratory
Department -	Department of Public Works, City of Stockton
Engineer -	City Engineer, City of Stockton, acting either directly or through properly authorized Engineer agents and consultants.
California MUTCD	Latest edition of California Manual on Uniform Traffic Control Devices (MUTCD), and any amendments and revisions thereto.
Working Day	defined as any eight-hour day, except as follows: Saturday, Sunday, and City recognized holidays.

SECTION 2 – BIDDING AND BID PROTESTS

2-1.01 GENERAL

The bidder's attention is directed to the "Notice to Contractors" for the date, time and location of the mandatory pre-bid meeting, if applicable. Refer to the City of Stockton's Bid Flash webpage: <http://www.stocktongov.com/services/business/bidflash/default.html> The bidder's attention is directed to the provisions in Section 2, "Bidding," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation for the submission of the bid.

The Bidder's Bond form mentioned in the last paragraph in Section 2-1.34, "Bidder's Security," of the Standard Specifications will be found following the signature page of the Proposal.

In conformance with Public Contract Code Section 7106, a Non-collusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Non-collusion Affidavit.

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

2-1.02 BID PROTEST

In case of Bid protests, attention is directed to the provisions in Section 2-1.51, "Bid Protests" of the Standard Specifications. The party filing the protest must have submitted a bid for the work. A subcontractor of a bidder may not submit a bid protest.

A copy of bid protests is to be sent to the following address:

Attention: Thinh Phan
City of Stockton
Public Works Department
22 E. Weber Avenue, Room 301
Stockton, CA 95202

SECTION 3 – CONTRACT AWARD AND EXECUTION

The bidder's attention is directed to the provisions in Section 3, "Contract Award and Execution," of the Caltrans Specifications and these Special Provisions.

The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

SECTION 4 – SCOPE OF WORK

Attention is directed to the provisions in Section 4, “Scope of Work” of the Standard Specifications, Standard Specification, and these Special Provisions.

At no time shall construction begin without receiving notice that the contract has been approved by the City Attorney or an authorized representative. The Contractor shall follow the sequence of construction and progress of work as specified in Section 10-1.01, "Order of Work", of these Special Provisions.

The Contractor shall diligently prosecute all work items to completion.

Full compensation for any additional costs occasioned by compliance with the provisions in this section shall be considered as included in the prices paid for the various contract items of work, and no additional work compensation will be allowed therefore.

Bidders will be required to carefully examine these special provisions and attachments to judge for themselves as to the nature of the work to be done and the general conditions relative thereto and the submission of a proposal hereunder shall be considered prima-facie evidence that the bidder has made the necessary investigation and is satisfied with respect to the conditions to be encountered, the character, quantity and quality of the work performed. For work to be completed, contractors are advised to visit and review the job site prior to the submission of their bid. Bids not presented on the City forms shall be cause for considering the bid as non-responsive.

Bidders must be thoroughly competent and capable of satisfactorily performing the work covered by the proposal, and when requested shall furnish such statements relative to previous experience on similar work, the plan or procedure proposed, and the organization and the equipment available for the contemplated work, and any other as may be deemed necessary by the City Engineer in determining such competence and capability.

It shall be understood that the Contractor shall be required to perform and complete the proposed work in a thorough and diligent manner, and to furnish and provide in connection therewith all necessary labor, tools, implements, equipment, materials and supplies. The Contractor is responsible to take all necessary precautions and use best practices in the industry to perform all work require completing the project.

4-1.01 CHANGES AND EXTRA WORK

Attention is directed to the provisions in Section 4-1.05A “Changes and Extra Work” of the Standard Specifications and these Special Provisions.

4-1.02 DIFFERING SITE CONDITIONS (23 CFR 635.109)

Attention is directed to the provisions in Section 4-1.06, "Differing Site Conditions," of the Caltrans Specifications and the Standard Specifications. Contractor shall notify the Engineer if he/she finds physical conditions differing materially from contract documents.

4-1.03 CLEANUP

The Contractor's attention is directed to Sections 4-1.13, "Cleanup," of the Caltrans Specifications.

The Contractor shall conduct and cause all working forces at the site to maintain the site in a neat orderly manner throughout the construction operations. The work shall be conducted in a manner that will control the dust. When ordered to provide dust control, the Contractor shall use water to reduce the dusty conditions all to the satisfaction of the Engineer. During construction, the Contractor shall remove all rubbish and debris as it is generated. Upon completion of the work, the Contractor shall remove all equipment, debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer.

SECTION 5 – CONTROL OF WORK

Attention is directed to the Instruction to Bidders, provisions in Section 5 "Control Work" of the Standard Specifications, Standard Specification and these special provisions.

5-1.01 CONTRACT COMPONENTS

Attention is directed to the provisions in Section 5-1.02,"Contract Components" of the Standard Specifications. If a discrepancy found or confusion arises, submit a Request for Information (RFI).

5-1.02 SUBCONTRACTING

The contractor shall **physically attach** the FHWA Form 1273 (revised May 1, 2012, which is included in Instructions to Bidders) to all contracts, subcontracts, and lower tier subcontracts.

Attention is directed to the provisions in Section 5-1.13A, "Subcontracting," of the Standard Specifications, and Caltrans Specifications.

Pursuant to the provisions of Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at: <http://www.dir.ca.gov/DLSE/Debar.html>

5-1.03 COORDINATION WITH OTHER ENTITIES

5-1.03A PERMITS

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work. The Environmental Quality Act (Public Resources Code, Sections 21000 to 21176, inclusive) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of those statutes in obtaining the permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays to the work. In the event that the City has obtained permits, licenses or other

authorizations, applicable to the work, in conformance with the requirements in the Environmental Quality Act, the Contractor shall comply with the provisions of those permits, licenses and other authorizations. The following is a non-inclusive list of the required permits and/or licenses:

- Contractor's License. At a minimum the Contractor shall possess, at the time of bid and maintain throughout the duration of the contract, a valid California Class A or C-13.
- Business License. Contractor shall possess, prior to the execution of the contract and maintain throughout the duration of the contract, a valid City of Stockton business license.
- City of Stockton Encroachment Permit. The Contractor is responsible for obtaining a permit and paying fees. Permit must be obtained from the City Permit Center (209) 937-8366 before the start of construction.
- Construction Notification, dust control – The Contractor is responsible for the preparation and submittal of the San Joaquin Valley Air Pollution Control District Construction Notification Form. More information can be found at the following web site: <http://www.valleyair.org>.
- Construction Water – The Contractor is responsible for obtaining a permit for water from California Water Service, as applicable, for construction water obtained from a City hydrant. This permit shall be approved by the City of Stockton Fire Department.
- Construction and Demolition Debris Recycling- Submit completed report within 14 days of project completion. The completed report must be accompanied by official weight tags or receipts verifying the information provided in the report and must be submitted to the City of Stockton Public Works Department at 22 E. Weber Ave., Room 301, Stockton, CA 95202. Failure to provide the C&D Debris Recycling Report will result in a 5% withholding of the contract amount.

Full compensation for conforming to the provisions in this section including applicable permit fees, shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed, therefore.

5-1.04 SUBMITTALS

The following is a list of anticipated submittals for the project. The list is provided to aid the Contractor in determining the scope of work, but is not intended to be all inclusive and additional submittals may be required:

- Contractor Safety Plan
- Emergency Contacts/Authorized Representatives
- DAS-140 & DAS-142 Forms
- Local Hire Employment Ordinance/Local Employment Ordinance Compliance Report (monthly)

- Critical Path Schedule
- Traffic Handling/Construction Staging Plans
- Funding Sign(s) Installed (if applicable)
- Pre-construction Monument Preservation Survey
- Temporary Traffic Control (includes Pedestrian Detour Plan)
- Portland Cement Concrete Mix Design
- Concrete Admixtures
- Fencing Maintenance/Fabric Shop Drawings
- Survey Monument Boxes
- Staging Agreement with private property owners (if applicable)
- City of Stockton Encroachment Permit
- City's Construction and Demolition Debris Recycling Report
- List of submittals
- Product submittals
- Lead Compliance Plan
- A Schedule of Values

The Contractor shall transmit each submittal to the Engineer for review and approval with the submittal form approved by the Engineer. Submittals shall be sequentially numbered on the submittal form. Resubmittals shall be identified with the original number and a sequential resubmittal suffix letter. The original submittal shall be numbered X. The first resubmittal shall be numbered X-a and so on. Identify on the form the date of the submittal, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and/or special provision number, as appropriate. The Contractor shall sign the form certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and contract documents. Any incomplete submittals will be returned for resubmittal.

Schedule submittals to expedite the Project, and deliver to Engineer at the Engineer's office, see Section 10-1.01, "Order of Work," of these Special Provisions.

For each submittal for review, allow 15 calendar days excluding delivery time to and from the Contractor.

Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

When revised for resubmission, identify all changes made since previous submission.

Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

Submittals not requested either in the Contract Documents or in writing from the Engineer will not be recognized or processed.

Within 10 calendar days after Notice of Award submit a complete list of all submittals to be submitted and the dates when they will be submitted. **All submittals shall be submitted within 15 calendar days from the date the Notice of Award; otherwise project working days will commence, with or without issuance of the Notice to Proceed.**

Wherever called for in the Contract Documents, or where required by the Engineer, the Contractor shall furnish to the Engineer for review, 1 set, plus one reproducible copy, of each shop drawing submittal. The term “Shop Drawings” as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, list, graphs, catalog sheets, data sheets, and similar items. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of California, unless otherwise directed.

Normally, a separate submittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single form will be permitted only when the items taken together constitute a manufacturer’s “package” or are so functionally related that expediency indicates review of the group or package as a whole. A multi-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the Engineer.

Except as may otherwise be indicated herein, the Engineer will return prints of each submittal to the Contractor with their comments noted on the submittal. The Contractor shall make complete and acceptable submittals to the Engineer by the second submission of a submittal item. The City reserves the right to withhold monies due to the Contractor to cover additional costs of the Engineer’s review beyond the second submittal.

If a submittal is returned to the Contractor marked “NO EXCEPTIONS TAKEN”, formal revision and resubmission of said submittal will not be required.

If a submittal is returned to the Contractor marked “MAKE CORRECTIONS NOTED”, formal revision and resubmission of said submittal will not be required.

5-1.05 JOB SITE APPEARANCE

Attention is directed to Section 4-1.13 “Cleanup” of the Caltrans Specifications, Section 5-1.31 “Job Site Appearance” of the Standard Specifications, and these Special Provisions.

The Contractor shall maintain a neat appearance to the work.

Broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. Contractor shall pay to the City of Stockton the sum of Two Hundred Fifty Dollars (\$250) for every calendar day where debris has remained on the job site overnight.

Full compensation for conforming to the provisions in this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

5-1.06 STAGING AREA

Attention is directed to Section 5-1.36E, "Use of Private property," of the Standard Specification and these Special Provisions. The street right-of-way shall be used only for activities that are necessary to perform the required work. The Contractor shall not occupy the right-of-way or allow others to occupy the right-of-way for material storage or other purposes that are not necessary to perform the required work.

5-1.07 CONSTRUCTION STAKING

Section 5-1.26, "Construction Surveys", of the Standard Specifications is deleted, and replaced with the following:

1. The Contractor shall be responsible for all construction survey stakes necessary to construct the project in accordance to the lines, grades, sections, stage construction/traffic handling, and traffic signalization, pavement delineation plan described in the plans and specifications.
2. Contractor shall be responsible referencing all existing monumentation within the limits of the project prior to removal of any existing monuments. Monument referencing shall be reviewed and approved by the engineer prior to commencing of the work.
3. The Contractor shall employ a Land Surveyor registered in the State of California or an appropriately registered Civil Engineer to perform such survey work. All stakes and marks set by the Contractor's Land Surveyor or Civil Engineer shall be carefully preserved by the Contractor. In case such stakes and marks are destroyed or damaged, they will be promptly replaced, at the direction of the Engineer at no additional cost to the City. Copies of all field notes and cut sheets shall be provided to the City at no additional cost to the City.

Full compensation for conforming to the provisions in this section shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

5-1.08 INCREASED OR DECREASED QUANTITIES

The City reserves the right to make such alterations, deviations, additions to, or omissions from the plans and specifications, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable and to require such extra work as may be determined by the Engineer to be required for the proper completion or construction of the whole work contemplated, without adjustment in the unit price as bid.

Attention is directed to Section 4-1.02, “Changes and Extra Work,” of these Special Provisions. Any such changes will be set forth in a contract change order, which will specify the work to be done in connection with the change made, adjustment of contract time, if any, and the basis of compensation for such work. A contract change order will not become effective until approved by the City Manager and / or City Council.

5-1.09 STOP NOTICE WITHHOLDS

Section 9-1.16E(4) “Stop Notice Withholds” of the Standard Specifications is amended to read as follows:

"The City of Stockton, by and through the Department of Public Works, 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 Code of Civil Procedures."

5-1.10 RIGHTS IN LAND

All work, equipment parking, or any other activity associated with the project shall be confined to the project limits. The Contractor's use of any other property exclusively in connection with this project shall be by a written agreement between the property owner and the Contractor. A certified copy of any such agreement shall be furnished to the Engineer prior to the use of such property by the Contractor.

Full compensation for conforming to the provisions in this section shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

5-1.11 AS-BUILT/RECORD DRAWINGS

The Contractor shall maintain a complete set of drawings on-site for the purpose of keeping up to date all field modifications. This plan set shall be available for review by the project Inspector and the Engineer. These plans shall be provided to the Inspector after the completion of construction at the Post-Construction Meeting and prior to the final payment. All revisions, modifications, and/or changes shall be marked clearly. Notes and dimensions shall be in red and be clear and legible. These plans will be used by the Engineer to mark up the original plan sheets with the revisions made during construction.

No tress shall be removed during the course of construction by the Contractor or his Subcontractor.

Full compensation for furnishing the As-Built/Record Drawings shall be considered included in the prices paid for the various bid items of work, and no additional compensation will be considered therefore.

5-1.12 NOTICE OF POTENTIAL CLAIM

The Contractor shall not be entitled to the payment of any additional compensation for any cause, or for the happening of any event, thing, or occurrence, including any act or

failure to act, by the Engineer, unless he has given the Engineer due written notice of potential claim as hereinafter specified. However, compliance with this section shall not be a prerequisite for matters within the scope of the protest provisions under “Changes” or “Time of Completion” or within the notice provisions in “Liquidated Damages”. The written notice of potential claim shall set forth the items and reasons which the Contractor believes to be eligible for additional compensation, the description of work, the nature of the additional costs and the total amount of the potential claim. If based on an act or failure to act by the Engineer, written notice for potential claim must be given to the Engineer prior to the Contractor commencing work. In all other cases, written notice for potential claims must be given to the Engineer within 15 days after the happening of the event, thing or occurrence giving rise to the potential claim.

It is the intention of this Section that potential differences between the parties of this Contract be brought to the attention of the Engineer at the earliest possible time so that appropriate action may be taken and settlement may be reached. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any act or failure to act by the Engineer or any event, thing or occurrence for which no written notice of potential claim was filed.

5-1.13 RECORDS

The Contractor shall maintain cost accounting records for the contract pertaining to, and in such a manner as to provide a clear distinction between, the following 6 categories of costs of work during the life of the contract:

- A. Direct costs of contract item work.
- B. Direct costs of changes in character in conformance with Sections 4-1.05B and 9-1.15, "Work-Character Changes," of the Caltrans Specifications.
- C. Direct costs of extra work in conformance with Section 4-1.02, "Changes and Extra Work," of these Special Provisions.
- D. Direct costs of work not required by the contract and performed for others.
- E. Direct costs of work performed under a notice of potential claim in conformance with the provisions in Section 5-1.43, "Potential Claims and Dispute Resolution," of the Caltrans Specifications.
- F. Indirect costs of overhead.

Cost accounting records shall include the information specified for daily extra work reports in Section 5-1.27, "Records," of the Caltrans Specifications. The requirements for furnishing the Engineer completed daily extra work reports shall only apply to work paid for on a force account basis.

The cost accounting records for the contract shall be maintained separately from other contracts, during the life of the contract, and for a period of not less than 3 years after the date of acceptance of the contract. If the Contractor intends to file claims against the Department, the Contractor shall keep the cost accounting records specified above until complete resolution of all claims has been reached.

5-1.14 NONCOMPLIANT AND UNAUTHORIZED WORK

Attention is directed to Section 5-1.30, "Noncompliant and Unauthorized Work," of Caltrans Specifications.

5-1.15 PROPERTY AND FACILITY PRESERVATION

Attention is directed to Section 5-1.36, "Property and Facility Preservation," of Caltrans Specifications and these Special Provisions. Due care shall be exercised to avoid injury to existing highway improvements or facilities, utility facilities, adjacent property, and trees, shrubs and other plants that are not to be removed. Trees, shrubs and other plants that are not to be removed, and pole lines, fences, signs, markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and water lines, all highway facilities and any other improvements or facilities within or adjacent to the highway shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards, approved by the Engineer, to protect the objects from injury or damage. If the objects are injured or damaged by reason of the Contractor's operations, the objects shall be replaced or restored at the Contractor's expense.

The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the work, or as good as required by the specifications accompanying the contract, if any of the objects are a part of the work being performed under the contract. The Engineer may make or cause to be made those temporary repairs that are necessary to restore to service any damaged highway facility. The cost of the repairs shall be borne by the Contractor and may be deducted from any moneys due or to become due to the Contractor under the contract. The fact that any underground facility is not shown upon the plans shall not relieve the Contractor of the responsibility under this Section of these Special Provisions. It shall be the Contractor's responsibility, pursuant thereto, to ascertain the location of those underground improvements or facilities which may be subject to damage by reason of the Contractor's operations.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in protecting or repairing property as specified in this Section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

5-1.16 PRE-CONSTRUCTION SURVEY

Attention is directed to Section 5-1.36D, "Survey Monuments" of the Caltrans Specifications and these Special Provisions. The Contractor shall perform a pre-construction survey of all existing structures, pavements, and other aboveground facilities within the project limits prior to beginning any work, noting their condition by means of photographs and video tapes supplemented by written documentation, where applicable.

Color photographs shall be taken with a digital camera at locations that are appropriate to show pre-existing conditions. Each photograph shall show the date and time the photograph was taken and clearly labeled showing the location, viewing direction, and

any special features noted. Digital files of each photograph and a copy of videotapes shall be submitted to the Engineer.

Preserving and Perpetuating Survey Monuments

The contractor shall exercise due caution and shall carefully preserve bench marks, control points, reference points and all survey monuments, and shall bear all expenses for replacement and/or error caused by his/her unnecessary loss or disturbance. The contractor shall consult with a licensed land surveyor or civil engineer licensed to practice land surveying in California prior to beginning construction to ensure that any preconstruction corner records, as required by the State of California Professional Land Surveyor’ ACT have been filed with the County Surveyor, pursuant to Section 8771(a-f) of the California Business and Profession Code.

Action by:	Action:
<i>Contractor's Land Surveyor</i>	<ol style="list-style-type: none"> 1. Identifies existing survey monuments. 2. Lists all existing survey monuments. 3. Ties out / performs construction staking of survey monuments. 4. Indicates survey monuments on construction plans. 5. Files all pre-construction Corner Records or Records of Survey with San Joaquin County. The Corner Records or Record of Survey will show monuments within the area of construction reasonably subject to removal or disturbance not shown on a recent record document (recent record document is a filed survey map or corner record document completed with acceptable modern survey methods that includes survey ties from monuments within the construction area to monuments outside of the construction area). 6. Submits copies of pre-construction Corner Records or Records of Survey filed with San Joaquin County to City Engineer/Project Manager
<i>Contractor</i>	<ol style="list-style-type: none"> 7. Preserves/perpetuates all survey monumentation during construction, including, but not limited to, those listed. 8. Restores survey monuments disturbed by construction.
<i>Contractor's Land Surveyor,</i>	<ol style="list-style-type: none"> 9. Files all post-construction Corner Records and Records of Survey with San Joaquin County for all monuments disturbed during construction 10. Submits copies of Corner Records or Records of Survey filed with San Joaquin County to City Engineer/Project Manager.

Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile reestablishment of any point or line of the survey.

When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or registered civil engineer prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, reconstructed, maintained, resurfaced, or relocated, and a corner record or record of survey of the references shall be filed with the county surveyor. They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location if any monument could be destroyed, damaged, covered, or otherwise obliterated, and a corner record or record of survey filed with the county surveyor prior to the recording of a certificate of completion for the project. Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area. It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section. It shall be the duty of every land surveyor or civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, streets or right-of-way or easement lines shall not be deemed adequate for this purpose unless specifically noted on the corner record or record of survey of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.

The decision to file either the required corner record or a record of survey pursuant to subdivision shall be at the election of the licensed land surveyor or registered civil engineer submitting the document.

Full compensation for pre-construction survey shall be included in the contract price for the various items of work involved, and no additional compensation will be allowed therefore.

5-1.17 COOPERATION

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to those limits, the Contractor shall cooperate with all the other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces. When 2 or more contractors are employed on related or adjacent work, or obtain materials from the same material source, as provided in Section 6, "Control of Materials" of the Caltrans Specifications, each shall conduct their operations in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the

other for all damage to work, to persons or property caused to the other by their operations, and for loss caused the other due to unnecessary delays or failure to finish the work within the time specified for completion.

The Contractor shall protect from damage any utility facilities that are to remain in place, be installed, relocated, adjusted, or otherwise rearranged.

The Contractor should note that the following utility companies and other agencies maintain facilities within the project area and may have forces in the project area or adjacent thereto:

- PG&E
- AT&T and other phone companies
- City of Stockton Municipal Utilities Department
- Comcast Cable Company
- California Water Service Company
- Reclamation District 1614
- Reclamation District 828

The Contractor shall verify the horizontal and vertical locations of all existing utilities prior to start of construction. The Contractor shall be responsible for the repair and replacement of these or any other facilities damaged during construction. A minimum of forty-eight (48) hours or two (2) working days prior to beginning construction, the Contractor shall notify Underground Services Alert (USA), telephone (800) 227-2600, to have existing facilities marked in the field.

Installation and/or relocation of the aforementioned utilities and other agencies' facilities will require coordination with the Contractor's operations. The Contractor shall be responsible for contacting, scheduling, and coordinating with all utility companies and other agencies whose facilities will be affected by the project.

The Contractor shall take care to avoid working in any area of the project, which may conflict with the work underway by the utility companies. The Contractor's construction schedule shall be prepared to avoid utility work.

The Contractor shall cooperate completely with all utility companies having facilities within the project area.

Attention is directed to the possible existence of underground facilities not known to the City or in a location different from that which is shown on the plans or in these Special Provisions. The Contractor shall take steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service.

Payment for complying with this Special Provision shall be included in the various items of work, and no additional compensation will be allowed therefore.

SECTION 6 – CONTROL OF MATERIALS

Attention is directed to the provisions in Section 6, "Control of Materials," of the Standard Specifications, and these Special Provisions.

6-1.01 BUY AMERICA REQUIREMENTS

Attention is directed to the "Buy America" requirements of the Surface Transportation Assistance Act of 1982 (Section 165) and the regulations adopted pursuant thereto. Furnish steel and iron materials to be incorporated into the work with certificates of compliance. Steel and iron materials must be produced in the U.S. except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)];
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, materials produced outside the U.S. may be used.

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition;
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials.

6-1.02 QUALITY ASSURANCE PROGRAM

Refer to Instruction to Bidders.

6-1.03 TESTING

Testing of materials and work shall conform to the provisions in Section 6, "Control of Materials" of the Caltrans Specifications and these special provisions. Whenever the provisions of Section 6 of the Caltrans Specifications refer to tests or testing, it shall mean tests to assure the quality and to determine the acceptability of the materials and work. Contractor's attention is directed to the City's Quality Assurance Program in Instructions to Bidder Package.

The Engineer will deduct the costs for testing of materials and work found to be unacceptable, as determined by the tests performed by the Department and the costs for testing of material sources identified by the Contractor which are not used for the work, from moneys due or to become due to the Contractor. The amount deducted will be determined by the engineer.

6-1.04 PRE-QUALIFIED AND TESTED SIGNING AND DELINEATION MATERIAL

The California Department of Transportation maintains the list of Prequalified and Tested

signing and delineation materials and products. Approval of pre-qualified and tested products and materials shall not preclude the Engineer from sampling and testing any of the signing and delineation materials or products at any time.

None of the listed signing and delineation materials and products shall be used in the work unless such material or product is listed on the California Department of Transportation's List of Approved Traffic Products. A Certificate of Compliance shall be furnished as specified in Section 6, "Control of Materials", of the Caltrans Specifications for signing and delineation materials and products. Said certificate shall also certify that the signing and delineation material or product conforms to the pre-qualified testing and approval of the California Department of Transportation, Division of Traffic Operations, and was manufactured in accordance with the approved quality control program.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products will be considered for addition to said approved pre-qualified and tested list if the manufacturer of the material or product submits to the Division of Traffic Operations of the California Department of Transportation a sample of the material or product. The sample shall be sufficient to permit performance of all required tests. Approval of such materials or products will be dependent upon a determination as to compliance with the Specifications and any test the California Department of Transportation may elect to perform. The list of approved pre-qualified and tested signing and delineation materials and products can be found at the California Department of Transportation Web Site:

<https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/mets/signing-and-delineation-materials-a11y.pdf>

SECTION 7 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7-1.01 GENERAL

Attention is directed to Section 7 "Legal Relations and Responsibility to the Public" of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

7-1.02 MAINTAINING PUBLIC CONVENIENCE AND SAFETY

Attention is directed to Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", and Section 12, "Temporary Traffic Control", of the Caltrans Specifications. Attention is also directed to Part 6 of the California MUTCD and Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", of Standard Specifications, and Section 12-1.01,

“Maintaining Traffic” of these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as provided in said sections and Part 6 of the California MUTCD.

7-1.03 TRENCH SAFETY

Attention is directed to Sections 7-1.02K(6)(b), "Excavation Safety" of the Standard Specifications and these Special Provisions.

If required, the Contractor shall furnish all labor, equipment, and materials required to design, construct, and remove all shoring, lagging, cribbing, piling, and/or other types of support for the wall of any open excavation required for the construction of this project.

In making excavations for the project, the Contractor shall be fully responsible for providing and installing adequate sheeting, shoring, and bracing, as may be necessary as a precaution against slides or cave-ins and to fully protect all existing improvements of any kind from damage.

Any open trench must be protected & flagged from the public at the end of each day.

The Contractor shall place steel plates over all open trenches or excavations. All trench plating shall be placed to comply with ADA accessibility requirements.

The Contractor shall be solely responsible for any damages which may result from his failure to provide adequate shoring to support the excavations under any or all of the conditions of loading which may exist or which may arise during the construction project. Nothing herein shall be deemed to allow the use of shoring, sloping, or protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

Full compensation for conforming to the provisions in this section shall be included in the prices paid for various bid items, and no additional compensation will be made therefore.

7-1.04 PUBLIC CONVENIENCE

Contractor's attention is directed to the Section 12-1.01 "Maintaining Traffic" of these Special Provisions, Section 7-1.03 "Public Convenience" of the Standard Specifications, and these Special Provisions.

The Contractor shall inform the City Fire Department, City Police Department, City Traffic Department, Municipal Utilities Department (MUD), and all affected utilities no later than three (3) working days before work is to begin.

The Contractor shall provide the City with the name and telephone number (business, home and mobile) of three (3) representatives available at all times during the duration of the contract. Said names and telephone numbers shall be provided to the City of Stockton Public Works, Fire, and Police Departments.

The Contractor shall circulate printed form letters, approved by the Engineer, explaining

the project to be done and the length of time inconvenience will be caused by the project and deliver same to the residents and businesses to be affected at least three (3) working days before work is to commence on their street. In addition, the Contractor shall provide temporary "No Parking" signs posted three (3) working days in advance of the work. Such signs shall be placed no further than fifty (50) feet apart. The additional "No Parking" signs shall be removed upon completion of the work and the opening of the street to traffic. It shall be the Contractor's responsibility to remove any vehicles obstructing his operations.

Full compensation for conforming to the provisions in this section shall be included in the prices paid for various bid items, and no additional compensation will be made therefore.

7-1.05 PUBLIC SAFETY

Contractor's attention is directed to the Section 12-1.01 "Maintaining Traffic" of these Special Provisions, Section 7-1.04 "Public Safety" of the Standard Specifications, and these Special Provisions. Nothing in the specifications voids the contractor's public safety responsibilities.

All safety devices, their maintenance, and use shall conform to the latest requirements of OSHA and shall conform to the applicable provisions of the Part 6 "Temporary Traffic Control", of the **California MUTCD**. It shall be the complete responsibility of the Contractor to protect persons from injury and to avoid property damage. Adequate barricades, construction signs, flashers, and other such safety devices, as required, shall be placed and maintained during the progress of the construction work, until the project is completed. Whenever required, flaggers shall be provided to control traffic.

The Contractor shall provide for the proper routing of vehicles and pedestrian traffic in a manner that will hold congestion and delay of such traffic to practicable minimum by furnishing, installing, and maintaining all necessary temporary signs, barricades, and other devices and facilities, as approved by the City Traffic Engineer. As the work progresses, the Contractor shall relocate, subject to the City Traffic Engineer's approval, such devices and facilities as necessary to maintain proper routing. The Contractor shall notify the City Traffic Engineer a minimum of three (3) working days prior to the relocation of any traffic control devices.

When work is not in progress on a trench or other excavation that requires closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Full compensation for furnishing, installing, moving, and removing of all necessary traffic control devices including, but not limited to, signing, striping, barricades, and flagging shall be included in the bid item for "Traffic Control System", as shown on the bid schedule, and no additional compensation will be allowed therefor.

7-1.06 INDEMNIFICATION AND INSURANCE

Attention is directed to Section 7-1.05 "Indemnification" and Section 7-1.06, "Insurance"

of the Standard Specifications, and Instruction to Bidders for this project.

Indemnification and Insurance shall conform to an Exhibit, which is attached to this project bid package and incorporated by this reference.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

SECTION 8 – PROSECUTION AND PROGRESS

Attention is directed to the provisions in Section 8 of the Standard Specifications, and these Special Provisions.

8-1.01 TIME OF COMPLETION

Attention is directed to the provisions in Sections 8-1.05, "Time", and 8-1.07, "Delay" of the Standard Specifications, and these Special Provisions.

The contract for the performance of the work and the furnishing of materials shall commence within ten (10) days from the Notice to Proceed date and shall be diligently prosecuted to completion before the expiration of the working days specified in this section from the date of said commencement.

Submittals shall be delivered to the Engineer within fifteen (15) calendar days of execution of contract. The contractor shall not start any work on the job site until the Engineer approves the submittals. Refer to section 5-1.04, "Submittals" of these Special Provisions. The Contractor shall only enter the jobsite prior to approval of the above submittals for purposes of measuring field dimensions and locating utilities.

The Contractor shall diligently prosecute the contract work to completion within thirty-five (35) working days. The days to finish the punch list, provided by the City, are included in the Original Working Days.

Notice to Proceed will not be issued until all complete submittals have been reviewed at least once. Correction indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the contract requirements. The Engineer's review of Contractor Shop Drawing submittals shall not relieve the contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to error in Contractor submittals. The Contractor shall be responsible for the dimension and the design of adequate connections and details.

Should the Contractor choose to work on a Saturday, Sunday, or on a holiday recognized by the labor unions, the Contractor shall reimburse the City of Stockton the actual cost of engineering, inspection, testing, superintendent, and/or other overhead expenses, which are directly chargeable to the contract. The approximate cost is \$100 per hour. Should such work be undertaken at the request of the City, reimbursement will not be required.

Full compensation for conforming to the provisions in this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed, therefore.

8-1.02 LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.10, "Liquidated Damages", of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

The Contractor shall pay liquidated damages to the City of Stockton in the amount of \$2,000 (two thousand dollars) per day for each and every calendar day that the work, with the exception of the maintenance period, remains incomplete after the expiration of the contract working days specified in these Special Provisions.

Full compensation for any costs required to comply with the provisions in this section shall be considered to be included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

8-1.03 PROGRESS SCHEDULE

GENERAL

Summary

Comply with Section 8-1.02, "Schedule," of the Caltrans Specifications, except you must:

1. Use Microsoft Project.

The Contractor is responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

Definitions

Contract completion date: The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer as specified in Section 8-1.05, "Time," of the Caltrans Specifications.

Data date: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."

Float: The difference between the earliest and latest allowable start or finish times for an activity.

Milestone: An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.

Near critical path: A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.

Time-scaled network diagram: A graphic depiction of a Critical Path Method (CPM) schedule comprised of activity bars with relationships for each activity represented by

arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

Total float: The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

Submittals

General Requirements

Submit to the Engineer baseline, monthly updated, and final updated schedules, each consistent in all respects with the time and order of work requirements of the contract. Perform work in the sequence indicated on the current accepted schedule.

Each schedule must show:

1. Calculations using critical path method to determine controlling activities.
2. Duration activities less than 20 working days.
3. Each required constraint. Constraints other than those required by the special provisions may be included only if authorized.

The Engineer's review and acceptance of schedules does not waive any contract requirements and does not relieve the Contractor of any obligation or responsibility for submitting complete and accurate information. Correct rejected schedules and resubmit them within 7 days of notification by the Engineer, at which time a new review period of 7 days will begin.

Errors or omissions on schedules do not relieve the Contractor from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either you or the Engineer discovers that any aspect of the schedule has an error or omission, the Contractor must correct it on the next updated schedule.

Baseline Schedule

Submit to the Engineer a baseline schedule within 20 days of approval of the contract. Allow 20 days for the Engineer's review after the baseline schedule and all support data are submitted. Beginning the week the baseline schedule is first submitted, meet with the Engineer weekly to discuss and resolve schedule issues until the baseline schedule is accepted. The baseline schedule must include the entire scope of work and must show how the Contractor is plans to complete all work contemplated. Multiple critical paths and near-critical paths must be kept to a minimum. A total of not more than 50 percent of the baseline schedule activities must be critical or near critical, unless otherwise authorized by the Engineer. The baseline schedule must not extend beyond the number of working days originally provided in these special provisions.

Updated Schedule

Submit an updated schedule and meet with the Engineer to review contract progress on or before the 1st day of each month, beginning one month after the baseline schedule is

accepted. Allow 5 days for the Engineer's review after the updated schedule and all support data are submitted, except that the review period will not start until any previous month's required schedule is accepted. Updated schedules that are not accepted or rejected within the review period are considered accepted by the Engineer.

The updated schedule must show:

1. Data date of the 21st day of the month or other date established by the Engineer
2. Changes from approved revised schedules

Final Updated Schedule

Submit a final updated schedule with actual start and finish dates for the activities within 30 days after completion of contract work. Provide a written certificate with this submittal signed by the Contractor's project manager or an officer of the company stating, "To my knowledge and belief, the enclosed final updated schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

8-1.04 FEDERAL LOBBYING RESTRICTIONS

Refer to Instructions to Bidders.

8-1.05 PRE-CONSTRUCTION MEETING

The City of Stockton Public Works Department will schedule a pre-construction meeting with the Contractor following award of the contract and prior to commencing work (Contact 209-937-8885). The City will issue the Notice to Proceed following execution of the Contract. This meeting will be held in the City of Stockton, Public Works Department.

8-1.06 POST-CONSTRUCTION MEETING

The Contractor shall attend a post-construction meeting that will be arranged by the Public Works Department (Contact 209-937-8885) after completion of work and prior to acceptance and final payment. The project Design Engineer and the project Inspector will also attend this meeting. The purpose of the meeting will be to discuss the project and any related issues that can help improve future Public Works construction projects. This meeting will be held in the City of Stockton, Public Works Department.

SECTION 9 – PAYMENT

All measurements and payments for this work shall conform to all applicable provisions on Section 9, "Measurement and Payment" of the Standard Specifications, Instructions to Bidders, and these special provisions.

No partial payment will be made for any materials that are furnished on hand, but not yet installed or incorporated in the work. The work to be performed consists of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, unless specifically excepted, necessary, or required to install all work as may be necessary as indicated on the plans, in the specifications, and as required by the

Engineer.

Upon completion of all of the work included herein, including approved contract change orders as appropriate, the Contractor may request that the Engineer file a Notice of Completion for the purposes of relief of maintenance and release of retention.

All materials designated to be removed shall become the property of the Contractor, unless otherwise noted, and shall be disposed in accordance with local, State, and Federal laws and ordinances.

Full compensation for disposal of materials and performing the work in these Special Provisions shall be included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

9-1.01 SCHEDULE OF VALUES

Submit a schedule of values within 15 days after Contract approval. Value schedules for each lump sum bid item shall be prepared and submitted to the Engineer as set forth in Section 9-1, "Lump Sum Contracts", of the Standard Specifications and Section 9-1.16B, "Schedule of Values," of the Caltrans Specifications. Unless otherwise approved by the Engineer, materials on hand, but not incorporated into the work, shall not be included for measurement or for purposes of payment.

9-1.02 DESCRIPTION OF WORK

The work to be performed consists of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, unless specifically excepted, necessary, or required to install concrete sidewalk, curb and gutter, wheel chair ramps, pavement improvements, sanitary sewer improvements, and signage and striping improvements, as further delineated on the plans and described in these Special Provisions.

SMITH CANAL FOOTBRIDGE FENCING MAINTENANCE PLAN

The work shall include, but not be limited to, the following:

A.

1. Mobilization / General Conditions

By lump sum. All costs connected with mobilization and general conditions of Contractor's operations as described in Section 9 of the Caltrans Specifications will be paid for at the Contract price.

2. Traffic Control Detours and Signage

By lump sum. Includes designing, providing, erecting and maintaining traffic control and signage as indicated on the plans, described in Section 12 of the Caltrans Standard Specifications, and described the California MUTCD and these Special Provisions. Also includes performing all the work related to safe management of pedestrian, bicycle and vehicular traffic during construction of the project.

3. Bridge Deck Temporary Barrier

By lump sum. Includes designing, providing, erecting and maintaining a temporary

barrier for pedestrian access of footbridge throughout duration of construction. Temporary barrier shall comply with applicable code requirements for fall protection and protection from construction activities.

4. 9 ga. Chain Link Fabric Removal & Disposal
By square foot. Includes providing all labor, materials, tools equipment, and incidentals as indicated on the Plans for removing existing footbridge chain link fencing fabric including cutting, rolling and off-haul as described in Section 15 of the Caltrans Standard Specifications, and described in these Special Provisions.
5. Misc. Demo & Disposal (Rails, Tension Wires, etc.)
By square foot. Includes providing all labor, materials, tools equipment, and incidentals as indicated on the Plans for removing existing footbridge fence rails, tension wires and misc. hardware including cutting and off-haul as described in Section 15 of the Caltrans Standard Specifications, and described in these Special Provisions.
6. North Levee Cross Fence & Footing Removal, Disposal & Levee Restoration
By linear foot. Includes providing all labor, materials, tools equipment, and incidentals as indicated on the Plans for removing existing fencing fabric, poles, hardware and footings including cutting, rolling, excavating, off-haul, stones, base and debris, loading and removing waste materials from the site and performing the work as indicated on the Plans, described in Section 15 of the Caltrans Standard Specifications, and described in these Special Provisions. Includes restoring voids in levee section with acceptable compacted fill materials as described in these Special Provisions.
7. Install Footbridge 8' Welded Wire Fabric, Rails & Fittings
By the square foot. Includes providing and securing welded wire mesh to existing footbridge fence frames and proposed rails including trimming and welding of panels, installation of rails, tension wires and fittings as shown on Project Plans and described in these Special Provisions.
8. Install North Levee 8' 3/4" Expanded Metal Security Fence with 8" Concrete Mowband & Footings.
By the linear foot. Includes providing and securing expanded metal mesh fabric, setting fence posts, excavating and casting concrete fence footings and mowbands. Includes trimming and welding of panels, installation of rails and fittings and concrete reinforcing as shown on Project Plans and described in these Special Provisions.
9. Install 8" Concrete Mowband Under Existing Levee Fence
By lump sum. Includes excavating and casting concrete mowbands beneath existing levee fence. Includes installation of concrete reinforcing as shown on Project Plans and described in these Special Provisions.
10. Misc. Footbridge Fence Repairs
By lump sum. Includes providing and installing miscellaneous damaged or missing existing fencing hardware including but not limited to anchor bolts, nuts, ties,

fittings, caps, plates and wires. Coordinate with Engineer upon completion of initial site inspection.

11. Erosion Control

By lump sum. Includes providing labor, materials, tools, equipment and incidentals for doing all the work involving erosion control and stormwater pollution prevention BMP's as shown on Project Plans and described in these Special Provisions.

9-1.03 QUANTITIES

The **following** estimate of the quantities of work to be done and materials to be furnished are **approximate only**, and are intended as a basis for the comparison of bids. The City does not expressly or by implications agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work without increase or decrease in the unit price bid or to omit portions of the work that may be deemed necessary or expedient by the Engineer.

SMITH CANAL FOOTBRIDGE FENCING MAINTENANCE PLAN

ITEM NO.	ITEM DESCRIPTION	UNITS	EST. QTY
1	MOBILIZATION / GENERAL CONDITIONS	LS	1
2	TRAFFIC CONTROL & SIGNAGE	LS	1
3	BRIDGE DECK TEMPORARY BARRIER	LS	1
4	9 GA. CHAIN LINK FABRIC REMOVAL & DISPOSAL	SF	4,640
5	MISC. DEMO & DISPOSAL (RAILS, TENSION WIRES, ETC.)	SF	4,640
6	NORTH LEVEE CROSS FENCE & FOOTING REMOVAL, DISPOSAL & LEVEE RESTORATION	LF	35
7	INSTALL FOOTBRIDGE 8' WELDED WIRE FABRIC, RAILS & FITTINGS	SF	4,640
8	INSTALL NORTH LEVEE 8' 3/4" EXPANDED METAL SECURITY FENCE W/ 8" CONCRETE MOWBAND & FOOTINGS	LF	35
9	INSTALL 8" CONCRETE MOWBAND UNDER EXISTING LEVEE FENCE	LS	1
10	MISC. FOOTBRIDGE FENCE REPAIRS	LS	1
11	EROSION CONTROL	LS	1

Each bidder shall bid each item on the Base Bid Schedule. Failure to bid an item shall be just cause for considering the bid as non-responsive. The City reserves the right to include or delete any Schedule or portion thereof, or to reject all bids.

Official bid documents, including plans and specifications are available online at http://www.stocktongov.com/services/business/bidflash/pw.html?dept=Public_Works.

All bids submitted for this project, must conform to the requirements of the official bid documents, including plans and specifications.

9-1.04 UNSATISFACTORY PROGRESS

If the number of working days charged to the contract exceeds 75 percent of the working days in the current time of completion and the percent working days elapsed exceeds the percent work completed by more than 15 percentage points, the City will withhold 10 percent of the amount due on the current monthly estimate.

The percent working days elapsed will be determined from the number of working days charged to the contract divided by the number of contract working days in the current time of completion, expressed as a percentage. The number of contract working days in the current time of completion shall consist of the original contract working days increased or decreased by time adjustments approved by the Engineer.

The percent work completed will be determined by the Engineer from the sum of payments made to date plus the amount due on the current monthly estimate, divided by the current total estimated value of the work, expressed as a percentage.

When the percent of working days elapsed minus the percent of work completed is less than or equal to 15 percentage points, the funds withheld shall be returned to the Contractor with the next monthly progress payment.

Funds kept or withheld from payment, due to the failure of the Contractor to comply with the provisions of the contract, will not be subject to the requirements of Public Contract Code 7107 or to the payment of interest pursuant to Public Contract Code Section 10261.5.

9-1.05 MOBILIZATION

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

Full compensation for mobilization shall be considered as included in the lump sum price paid for Mobilization, and no additional compensation will be allowed therefore.

9-1.06 INCREASE OR DECREASE QUANTITIES

The City reserves the right to make such alterations, deviations, additions to, or omissions from the plans and specifications, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable and to require such extra work as

may be determined by the Engineer to be required for the proper completion or construction of the whole work contemplated, without adjustment in the unit price as bid. Section 9-1.06B and Section 9-1.06C of the Caltrans Specifications shall not apply. Any such changes will be set forth in a contract change order, which will specify, in addition to the work to be done in connection with the change made, adjustment of contract time, if any, and the basis of compensation for such work. A contract change order will not become effective until approved by the Public Works Director. City Manager and/or City Council approval may be necessary depending on the amount of the change order.

9-1.07 STOP NOTICE

Section 9-1.16E (4), “Stop Notice Withholds,” of the Caltrans Specifications is amended to read as follows:

At its option, the Department of Public Works may at any time retain from the amounts due to the Contractor sufficient amount to cover claims which are filed pursuant to Section 3179 et seq of the Code of Civil Procedures.

9-1.08 QUANTITIES

The estimate of the quantities of work to be done and materials to be furnished are approximate only, and are intended as a basis for the comparison of bids. The City does not expressly or by implications agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work without increase or decrease in the unit price bid or to omit portions of the work that may be deemed necessary or expedient by the Engineer.

For the estimate of quantities of work, refer to plans.

Each bidder shall bid each item, including all alternative bid(s). Failure to bid an item shall be just cause for considering the bid as non-responsive. Line item costs should include all Contractor’s overhead and profit and indirect costs. Bids not presented on City forms shall be cause for considering the bid as non-responsive. The basis of contract award will be the lower bidder for the Base Bid. It is the City’s sole discretion to add, or not add, the Alternative Bid(s) to the Base Bid contract.

Official bid documents, including plans and specifications are available online at <http://www.stocktongov.com/services/business/bidFlash/default.html>

All bids submitted for this project must conform to the requirements of the official bid documents, including plans and specifications.

9-1.09 ALTERNATIVE DISPUTE RESOLUTION

Section 5-1.43E, “Alternative Dispute Resolution,” and Section 9-1.22 “Arbitration,” of the Caltrans Standard Specification is deleted from this Contract in its entirety.

DIVISION II GENERAL CONSTRUCTION

SECTION 10 – GENERAL

10-1.01 ORDER OF WORK

The order of work shall conform to the Contractor's approved project schedule described in Section 8-1.03, "Progress Schedule", of these Special Provisions.

Contractor's attention is directed to the Public Safety, Public Convenience, and Maintaining Traffic sections of these Special Provisions. Nothing in this section shall be construed as to relieve the Contractor of his/her responsibility to stage the work in a manner which complies with the requirements of these sections.

All permits and approvals as may be required for this project shall be secured or ordered immediately after award of the contract or their acquisition timing determined, such that the same is not a cause for delay. The cost of the permits shall be included in the total bid costs.

At those locations exposed to public traffic where guard railings or barriers are to be constructed, reconstructed, or removed and replaced, the Contractor shall schedule operations so that at the end of each working day there shall be no post holes open nor shall there be any railing or barrier posts installed without the blocks and rail elements assembled and mounted thereon.

Before obliterating any pavement delineation (traffic stripes, pavement markings, and pavement markers) that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings.

The Contractor shall stage and sequence the work as follows:

1. Upon award of the Construction Contract by Stockton's City Council (Notice of Award) the Contractor shall prepare all project submittals for City review as set forth in Section 5-1.04, "Submittals" of these Special Provisions.
2. The contractor orders all items required, after all submittals are approved by the Engineer, for this project which may have long lead times to assure that their acquisition is not the cause for any delays. These items may include, but are not limited to, traffic signal equipment, street lighting, and related appurtenances. The Contractor shall furnish the Engineer with statements from the vendors that the orders for said equipment has been received and accepted by said vendors. These statements shall be furnished within ten (10) working days of the Notice to Proceed date.
3. Obtain all necessary permits.
4. Prior to the start of construction, the Contractor shall verify the location and

depth of all existing utilities and underground facilities within the project limits. The Contractor shall notify the Engineer of any discrepancies between the conditions in the field and the plans.

5. The Contractor shall develop and implement a Water Pollution Control Program (WPCP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters. The Contractor shall inspect and maintain all BMPs.

At the end of each working day if a difference in excess of 2 inches exists between the elevation of the existing pavement and the elevation of excavations within 4 feet of the traveled way, material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation operations, native material may be used for this purpose; however, once placing of the topsoil commences, topsoil material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 1:4 (vertical:horizontal) or flatter to the bottom of the excavation.

Minor deviations from these requirements may be allowed by the Engineer, if in the opinion of the Engineer, the prosecution of the contract will be better served and the work expedited. Any Contractor request for such deviations shall not be adopted without the Engineer's prior written approval.

Full compensation for conforming to such requirements will be considered as included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

10-1.02 ALTERNATIVE EQUIPMENT

The City reserves the right to order discontinuance of any equipment in use. This will be determined at the discretion of the Engineer on the basis that the use of said equipment would prohibit obtaining the best possible end result.

Additional installation equipment may be requested by the Engineer for the above reason. Failure to comply with the Engineer's request concerning equipment use or removal will be deemed sufficient cause for shutting down all work until the requirements are met. Days lost for this type of shutdown will be charged as working days.

10-1.03 INSPECTIONS

All work under this contract shall be under the control and inspection of the City Engineer or his appointed representative. The Contractor shall notify of the Public Works Department, at (209) 937-8885, three (3) working days in advance of any construction.

10-1.04 OBSTRUCTIONS

Attention is directed to Section 5-1.36, "Property and Facility Preservation" of Caltrans Specifications, Sections 7-1.05, "Indemnification" and Section 7-1.06, "Insurance", of the Standard Specifications and Section 15, "Existing Facilities", of the Caltrans Specifications and these Special Provisions.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety, and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to, conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases, natural gas in pipelines six (6) inches or greater in diameter, or pipelines operating at pressures greater than 415 KPa (gage); underground electric supply system conductors or cables with potential to ground of more than 300 V, either directly buried or in duct or conduit, which do not have concentric grounded or other effectively grounded metal shields on sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least two (2) working days, but not more than fourteen (14) calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire, or other structure. Regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert – Northern California (USA)	(811) 227-2600 (800) 227-2600
South Shore Utility Coordinating Council (DICS)	(800)-541-3447

Relocations or repairs necessitated because of existing facilities, which are not shown on the plans or are shown at substantially different locations than existing, may be paid as extra work in accordance with Section 4-1.02, "Changes and Extra Work", of the these Special Provisions, but only if the Engineer rules that the Contractor exercised due diligence in his operation. Due diligence may be determined by the Engineer by reviewing surface and subsurface conditions that were existing prior to exposing the facility and determining the absence of any signs sufficient to warn a diligent Contractor of the possible existence of a facility in the area.

Immediately upon encountering unknown existing facilities, the Contractor shall notify the Engineer in writing of the situation, request coverage of the work as extra work, and aid the Engineer in determining due diligence. Failure to do so may result in forfeiture of any rights to receive extra work compensation under Section 8-1.07, "Delay", of the Standard Specifications. Should the Contractor stop work, no compensation will be made for any "down time" prior to written notifications being received by the Engineer or his representative.

Delays due to encountering unexpected facilities shall be determined and compensated in accordance with the provisions of Section 8-1.07, "Delay", of the Standard Specifications, and as herein modified. Delays due to encountering unexpected facilities shall be compensated as additional contract working days to the contractor. Contractor shall submit a written request to the Engineer requesting time extension due to the delay. No other compensation is allowed.

Payment for complying with this Special Provision shall be included in the various items of work, and no additional compensation will be allowed therefore.

10-1.05 SYSTEM OUTAGE REQUEST, CITY OF STOCKTON FACILITIES

Modifications to existing facilities, the construction of new facilities, and the connection of new to existing facilities may require the temporary outage or bypass of treatment processes, equipment, utilities, or other facilities. In addition to the Construction Schedule required under these Special Provisions, the Contractor shall submit a System Outage Request (SOR) and a detailed outage plan and time schedule for all construction activities, which will make it necessary to remove a tank, pipeline, channel, electrical circuit, control circuit, equipment, structure, road, or other facilities from service.

The SOR and outage plan shall be submitted to the Engineer and other affected utilities for review and acceptance a minimum of two (2) weeks in advance of the time that such outage is needed. The outage plan shall be coordinated with the construction schedule specified in these Special Provisions and shall meet the restrictions and conditions specified in this section. The detailed plan shall describe the Contractor's method for preventing bypassing of other facilities; the length of time required to complete said operation; any necessary temporary power, controls, instrumentation, or alarms required to maintain control, monitoring, and alarms for the affected facilities; and the labor, plant, and equipment which the Contractor shall provide in order to ensure proper operation.

In addition, the outage plan shall describe the Contractor's contingency plan that shall be initiated in the event that his temporary facilities fail, or it becomes apparent that the time constraints described in the approved outage plan cannot be met. The contingency plan shall conform to all specified outage requirements. All costs for preparing and implementing both the outage and contingency plans shall be borne by the Contractor with no additional compensation therefore.

The Contractor shall provide, Monday through Friday, at least three (3) working days prior to the actual shutdown, written confirmation of the shutdown date and time, or written notification that the schedule for performing the work has changed, or revisions to the outage plan are required.

Operations of the City's facilities and utilities are critical to the public health and safety of the citizens of Stockton. Sufficient facilities to serve the needs and demands of the City shall remain in service at all times. The City and/or affected utility owner shall be the sole judge of its needs and the facilities that must remain in service to provide adequate service.

The Contractor shall coordinate and cooperate with the City and utilities to establish the Contractor's schedule for work at the entire project facilities. The approved project schedule shall be subject to change, as it pertains to site work and shutdowns, when required by the City/utilities to accommodate unforeseen or emergency situations in the operation of the affected facilities.

Payment for complying with this Special Provision shall be included in the various other

items of work, and no additional compensation will be allowed therefore.

10-1.06 SHEETING AND SHORING

Attention is directed to the Section 10-1.02E, "Excavation" of the Caltrans Specifications. Excavations shall be adequately shored and braced so that the earth will not slide, move, or settle, and so that all existing improvements of any kind will be fully protected from damage.

Attention is called to Article 6 of "Construction Safety Orders" of the California Division of Industrial Safety, which applies to all open excavations made in the earth's surface, including trenches.

Trenches over five (5) feet in depth requires a permit from California Division of Industrial Safety and shall be evaluated for stability prior to personnel entering the trench. Where trenches are deeper than five (5) feet, the Contractor shall comply with the California Occupational Safety and Health Administration (CAL OSHA) requirements pertaining to trench safety.

The Contractor shall furnish, install, and maintain such sheet piling, timbering, lagging, and bracing as indicated on the standard drawings or any additional precautions not specifically set forth as necessary to support the sides of the trench. The protection of adjacent structures from movement of the ground and the elimination of the element of danger to life, property, or to existing improvements is the intent of this requirement.

Additional supports requested by the Engineer shall in no way relieve the Contractor of his responsibility for the sufficiency of his precautions.

All such piling, timbering, lagging, and bracing shall, unless otherwise required by the Engineer, be removed during backfilling in such a manner as to prevent any movement of the ground or damage to the piping or other structures.

Full compensation for complying with these provisions shall be included in the contract prices paid for the various items of work, and no additional compensation will be allowed therefore.

10-1.07 SURFACE RESTORATION

Surface restoration shall consist of restoring all areas within the limits of work to their original existing condition prior to construction or to the condition shown on the plans or specified in the Specifications.

The Contractor shall restore all paved areas, such as driveways, curb and gutter, sidewalk, roadway surfaces, ditches, etc., landscaped areas, and all other improvements disturbed or damaged by his operations.

Payment for the restoration of damaged areas, for which specific bid items are not provided, shall be included in the prices paid for various items of work and no additional compensation will be allowed therefore.

SECTION 11 – BLANK

SECTION 12 – BLANK

SECTION 13 – BLANK

SECTION 14 – ENVIRONMENTAL STEWARDSHIP

Attention is directed to Sections 14, "Environmental Stewardship", of the Caltrans Specifications, these Special Provisions, and as directed by the Engineer.

14-1.01 CONSTRUCTION SITE WASTE MATERIALS MANAGEMENT

Earth Material Containing Lead

This section includes specifications for handling, removing, and disposing of earth material containing lead.

Submit a lead compliance plan.

If earth material is disposed of:

1. Disclose the lead concentration of the earth material to the receiving property owner when obtaining authorization for disposal on the property
2. Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal
3. You are responsible for any additional sampling and analysis required by the receiving property owner

If you choose to dispose of earth material at a commercial landfill:

1. Transport it to a Class III or Class II landfill appropriately permitted to receive the material
2. You are responsible for identifying the appropriately permitted landfill to receive the earth material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill

Soil Handling

Excess soils must be handled as potential hazardous waste, or the excess soils must be tested for concentrations of lead prior to disposal.

Contaminated Soil

Identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination must be sampled and tested by a laboratory certified by Environmental Laboratory Accreditation Program (ELAP).

If levels of contamination are found to be hazardous, handle and dispose of the soil as hazardous waste.

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:

1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls
5. Concrete seal course

If water mixes with contaminated soil and becomes contaminated, sample and test the water using a laboratory certified by ELAP. If levels of contamination are found to be hazardous, handle and dispose of the water as hazardous waste.

Upon completion of underground facilities and backfilling of the trenches in each portion of the work, the sub-grade shall be prepared by compacting to a relative compaction of not less than ninety-five (95) percent for a minimum depth of zero point five (0.5) feet below the grading plane (sub-grade plane) for a total width of the area to be paved.

All portland cement concrete flatwork shall be saw-cut a minimum of 3-1/2 inches deep prior to removal. All monolithic portland cement concrete shall be saw-cut a minimum of 8 inches deep prior to removal.

Existing asphalt concrete sections to be removed shall be neatly saw cut two and one-half (2-1/2) inches deep and excavated to a depth of fifteen (15) inches. The vertical edges of the pavement shall be neatly trimmed. All debris shall be removed. The top six inches of the sub-grade shall be compacted to 90% of the maximum density at near optimum moisture content.

Payment

Full compensation for disposing, transporting, testing and preparation of lead compliance plan handling material contaminated, or potentially contaminated with aurally deposited lead, except as otherwise provided, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Payment for handling, removal, transporting, and disposal of pavement residue that is a nonhazardous waste is included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

14-1.02 AIR POLLUTION CONTROL

Attention is directed to Section 14-9.02 "Air Pollution Control" of the Caltrans Specifications.

Comply with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in government code 11017 (Pub Cont Code 10231).

Do not burn material to be disposed of.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed therefor.

14-1.03 DUST CONTROL, APPLY WATER, SITE MAINTENANCE, AND CLEANUP

Dust control shall conform to any requirements set forth in the San Joaquin Valley Air Pollution Control District Construction Notification Form, the provisions in Section 14-9, "Air Quality" of the Caltrans Specifications, and these Special Provisions. Use of water except for recycled, reclaimed, or other non-potable water for the purpose of dust control or other construction uses unless for health or safety purposes is prohibited. All dust control operations shall be performed by the Contractor at the time, location and in the amount ordered by the Engineer. The application of either water or dust palliative shall be under the control of the Engineer at all times." Watering shall conform to the provisions of Section 13 "Water Pollution Control" of the Caltrans Specifications and these Special Provisions. Attention is also directed to Section 18 "Dust Palliatives" of the Caltrans Specifications and these Special Provisions.

During construction, the Contractor shall remove all rubbish and debris as it is generated. Upon completion of the work, the Contractor shall remove all equipment, debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer. A permit shall be obtained from the Municipal Utilities Department, or California Water Service, as applicable, for construction water obtained from City hydrants. This permit shall be approved by the City of Stockton Fire Department.

The Contractor shall conduct and cause all working forces at the site to maintain the site in a neat, orderly manner throughout the construction operations. The work shall be conducted in a manner that will control the dust. When ordered to provide dust control, the Contractor shall use water to reduce the dusty conditions all to the satisfaction of the Engineer. During construction, the Contractor shall remove all rubbish and debris as it is generated. The Contractor shall pay to the City of Stockton the sum of Two Hundred Fifty Dollars (**\$250**) for every calendar day where debris has remained on the job site overnight. Upon completion of the work, the Contractor shall remove all equipment and debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer.

14-1.04 SOUND CONTROL REQUIREMENTS

The Contractor's attention is directed to Section 14-8.02 "Noise Control" of the Caltrans Specifications and the project specific equipment noise control measures listed in Table 8.1 below. Nothing in the Caltrans Specifications or these Special Provisions voids the Contractor's public safety responsibilities or relieves the Contractor from the responsibility to comply with other ordinances regulating noise level.

The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

To minimize the construction impacts to residents, the Contractor is encouraged to select the bore method (directional drilling) over conventional trenching to install new conduits.

The noise level requirement shall apply to the equipment on the job or related to the job, including, but not limited to, trucks, transit mixers, or transient equipment that may or may not be owned by the Contractor. All equipment shall have sound-control devices that are no less effective than those provided on the original equipment. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Project Specific Equipment Noise Control

Table 8-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. The noise levels generated by the boring machine would be lower than any equipment listed in the table.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 1995.

Further, implementing the following measures would minimize the temporary noise impacts from construction:

All equipment shall have sound-control devices that are no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.

As directed by the Engineer, the contractor shall implement appropriate additional noise mitigation measures as warranted. These could include, but are not specifically limited to, changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of

construction work, and installing acoustic barriers around stationary construction noise sources. Furthermore, construction activities shall be limited to the time period between 9:00 a.m. and 5:00 p.m.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

14-1.05 CULTURAL RESOURCES

If cultural materials are discovered during construction, including human remains, do not disturb the resources and immediately stop all work within a 60-foot radius of the discovery and within any nearby area suspected to overlie the discovery. Immediately notify all appropriate parties including the Caltrans District 10 Local Assistance archaeologist, the Local Assistance Engineer (DLAE), and the County Coroner if human remains are found. Do not move cultural materials or take them from the job site. Do not resume work within the discovery area until authorized. Additional protocols for human remains are given in the State Health and Safety Code Section §7050.5 and §5097.98.

Full compensation for doing all the work involved in trench excavation, water control and dewatering, bedding and backfilling, placement of temporary paving, and cultural resources shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be made therefore.

SECTION 15 – EXISTING FACILITIES

15-1.01 EXISTING FACILITIES

Contractor attention is directed to requirements of Section 5-1.15, "Property and Facility Preservation" of these Special provisions, and 7-1.05, "Indemnification" and 7-106 "Insurance", of the Caltrans Specifications.

The work shall be performed in connection with various existing highway facilities (i.e., traffic signals and streetlights, storm drain pipe, catch basins, sidewalk drains, roadway pavement, roadside signs, utility boxes, trees, fences, etc.) shall conform to the provisions in Section 15, "Existing Facilities", of the Caltrans Specifications and these Special Provisions.

All traffic control signs shall be maintained. If relocation is necessary to facilitate the construction, the Contractor shall notify the Public Works Department, at (209) 937-8381, three (3) working days prior to said relocation, and request for approval as to where sign is to be temporarily relocated. Full compensation for performing such removal and reinstallation shall be considered as included in the various items of work and no additional compensation will be allowed therefore.

Fire hydrants, water valves, curb-stop boxes, and other utility facilities shall be unobstructed and accessible during the construction period.

Should the Contractor desire to have any alterations made in any utility or other improvement for Contractor's own convenience in order to facilitate Contractor's construction operations and for Contractor's sole benefit, Contractor shall make all necessary arrangements with the owners and bear all expense in connection therewith.

Removed highway facilities that are not to be salvaged shall become the property of the Contractor and shall be disposed of according to these special provisions, Section 15 "Existing Facilities" of Caltrans specifications, and as indicated on the plans.

Items of work under this section, "Existing Facilities", for which specific bid items are not provided, shall be considered as included in the prices paid for the various items of work of the bid schedule, and no additional compensation will be provided therefore.

Any contract adjustment that may be warranted due to differing site conditions will be made in accordance with the provisions of Section 4-1.02, "Changes and Extra Work", of these Special Provision.

Relocations or repairs necessitated because of existing facilities which are not shown on the plans, or are shown at substantially different locations than shown may be paid as extra work in accordance with Section 4-1.02, "Changes and Extra Work", of these Special Provisions, but only if the Engineer rules that the Contractor exercised due diligence in his operation. Due diligence may be determined by the Engineer by reviewing surface and subsurface conditions that were existing prior to exposing the facility, and determining the absence of any signs sufficient to warn a diligent Contractor of the possible existence of a facility in the area.

Utility Facilities

Attention is directed to the possible existence of underground utilities not known to the City or in a location different from that which is shown on the plans or in these Special Provisions. The Contractor shall take steps to ascertain the exact location of such facilities prior to doing any work that may damage such facilities or interfere with their service.

Remove Existing Concrete

Existing concrete sidewalk, gutter, curb and gutter, driveways, wheelchair ramps, and other concrete surfacing, where shown on the plans to be removed, shall be removed and disposed of. Concrete removal includes removal of any steel embedded in the concrete. Sawcut concrete ramps, walks, curbs, and gutters to be removed at the nearest joint or score line, at the locations indicated on the plans, and as designated by the Engineer.

Remove Existing Pavement

Asphalt concrete pavement and aggregate base shall be removed by saw-cutting and excavation or cold planing to the lines, depths, and dimensions indicated on the plans and/or as directed by the Engineer.

Roadside Signs

Unless otherwise shown on the plans, the Contractor shall maintain existing roadside signs in place. The Contractor shall replace or repair all signs damaged by his operations and under this contract by using new material. Such material shall be a replacement of the original in regards to type of sign, posts, and construction. Relocation of the existing signs shall be done the same day the sign is removed from its original location.

At the Contractor's option, existing signs may be temporarily removed in order to facilitate the Contractor's construction of other improvements included under this contract. Any sign which is removed or damaged by the Contractor's shall be reinstalled at its original location using new unistrut posts in conformance with the Standard Specifications. Existing steel pipe sign posts shall be salvaged as directed by the Engineer. Each roadside sign shall be reinstalled on the same day that the sign is removed.

All new non-mast arm mounted signs shall have High Intensity Prismatic (HIP) reflective sheeting (reflectivity; ASTM type III) and covered with anti-graffiti film. The anti-graffiti film shall be transparent overlay for use on signs. The reflective sheeting and anti-graffiti film shall be from same manufacturer and guaranteed for the same number years.

Full compensation for any temporary removal and reinstallation of roadside signs and removing existing concrete and pavement shall be considered included in the various bid items, and no additional compensation will be allowed therefor.

DIVISION III EARTHWORK AND LANDSCAPE

SECTION 19 – EARTHWORK

19-1.01 SITE CLEARING & DEMOLITION

General

1. Summary
Remove site features and clear the site as shown on the Drawings and specified herein.
2. General requirements:
This Section shall be performed in accordance with the General Conditions, Supplementary Conditions and all Sections in Division 1 of these Specifications. These documents must be read with the other Contract Documents and Sections as a whole to complete the intent of the contract.
3. Submittals:
Make submittals to the Owner's Representative in accordance with the provisions of these specifications.
4. Section Requirements

- A. Traffic: Minimize interference with adjoining parking lot, walks, and other adjacent occupied or used facilities during site demolition and clearing operations. Provide safety devices such as cones, barricades, tape, etc. as required to safely divert vehicular and pedestrian traffic around the project area.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Notify utility locator service for area where Project is located before site demolition and clearing.
- D. Do not begin demolition and site clearing operations until temporary erosion and sedimentation control measures are in place.

Products (Not Applicable)

Execution

1. Preparation

- A. Protect and maintain benchmarks and survey control points from disturbance.
- B. Immediately notify Owner of any utilities or buried obstructions encountered during excavation. Do not proceed with further excavation until authorized by the Owner.
- C. 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, in accordance with the erosion control plan and San Joaquin County Standards.
- D. Utilities:
 - 1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavation. If damaged, repair or replace at no additional cost to the Owner.
 - 2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly notify the Owner's Representative and take necessary steps to assure that service is not interrupted.
 - 3. If service is interrupted as a result of work under this Section, immediately notify the Owner's Representative and restore service by repairing the damaged utility.
 - 4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Owner's Representative and secure his instructions.
 - 5. Do not proceed with permanent relocation of utilities until written instructions are received from the Owner's Representative.

- E. Protection of persons and property:
 - 1. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or within public access. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
 - 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this section.
 - F. Protect trees and shrubs, where indicated to remain, by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this Work.
 - G. Coordinate with utility companies and agencies as required. Where utility cutting, capping or plugging is required, perform such work in accordance with requirements of the utility company or governmental agency having jurisdiction
2. Site Clearing
- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots. Clean out roots 1" in diameter and larger to a depth of at least 12" below the existing ground surface or subgrade of new graded surface, whichever is lower. Treat roots remaining in the soil with a weed killer approved by the Owner's Representative.
 - B. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
 - C. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - D. Neatly saw-cut length of existing pavement and sidewalk to remain before removing existing pavement.
 - E. In areas not to be further excavated, fill depressions resulting from site clearing. Place and compact satisfactory soil materials in 6-inch- (150-mm-) thick layers to density of surrounding original ground.
 - F. Dispose of waste materials, including trash, debris, and excess topsoil, off Owner's property. Burning waste materials on-site is not permitted.

19-1.02 EXCAVATING, FILLING, COMPACTING & GRADING

GENERAL

- 1. Summary:

Excavate, backfill, compact, and grade the site to the elevations shown on the Drawings, and as specified herein.

2. General requirements:

This Section shall be performed in accordance with the General Conditions, Supplementary Conditions and all Sections in Division 1 of these Specifications. These documents must be read with the other Contract Documents and Sections as a whole to complete the intent of the contract.

PRODUCTS

1. Fill Material:

All fill material shall be subject to approval of the Owner's Representative. All fill material shall be soil or soil-rock mixture which is free from organic matter and other deleterious substance. It shall be of granular nature with sufficient binder to form a firm and stable, unyielding subgrade. It shall contain no rocks or lumps over three inches in greatest dimension. Engineered fill shall have a minimum R value of 40, a maximum Plasticity index of 8, passing the #4 sieve 100%, passing the #200 sieve 3% maximum. Fill shall have a coefficient of expansion of not more than 3% from air dry to saturation under a surcharge of 60 pounds per square foot at 90% compaction.

2. On-site Fill Material:

All on-site fill material shall meet the requirements of Article 2.1 above. Adobe and clay soils will not be acceptable.

3. Imported Fill Material:

All imported fill material shall meet the requirements of Article 2.1 above. Adobe and clay soils will not be acceptable. For approval of imported fill material, notify the Owner's Representative at least four (4) working days in advance of intention to import material, designate the proposed borrow area, and permit the Owner's Representative to sample as necessary from the borrow area for the purpose of making acceptance tests to prove the quality of the material.

4. Granular Cushion:

Granular cushion under interior concrete slabs on grade shall be clean mineral aggregate with particle size grading within the following limits:

Passing the one inch mesh:	100%
Passing the number four sieve:	not more than 5%
Passing the number 200 sieve:	not more than 1%

Class II Aggregate Base provided, placed and compacted in accordance with Caltrans Standard Specifications, may be substituted for granular cushions.

5. Structural Backfill:

Provide cohesionless sand material free from organic material.

6. Topsoil

Where and if shown on the Drawings or otherwise required, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoil, roots, heavy or stiff clay, stones larger than 2" in greatest dimension, noxious weeds, sticks, brush, litter, or other deleterious matter. Obtain topsoil from sources within the project limits, or provide imported topsoil obtained from sources outside the project limits, or from both sources.

7. Other Materials:

All other materials, not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the approval of the Owner's Representative.

EXECUTION

1. Finish Elevations and Lines:

Secure the services of a licensed land surveyor or other experienced personnel for setting and establishing finish elevations and lines. Carefully preserve all data and all monuments set and, if displaced or lost, immediately replace to the approval of the Owner's Representative and at no additional cost to the Owner.

2. Utilities:

- A. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavation. If damaged, repair or replace at no additional cost to the Owner.
- B. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly notify the Owner's Representative and take necessary steps to assure that service is not interrupted.
- C. If service is interrupted as a result of work under this Section, immediately notify the Owner's Representative and restore service by repairing the damaged utility.
- D. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Owner's Representative and secure his instructions.
- E. Do not proceed with permanent relocation of utilities until written instructions are received from the Owner's Representative.

3. Protection of Persons and Property:

- A. Barricade open holes and depressions occurring as part of the work, and post warning lights on property adjacent to or within public access. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other

hazards created by operations under this section.

C. Protect trees and shrubs designated to remain.

4. Dewatering:

Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods. Keep excavations and site construction area free from water.

5. Excavating:

A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades and elevations indicated on the Drawings and specified herein. Where excavation grades are not shown on the Drawings, excavate as required to accommodate the installation.

B. Surplus materials:

Dispose of excavated material away from the site.

C. On-Site Fill:

Where excavated materials meet the standard of 2.01, Fill Materials, and are to be used for fill in this work, transport to and place in fill or storage areas within limits of the work.

D. Unsatisfactory excavated materials:

In the excavation where unsatisfactory materials are encountered at grades required for the work, excavate to a distance below grade as directed by the Owner's Representative, and replace with satisfactory materials.

E. Excavation of rock:

1. Subject to the approval of the Owner's Representative, rock encountered in the excavation may be broken into pieces not larger than three inches in maximum dimension and be incorporated in the fill material.

2. Remove from the site all rock larger than 3" in maximum dimension. Rocks and stones larger than 1/2" in maximum dimension will not be permitted within the top 12" of finished grade in those areas outside of building and paved areas.

3. Do not use explosives without the written permission from the Owner's Representative.

F. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

G. Unauthorized excavation:

1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific instruction from the Owner's Representative.

2. Under footings, foundations or retaining walls, fill unauthorized excavations by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation. When acceptable to the Owner's Representative, lean concrete fill may be used to bring the bottom elevation to proper elevation.

3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Owner's Representative.

H. Stability of excavations:

1. Slope sides of excavations to 1:1 or flatter, unless otherwise directed by the Owner's Representative. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
2. Shore and brace where sloping is not possible because of space restrictions or stability of the materials being excavated.

I. Shoring and bracing:

Provide materials for shoring and bracing as may be necessary for safety of personnel, protection of work, and compliance with requirements of governmental agencies having jurisdiction. Maintain shoring and bracing in excavations regardless of the time period excavations will be open. Carry shoring and bracing down as excavation progresses.

J. Excavating for structures:

1. Conform to elevations and dimensions shown within a tolerance of 0.10 ft., and extending a sufficient distance from footings and foundations to permit placing and removing concrete formwork, installation of services, other construction required, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand tools to final grade just before concrete is placed. Trim bottoms to required lines and grades to leave solid base to receive concrete.
3. Excavate for footings and foundations only after general site excavating, filling, and grading are complete.

K. Excavating for pavements:

Cut surface under pavements to comply with cross sections, elevations, and grades.

L. Cold weather protection:

Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.

6. Filling and Backfilling

Place acceptable soil material in layers to required subgrade elevations. Use satisfactory on-site or imported materials.

A. Backfill excavations as promptly as progress of the Work permits, but not until completion of the following:

1. Acceptance of construction below finish grade.
2. Inspecting, testing, approving and recording locations of underground utilities.
3. Removing concrete formwork.
4. Removing shoring and bracing, and backfilling of voids with satisfactory materials.

5. Removing trash and debris.
6. Placement of horizontal bracing on horizontally supported walls.
- B. Ground surface preparation:
 1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious matter from ground surface prior to placement of fills.
 2. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.
 3. When existing ground surface has a density less than that specified under "compacting" for the particular area, break up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to required depth and percentage of maximum density.
 4. At exposed soils in areas to be paved, scarify to a minimum depth of 8", and recompact at a moisture content that will permit proper compaction as specified for fill.
- C. Placing fill:
 1. Place backfill and fill materials in layers not more than 8" in loose depth.
 2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
 3. Do not place backfill or fill material on surfaces that are muddy, frozen or contain frost or ice.
 4. Place backfill or fill material evenly adjacent to structures, to required elevations.
 5. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation in each lift.
7. Grading:
 - A. Uniformly grade the areas within the limits of grading under this Section, including adjacent transition areas. Smooth the finished surfaces within specified tolerance.
 - B. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately 8'0", unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.
 - C. Grade areas adjacent to buildings to achieve drainage away from the structures, and to prevent ponding. Finish the surfaces to be free from irregular surface changes and shape the surface of areas scheduled to be under walks and pavement to line, grade, and cross-section, with finished surface not more than 0.10 ft. above or below the required subgrade elevation.
8. Compaction
 - A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to

ASTM D1557.

- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place and as approved by the soil engineer.
 - 1. Structures: Compact the top 8" of subgrade and each layer of fill material or backfill material to a minimum of 90% of maximum dry density.
 - 2. Lawn and unpaved areas: Compact the top 8" of subgrade and each layer of fill material or backfill material to a minimum of 90% maximum dry density. Compact the upper 12" of filled areas, or natural soils exposed by excavating, to a minimum of 85% of maximum dry density.
 - 3. Walks: Compact the top 8" of subgrade and each layer of fill material or backfill material to a minimum of 90% of maximum dry density.
 - 4. Pavements: Compact the top 8" of subgrade and each layer of fill material or backfill material to a minimum of 95% of maximum dry density.
 - 5. Levees: Compact each layer of fill material or backfill material in 8" max. loose lifts to a minimum of 90% of maximum dry density.
 - C. Moisture control:
 - 1. Where subgrade or layer of soil material must be moisture conditioned before compacting, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
 - 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
 - 3. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the Owner's Representative.
 - D. Field Quality Control:

Secure the Owner's Representative's approval of subgrades and fill layers before subsequent construction is permitted thereon. If, in the Owner's Representative's opinion, based on reports of the testing laboratory, subgrade or fills which have been placed are below specified density, provide additional compacting to meet compaction standards.
9. Maintenance:
- A. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds. Repair and reestablish grades in settled, eroded and rutted areas to the specified tolerances.
 - B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape,

and compact to the required density prior to further construction.

10. **Placing Granular Cushion:**
Carefully place the granular cushion where shown on the Drawings, attaining the indicated thicknesses uniformly, and providing all required transition planes.
11. **Clean Up:**
Upon completion of the work of this Section, remove all debris resulting from operations. Remove surplus equipment and tools. Leave the site in a neat and orderly condition acceptable to the Owner's Representative.

SECTION 20 – BLANK

SECTION 21 – EROSION CONTROL

Attention is directed to the provisions in Section 21, “Erosion Control” of the Caltrans Specifications.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in erosion control, including the maintenance period, shall be considered as included in the prices paid for the various items of work requiring “Erosion Control” and no additional compensation will be allowed therefore.

DIVISIONS VI STRUCTURES

SECTION 52 – REINFORCEMENT

52-1.01 CONCRETE REINFORCING

GENERAL

1. **Scope**
This section covers the furnishing and installing of reinforcing steel for cast-in-place concrete work as shown and noted on the plans and as specified.
2. **Quality Assurance**
The publications referred to hereinafter form a part of these specifications to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed standards, the requirements of this section shall prevail.
 - A. **References**
The editions of the specifications and standards referenced herein, published by the following organizations, apply to the work only to the extent specified by the reference. The latest version in effect at the time of bid shall

apply.

1. American Concrete Institute (ACI)
2. American Society for Testing and Materials (ASTM)
3. Concrete Reinforcing Steel Institute (CRSI)
4. American Welding Society (AWS)

B. Regulatory Requirements

Except as modified by the requirements specified herein and/or the details on the plans, concrete reinforcing work shall conform to the 2019 Edition of California Building Code (CBC), Chapter 19, "Concrete" and the requirements of the CRSE Manual of Standard Practice.

3. Submittals

The Contractor shall submit information to substantiate compliance with this specification. In addition, the following specific information shall be submitted.

A. Shop Drawings

Submit shop and placement drawings of all reinforcing for review.

Placement drawings shall show the locations and spacing of reinforcing in the various parts of the structure with details as required, all in accordance with ACI 315. Cutting and bending lists submitted without placement drawings will be returned without review as incomplete. Placement drawings shall not be reproduced, marked up copies of the design drawings. Placement drawings shall be complete so that placement of the reinforcing may proceed without reference to the plans.

Review shall not act to relieve the Contractor from responsibility for accuracy of the fabrication details and placing diagrams. Dimensions and locations shall be verified prior to the preparation of shop drawings.

No work shall be done except from reviewed drawings which must be kept at all work locations.

B. Mill Affidavits

Mill affidavits, stating the grades and physical and chemical properties of the reinforcing steel, and conformance with ASTM specifications, shall be submitted before delivery of the steel to the job site.

At the completion of the work, one complete set of placement bending diagrams shall be delivered to the Construction Manager for record purposes.

4. Delivery and Storage

Deliver reinforcement bundled and tagged to identify placement and certify testing.

Reinforcing steel shall be transported to the building site, stored and covered in a manner which will insure that no damage shall occur to it from moisture, dirt, grease, or any other cause that might impair bond to concrete. A sufficient supply of approved reinforcing steel shall be stored on the site at all times to ensure that there will be no delay of the work. Identification of steel shall be maintained after bundles are broken.

5. Coordination

Contractor shall check structural, civil, mechanical, and electrical drawings for anchor bolt schedules and locations, anchors, inserts, conduits, sleeves, and any other items which are required to be cast in concrete, and shall make necessary provisions as required so that reinforcing steel will not interfere with the placement of such embedded items.

PRODUCTS

1. Materials

A. Reinforcing Bars

New, deformed, billet steel bars, conforming to ASTM A615. Deliver bars new and free from rust and mill scale in original bundles with mill tags intact. Grade 60 for all bars.

Reinforcing bars to be welded shall be weldable steel ASTM A706, Grade 60 for all bars.

B. Epoxy

Epoxy shall be used to drill and bond reinforcement dowels into existing concrete. Epoxy shall be Hilti RE SOO-SD, Simpson “SET-XP”, or an approved equal. The approved equal shall be equal in materials, strength, and intended use.

C. Accessories

Reinforcement accessories, consisting of spacers, ties, and similar items shall be provided as required for spacing, assembling, and supporting reinforcement in place. Accessories shall be reinforcing steel or precast concrete blocks conforming to the applicable requirements of the CRSI Manual of Standard Practice.

D. Tie Wire

Tie wire for reinforcement shall be No. 16 gage or heavier, where noted or specified, black or galvanized steel wire, conforming to ASTM A82.

E. Welding Electrodes

AWS A5.1, grade E70XX for welding grade 40 reinforcing steel and E90XX for welding grade 60.

F. Bar Lock Reinforcing Couplers

Reinforcing couplers shall be Dayton L Series Bar Lock couplers or an approved equal. The approved equal shall be equal in materials, strength, and intended use.

EXECUTION

1. Fabrication

Fabrication of steel reinforcement shall be in accordance with the details shown on the plans. Where specific details are not shown or noted, comply with the applicable requirements of ACI 315.

Bars shall be accurately bent, cut and placed as indicated on the plans. Bars shall be bent cold; heating of bars will not be permitted. Bars shall not be bent or straightened in any manner that will injure the material. All reinforcing bars shall

be bent in an approved fabricating shop. Field bending of reinforcement shall not be permitted.

2. Placing

A. General

Reinforcing steel shall be placed in accordance with the plans and the applicable requirements of the latest edition of the CRSI Manual of Standard Practice and the California Building Code, Chapter 19, "Concrete." Install reinforcement accurately and secure against movement, particularly under the weight of workmen and the placement of concrete.

B. Reinforcing Supports

Bars and welded wire fabric layers shall be supported on precast concrete blocks wire tied to reinforcement and accurately placed. Spacing of blocks and accessories shall conform with CRSI's Recommended Practice for Placing Bar Supports. No wood will be permitted inside forms. Precast concrete blocks shall be used to support footing and slab reinforcing on ground and slab and beam reinforcement on horizontal form work.

C. Placing and Tying

All reinforcing shall be set in place, spaced, and rigidly and securely tied or wired with No. 16 gage steel tie wire at all splices and at crossing points and intersections in the position shown, or as directed by the Construction Manager. Point ends of wire away from forms.

D. Spacing

Bars shall be spaced as indicated on the plans. Where not shown, the clear spacing for main longitudinal reinforcement shall be not less than 1.5 times the nominal bar diameter, or 1 ½-inch, or 1 1/3 times the maximum size aggregate, whichever is greater. For all other parallel bars, where spacing is not shown, the minimum clear spacing shall not be less than the nominal bar diameter, or 1-inch, or 1 1/3 times the maximum size aggregate, whichever is less. The clear distance limitations above also apply between the bars being spliced at a contact lap splice and adjacent bars.

E. Splices

Except for temperature bars in slabs and horizontal wall reinforcing, no splicing will be allowed for reinforcing bars unless detailed locations are given for these splices on the plans, or approval is given. Stagger lapped splices for horizontal wall reinforcing and slab temperature bars by the required lap splice length minimum. Wherever possible, splices of adjacent bars shall be staggered.

Reinforcing bars may be continuous at locations where splices are shown on the plans, at the option of the Contractor. The location of splices, except where shown on the plans, shall be determined by the Contractor based upon using available commercial lengths where practicable.

F. Dowels

Dowels to be placed in new concrete or masonry shall be tied securely in place before concrete is deposited. In the event there are no bars in position to which dowels may be tied, No. 3 bars shall be added to provide proper support and anchorage. Dowels to be installed in existing concrete shall be

drilled and bonded into place using epoxy. Horizontal holes shall be drilled at a slight downward angle to facilitate holding the epoxy. Reinforcing steel installed in horizontal holes shall be bent slightly accordingly. Bending of dowels after placement of concrete will not be permitted unless approval is obtained. Dowels extended for future construction shall be protected from weather as shown on the plans. Compliance with safety law requirements for extended dowels is required.

G. Cleaning

Reinforcement, at time of pour, shall be free of mortar, oil, dirt, excessive mill scale, scabby rust and other coatings that would impair bond to concrete.

H. Welding

Welding of reinforcing steel shall comply with AWS D1.4. Do not weld reinforcing steel until a chemical analysis sufficient to determine the carbon equivalent of the steel has been performed. This analysis shall be made from the chemical composition shown in the mill test reports or by chemical analysis of bars representative of the bars to be welded. The carbon equivalent shall not exceed 0.55. Preheating of Grade 60 bars will be required immediately prior to welding.

3. Testing and Inspection

Contractor shall provide notification at least 2 working days ahead of each concrete pour, and no concrete shall be placed until all reinforcing steel has been installed by the Contractor and approved by the Construction Manager. All reinforcing shall be complete in every way by the end of the working day prior to concrete placing.

4. Special Inspection

Special inspection is required as defined in CBC Chapter 17.

5. Defective Work

The following reinforcing steel work will be considered defective and shall be removed and replaced by the Contractor at no additional cost to the City.

- A. Bars with kinks or bends not shown on plans.
- B. Bars injured due to bending or straightening.
- C. Bars heated for bending.
- D. Reinforcement not placed in accordance with the plans or specifications.

DIVISION VIII – MISCELLANEOUS CONSTRUCTION

SECTION 75 – MISCELLANEOUS METAL

75-1.01 STRUCTURAL STEEL

GENERAL

1. Summary

A. Section Includes:

1. Structural shapes.
2. Channels and angles.
3. Hollow structural sections.
4. Structural pipe.
5. Structural plates and bars.
6. Floor plates.
7. Fasteners, connectors, and anchors.
8. Grout.

2. References

A. American Institute of Steel Construction:

1. AISC Steel Construction Manual (15th Edition).

B. ASTM International:

1. ASTM A36 - Standard Specification for Carbon Structural Steel.
2. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
4. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
5. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
6. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
7. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
8. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
9. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
10. ASTM A588 - Standard Specification for High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4-in. (100-mm) Thick.
11. ASTM A618 - Standard Specification for Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing.
12. ASTM A786 - Standard Specification for Hot-Rolled Carbon, Low-Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates.
13. ASTM A847 - Standard Specification for Cold-Formed Welded and Seamless High Strength, Low Alloy Structural Tubing with Improved Atmospheric Corrosion Resistance.
14. ASTM A992 - Standard Specification for Structural Steel Shapes.
15. ASTM F436 - Standard Specification for Hardened Steel Washers.
16. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

C. American Welding Society:

1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
 2. AWS D1.1 - Structural Welding Code - Steel.
 - D. Research Council on Structural Connections:
 1. RCSC - Specification for Structural Joints Using ASTM A325 or A490 Bolts.
 - E. SSPC: The Society for Protective Coatings:
 1. SSPC - Steel Structures Painting Manual.
 2. SSPC SP 3 - Power Tool Cleaning.
3. Submittals
- A. Shop Drawings:
 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 2. Connections.
 3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
 - B. Manufacturer's Mill Certificate: Certify products meet or exceed specified requirements.
 - C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.
 - D. Fabricator: Certificate of Compliance.
4. Quality Assurance
- A. Perform Work in accordance with the following:
 1. AISC Code of Standard Practice for Steel Buildings and Bridges.
 - B. Maintain one copy of each document on site.
5. Qualifications
- A. Welders and Welding Procedures: AWS D1.1 qualified within previous 12 months.

PRODUCTS

1. Structural Steel
 - A. Channels and Angles: ASTM A36.
 - B. Round Hollow Structural Sections: ASTM A500, Grade B.
 - C. Square and Rectangular Hollow Structural Sections: ASTM A500, Grade B.
 - D. Structural Pipe: ASTM A53, Grade B.
 - E. Structural Plates and Bars: ASTM A36.
2. Fasteners, Connectors, and Anchors
 - A. Bolts: ASTM A307; Grade A.
 1. Finish: Hot dipped galvanized U.O.N.
 2. Use Type 3 bolts for corrosion resistant weathering steel.
 - B. High Strength Bolts: ASTM A325; Type 1.
 1. Finish: Hot dipped galvanized U.O.N.
 - C. Nuts: ASTM A563 heavy hex type.

1. Finish: Hot dipped galvanized U.O.N.
 2. Use Type 3 washers for corrosion resistant weathering steel.
 - D. Washers: ASTM F436; Type 1, circular.
 1. Finish: Hot dipped galvanized U.O.N.
 - E. Anchor Rods: ASTM F1554.
 1. Plate Washers: ASTM A36.
 - F. Threaded Rods: ASTM A36
 1. Finish: Hot dipped galvanized U.O.N. Rods used for temporary shoring may be unfinished.
3. Welding Materials
 - A. Welding Materials: AWS D1.1; type required for materials being welded.
 4. Accessories
 - A. Shop and Touch-Up Primer: SSPC Paint 23.
 - B. Teflon Bearing Pads: Voss VSB Unfilled PTFE sliding pads or approved equal.
 5. Fabrication
 - A. Continuously seal joined members by continuous welds. Grind exposed welds smooth.
 - B. Fabricate connections for bolt, nut, and washer connectors.
 - C. Develop required camber for members.
 6. Finish
 - A. Prepare structural component surfaces in accordance with SSPC SP 3. Structural steel used for temporary shoring purposes do not require surface finishes.
 - B. Shop prime structural steel members. Do not prime surfaces that will be field welded or are composed of weathering steel.
 7. Source Quality Control and Tests
 - A. Shop test bolted and welded connections as specified for field quality control tests.
 - B. Submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.
 1. Specified shop tests are not required for Work performed by approved fabricator.

EXECUTION

1. Examination
 - A. Verify bearing surfaces are at correct elevation.
 - B. Verify anchors rods are set in correct locations and arrangements with correct exposure for steel attachment.
2. Preparation
 - A. Furnish templates for installation of anchor rods and embedment's in

concrete and masonry work.

3. Erection
 - A. Allow for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.
 - B. Field weld components indicated on Drawings.
 - C. Field connect members with threaded fasteners; torque to required resistance tighten to snug tight for bearing type connections.
 - D. Do not field cut or alter structural members without approval of University's Representative.
 - E. After erection, touch up welds and abrasions to match shop finishes.
4. Field Quality Control
 - A. The following tests shall be provided by a certified Special Inspector approved by the Owner and shall be in accordance with Section 1703.3 and Table 1704.3 of the 2019 CBC.
 1. Bolted Connections: Inspect in accordance with AISC specifications.
 - a. Visually inspect all bolted connections.
 - b. For Direct Tension Indicators, comply with requirements of ASTM F959. Verify that gaps are less than gaps specified in Table 2.
 2. Welding: Inspect welds in accordance with AWS D1.1
 - a. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - b. Visually inspect all welds.
 - c. Periodic Special Inspection shall be acceptable for single-pass fillet welds not exceeding 5/16 inch provided the welding procedures and qualifications of welders are verified prior to start of work.
 3. Correct defective bolted connections and welds.

75-1.02 METAL FABRICATIONS

GENERAL

1. Summary
 - A. Section Includes:
 1. Anchors, bolts, and fastening devices.
 2. Miscellaneous steel.
 - B. Related Sections. See Related Sections for additional requirements applicable to this Section (typical).
 1. 75-1.01 – Structural Steel

2. References

- A. American Institute of Steel Construction (AISC):
 - 1. Manual of Steel Construction – Fifteenth Edition.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A108 - Standard Specification for Steel Bars, Carbon, Cold Finished, Standard Quality.
 - 4. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 5. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 6. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
 - 7. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
 - 8. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
 - 9. ASTM A283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
 - 10. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 Psi Tensile Strength.
 - 11. ASTM A312 – Specification for Seamless and Welded Austenitic Stainless Steel Pipe.
 - 12. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - 13. ASTM A366 - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.
 - 14. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 15. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
 - 16. ASTM A992 – Standard Specification for Structural Steel Shapes.
 - 17. ASTM F436 - Standard Specification for Hardened Steel Washers.
 - 18. ASTM F594 - Standard Specification for Stainless Steel Nuts.
 - 19. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
- C. American National Standards Institute (ANSI):
 - 1. ANSI B18.22.1 - Plain Washers.
- D. American Welding Society (AWS):
 - 1. AWS D1.1 - Structural Welding Code – Steel.
 - 2. AWS D1.2 - Structural Welding Code – Aluminum.
 - 3. AWS D1.6 - Structural Welding Code - Stainless Steel.
 - 4. AWS A2.0 - Standard Welding Symbols.
- E. Society for Protective Coatings (SSPC):

1. SSPC SP-1 - Surface Preparation Specification No. 1 Solvent Cleaning.
 2. SSPC SP-2 - Surface Preparation Specification No. 2 Hand Tool Cleaning.
 3. SSPC SP-3 - Surface Preparation Specification No. 3 Power Tool Cleaning.
 4. SSPC SP-6 - Surface Preparation Specification No. 6 Commercial Blast Cleaning.
 5. SSPC SP-10 - Surface Preparation Specification No. 10 Near-White Blast Cleaning.
3. Submittals
- A. Prior to fabrication, submit to the ENGINEER shop drawings, erection or setting drawings, product data, etc, showing methods of assembly, anchorage and connection to other members. Indicate welded connections in accordance with AWS A2.0. Shop drawings are required for all items included under this Section.
 - B. Metal fabrication submittals greater than 30 sheets will take longer than 30 days for review by the ENGINEER.
 - C. Submit samples as requested by the ENGINEER during the course of construction.
4. Quality Assurance
- A. Coordinate completely the work of this Section with the work of other Sections. Verify at the site both the dimensions and work of other trades adjoining items of work before fabrication and installation of the items specified.
 - B. Furnish to the pertinent trades all items that are to be built into the work of other Sections.
 - C. Field welding shall be done by certified welders and shall be in accordance with the appropriate AWS Specification.
 1. Qualify welders in accordance with the appropriate AWS for each process, position, and joint configuration.
 2. WPS's for each joint type shall indicate proper AWS qualification and be available where welding is performed.
5. Delivery, Storage and Handling
- A. Deliver items to be incorporated into the work of other trades in sufficient time to be checked prior to installation.
 - B. Delivery anchorage devices with setting drawings, templates and instructions for installation.
 - C. Store delivered items off the ground and protected from dirt and weather.
 - D. Repair items which have become damaged or corroded to the satisfaction of the ENGINEER prior to incorporating them into the work.

PRODUCTS

1. Materials

A. Steel

1. Structural steel wide flange shapes: ASTM A992.
2. Other structural steel shapes, plates, bars and rods: ASTM A36.
3. Steel sheets: ASTM A366.
4. Welded and seamless steel pipe: ASTM A53, Type S, Grade B Schedule 40. Use standard malleable iron fittings, galvanized for exterior work.
5. Welded and seamless rectangular steel tubing: ASTM A500, Grade B.
6. Cast-in anchor bolts: ASTM F1554, Grade 36.
7. High strength bolts, nuts and washers for structural steel:
8. Elevated temperature exposures: ASTM A325, Type I.
9. General application: ASTM A325, Type I or II.
10. Headed Anchor Studs: Nelson Type H4L or S3L by Nelson Stud Welding Company or equal.
11. Welding Materials AWS D1.1.
12. Galvanizing:
13. General: ASTM A123.
14. Hardware: ASTM A153.
15. Assembled steel products: ASTM A123.
16. Shop and Touch-up Primer: SSPC Paint 15 Type I red oxide.

B. Anchors, Bolts, and Fastening Devices

1. Furnish anchors, bolts, fasteners, etc, as necessary for installation of the work or for securing the work of other Sections to in-place construction.
2. The bolts used to attach the various members to the anchors shall be the sizes shown or required. Attach aluminum and stainless steel to concrete or masonry by means of stainless steel bolts. Attach iron or steel with steel bolts unless otherwise specifically noted.
3. Bolt heads and nuts shall be hex type unless noted otherwise.
4. For structural purposes, unless otherwise noted, drilled-in concrete anchors shall be adhesive type or expansion type anchor bolts. Drilled-in anchors shall have ICC certified permissible values.
 - a. Concrete adhesive anchors shall be a two-part stud and cartridge resin anchoring system certified for use in cracked concrete. Stud assembly spacing and minimum embedment shall be as shown on the Drawings. The assembly shall include all-thread anchor rod with nut and washer, or deformed reinforcing steel. Provide manufacturer's recommended drive units and adaptors for installing studs. Install anchors in full compliance with the manufacturer's recommendations. Adhesive anchors for use in concrete shall be Hilti HIT-RE 500-SD by Hilti, Inc., Tulsa, OK; Epcon

G5 by ITW Red Head, Addison, Illinois; Simpson SET-XP by Simpson Strong-Tie Company, Inc., Pleasanton, CA; or approved equal.

- b. Concrete expansion anchors shall be wedge type anchors certified for use in cracked concrete. Type 316 stainless steel expansion anchors shall be used where they will be submerged or exposed to the weather or where stainless steel expansion anchors are required. Zinc plated carbon steel anchors shall be used at all other locations, unless noted otherwise. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion sleeve portion of the bolt at least 1-in behind the reinforcing steel within the concrete. Install anchors in full compliance with the manufacturer's recommendations. Expansion anchors for use in concrete shall be Hilti, Kwik-Bolt TZ by Hilti, Inc., Tulsa, OK; Simpson Strong-Bolt Wedge Anchor for Cracked and Uncracked Concrete by Simpson Strong-Tie Company, Inc., Pleasanton, CA; Redhead Trubolt + Wedge Anchor by ITW Red Head, Addison, Illinois; or approved equal.
 - c. Masonry adhesive anchors shall be Hilti HIT HY 150 MAX by Hilti, Inc., Tulsa, OK; Simpson SET by Simpson Strong-Tie Company, Inc., Pleasanton, CA; or approved equal.
 - d. Masonry expansion anchors shall be Hilti Kwik-Bolt 3 by Hilti, Inc., Tulsa, OK; Simpson Wedge-All Anchors by Simpson Strong-Tie Company, Inc., Pleasanton, CA; or approved equal.
5. Headed anchor studs shall be flux ended, welded to plates or other embeds as shown on the Drawings. Studs shall be made from cold drawn steel Grades C-1010 through C-1020 per ASTM A108 and shall be welded per the manufacturer's recommendations. Headed anchor studs shall be Nelson Stud Welding Company, Lorain, OH - Type H4L or S3L, or equal.

2. Fabrication

- A. Form all miscellaneous metal work true to detail, with clean, straight, sharply defined profiles, and smooth surfaces of uniform color and texture. Provide fabrications free from defects impairing strength or durability. Drill or punch holes and smooth edges. Ease exposed edges to a small, uniform radius. Fabricate supplementary pieces necessary to complete each item though such pieces are not definitely shown or specified.
- B. Supply components required for anchorage of fabrications. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Steel accessories and connections to steel or cast iron shall be steel, unless otherwise specified.

Threaded connections shall be made so that the threads are concealed by fitting.

- C. Welded joints shall be rigid and continuously welded or spot welded as specified or shown. Dress the face of welds flush and smooth. Continuously weld and grind smooth welds that will be exposed. Exposed joints shall be close fitting and jointed where least conspicuous. Conceal fastenings where practical. Punch or drill for temporary field connections and for attachment of the work of other trades.
- D. Welding of parts shall be in compliance with the latest edition of the AWS structural welding code for steel (D1.1); aluminum (D1.2) or stainless steel (D1.6) as appropriate, and shall only be done where shown, specified, or permitted by the ENGINEER. Welding shall be performed only by welders certified to perform the required welding in compliance with the requirements of the AWS Code. Component parts of built-up members to be welded shall be adequately supported and clamped or held by other adequate means to hold the parts in proper relation for welding.
- E. Castings shall be of good quality, strong, tough, even-grained, smooth, free from scale, lumps, blisters, sand holes and defects of any kind which render them unfit for the service for which they are intended. Thoroughly clean castings. Castings may be subjected to a hammer inspection in the field by the ENGINEER. All finished surfaces shown on the Drawings and/or specified herein shall be machined to a true plan surface allowing pieces to seat at all points without rocking. Make allowances in the patterns so that thicknesses specified or shown will not be reduced in obtaining finished surfaces. Castings will not be acceptable if the actual weight is less than 95 percent of the theoretical weight computed from the dimensions shown. Provide facilities for weighing castings in the presence of the ENGINEER and show true weights, certified by the supplier.
- F. Shop painting will not be required for galvanized metal, stainless steel, aluminum, copper, brass and bronze unless specifically specified.
- G. Thoroughly clean steel fabrications of all loose mill scale, rust, grease or oil, moisture, dirt, or other foreign matter.
 - 1. Remove scale, rust and other deleterious materials before shop coat of paint is applied.
 - 2. Clean off heavy rust and loose mill scale in accordance with SSPC SP-2, SSPC SP-3 or SSPC SP-6.
 - 3. Remove oil, grease and similar contaminants in accordance with SSPC SP-1.
- H. Fabricate miscellaneous aluminum shapes and plates as shown. Furnish welded and mitered angle frames and other fabrications complete with welded anchors attached. Structural shapes and extruded items shall comply with the dimensions on the Drawings within the tolerances published by the Aluminum Association. Weld aluminum work on the unexposed side when possible in order to prevent pitting or discoloration of exposed aluminum surfaces.

3. Finishes

A. Steel

1. Items in areas which are not exposed to weather or moisture, shall have exposed surfaces painted with a shop coat of primer compatible with the finish coatings after fabrication but before shipping. Apply two shop coats of primer to surfaces that will be inaccessible after erection.
 - a. Remove scale, rust and other deleterious material before shop coat of paint is applied. Clean off heavy rust and loose mill scale in accordance with SSPC-2, SSPC-3 or SSPC-6. Remove oil, grease and similar contaminants in accordance with SSPC SP-1.
 - b. Immediately after surface preparation, brush or spray on metal primer paint, applied in accordance with manufacturer's instructions and at rate to provide a uniform dry film thickness of 3.0 mils per coat applied. Use painting methods which will result in full coverage of joints, corner, edges and all exposed surfaces.
 - c. As soon as possible after erection, touch up any scraped, abraded or unpainted surfaces using primer as specified for shop coats.
2. Items exposed to weather, submerged in water or subject to splashing, or located in corrosive environments shall be hot dip galvanized after fabrication unless otherwise noted on the Drawings or specified.
 - a. Following all manufacturing operations, items to be galvanized shall be thoroughly cleaned, pickled, fluxed and completely immersed in a bath of molten zinc. The resulting coating shall be adherent and shall be the normal coating to be obtained by immersing the items in a bath of molten zinc and allowing them to remain in the batch until their temperature becomes the same as the bath. Coating shall be not less than 2 oz/sq ft of surface.
 - b. Where field welding of galvanized material is necessary, welds shall be wire brushed clean and immediately regalvanized in the field using galvanizing compound or coating. Materials shall comply with local regulations controlling use of volatile organic compounds.

EXECUTION

1. Installation - General

- A. Install all items finished.
- B. Items to be attached to concrete after such work is completed shall be installed in compliance with the details shown. Furnish to appropriate trades all anchors, sockets, or fastenings required for securing work to other construction.

- C. Set metal work level, true to line and plumb as indicated.
 - D. Weld field connections and grind smooth where practicable. Clean and strip primed, steel items to bare metal where site welding is required. Conceal fastenings where practicable.
 - 3. Weld only in accordance with approved WPS's which are to be available to welders and inspectors during the production process.
 - E. Secure metal to wood with lag screws or bolts, of adequate size, with appropriate washers and nuts.
 - F. Touch-up abrasions to finish or primer coatings immediately after erection and prior to both final coating and final acceptance.
 - G. Break contact between dissimilar metals as shown on the Drawings or as specified in Paragraph 3.1H below.
 - H. Field-apply coatings for installation of metal fabrications according to the following schedule. (For embedded items, coat the embed.)
 - 1. All steel surfaces in contact with exposed concrete shall receive a protective coating of an approved heavy bitumastic troweling mastic applied in compliance with the manufacturer's instructions prior to installation.
 - 2. Where aluminum contacts a dissimilar metal, apply a heavy brush coat of zinc-chromate primer followed by two coats of aluminum metal and masonry paint to the dissimilar metal.
 - 3. Where aluminum contacts concrete, apply a heavy coat of zinc chromate primer to the surface of the aluminum.
 - 4. Where aluminum contacts wood, apply two coats of aluminum metal and masonry paint to the wood.
2. Field Quality Control - Inspection
- A. Notify the ENGINEER in writing 4 working days in advance of high strength bolting or field welding operations.
 - B. High strength bolting will be inspected visually. All high strength bolts shall have the turned portion marked with reference to the steel being connected after the nut has been made snug and prior to final tightening. Retighten rejected bolts or remove and provide new bolts. In cases of disputed bolt installations, the bolts in question shall be checked using a calibrated wrench certified by an independent testing laboratory approved by the ENGINEER. The certification shall be at no additional cost to the OWNER.
 - C. Field welding will be inspected visually and by non-destructive testing by AWS certified welding inspectors provided by an Independent Testing Agency. This work will be paid for by the OWNER. Testing procedures will include ultrasonic testing. CONTRACTOR shall comply with all requests of inspectors to correct deficiencies.
 - D. The fact that steel work has been accepted at the shop and mill will not prevent its final rejection at the site, before or after erection, if it is found to be defective.
 - E. Remove rejected steel work from the site within 10 working days after

notification of rejection.

SECTION 76 – BLANK

SECTION 77 – BLANK

SECTION 78 – BLANK

SECTION 79 – BLANK

SECTION 80 – FENCES

80-1.01 WELDED WIRE FENCES & GATES

GENERAL

1. Summary:
This Section describes the requirements for furnishing and installing steel welded wire fence, gates and appurtenances.
2. General Requirements:
This Section shall be performed in accordance with the General Conditions, Supplementary Conditions and all Sections in Division 1 of these Specifications. These documents must be read with the other Contract Documents and Sections as a whole to complete the intent of the contract.
3. Submittals:
 - A. Make submittals to the Owner's Representative in accordance with the provisions of these specifications.
 - B. Product Data: Manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.
 - C. Shop Drawings: Show location of fence, gates, each post, and details of post installation, extension arms, gate swing, hardware, and accessories.
4. Quality Assurance:
 - A. Single-Source Responsibility: Obtain welded wire panels and gates as complete units, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

PRODUCTS

1. Approved Manufacturers:
 - A. McNichols. Co. Inc. or Engineer approved equal.

2. Fabric:
 - A. Welded Wire Panel: Furnish two-piece panel widths for fencing up to 8-feet high. Wire size includes zinc coating.
 1. Size: 4-inch square mesh, 2 3/4-gage (0.250-inch diameter) wire with closed edges.
 2. Galvanized Steel Finish: ASTM A392, Class 2, with not less than 1.2-oz. zinc per sq. ft. of uncoated wire surface on wire coated before weaving or not less than 1.2-oz. zinc per sq. ft. of uncoated wire surface on wire of fabric coated after weaving as determined from the average of two or more samples and not less than 1.8-oz. zinc per sq. ft. of uncoated wire surface for any individual sample.
3. Framing:
 - A. Pipe shall be straight, true to section, material, and sizes specified on the plans with interior and exterior coating.
 - B. Unless otherwise noted, all pipe diameters labeled on the plans refer to Standard Pipe nominal diameters. They do not represent outside diameters unless specifically indicated.
 - C. Unless otherwise noted all pipe material denoted on plans or denoted as “Standard Pipe” shall be Schedule 40 steel pipe, ASTM A53 Grade B with a minimum yield strength of 35 ksi and an ultimate tensile strength of 60 ksi. All pipe shall be Hot-dipped galvanized steel pipe conforming to ASTM F1083, plain ends, standard weight (schedule 40) with not less than 1.8-oz. zinc per sq. ft. of surface area coated.

As an alternative, pipes denoted on the plans as Standard Pipe may be substituted with the following materials provided the pipes have diameters and thicknesses meeting or exceeding Standard Pipe.

 1. ASTM A569 or A446, grade D, cold formed, electric welded with minimum yield strength of 50,000-psi and triple coated with minimum 0.9-oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B117 for 300-hours with the end point of 5-percent Red Rust.
 2. ASTM F1083, plain ends, Grade 50,000 psi, with not less than 1.8-oz. zinc per sq. ft. of surface area coated.
4. Fittings and Accessories:
 - A. Material: Unless otherwise noted all materials shall comply with ASTM F626. Mill-finished galvanized iron or steel, to suit manufacturer's standards.
 1. Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A153, with zinc weights per Table I.
 - B. Tension Wire/Wire Bracing: 3-gage (0.229-inch) diameter steel tension

wire conforming to ASTM A824 with finish to match fabric.

1. Type II Zinc Coated, Class 2 with a minimum coating weight of 1.20-oz. per sq. ft. of uncoated wire surface.
 - C. Bottom and Center Rail: Same material as top rail. Provide manufacturer's standard galvanized steel or cast iron or cast aluminum cap for each end.
 - D. Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail.
 - E. Tension and Brace Bands: Minimum 3/4-inch-wide hot-dip galvanized steel with minimum 1.2-oz. zinc coating per sq. ft. of surface area.
 1. Tension Bands: Minimum 14-gage (0.074-inch) thick.
 2. Tension and Brace Bands: Minimum 12-gage (0.105-inch) thick.
 - F. Concrete: Refer to 90-1.01 Cast In Place Concrete.
5. Gates:
- A. Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8-feet apart unless otherwise indicated.
 1. Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.
 2. Install diagonal cross-bracing consisting of 3/8-inch-diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.
 3. All gate frames shall be welded, hot dipped galvanized framing.

EXECUTION

1. Installation:
 - A. General: Do not begin installation and erection before final grading is completed, unless otherwise permitted.
 1. Apply fabric to framework as depicted in project plans.
 - B. Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
 1. If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4-times largest cross-section of post.
 2. Unless otherwise indicated, excavate hole depths approximately 3-inches lower than post bottom, with bottom of posts set not less than 36-inches below finish grade surface.
 - C. Setting Posts: Center and align posts in holes 3-inches above bottom of excavation. Space a maximum 8-feet o.c., unless otherwise indicated.
 1. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation.

Check each post for vertical and top alignment and hold in position during placement and finishing operations.

2. Unless otherwise indicated, extend concrete footings 2-inches above grade and trowel to a crown to shed water.
- D. Top Rails: Provide top rails where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary. Provide expansion couplings as recommended by fencing manufacturer.
 - E. Center Rails: Provide center rails where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary.
 - F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.
 - G. Bottom Rails: Install bottom rail within 6-inches of bottom of fabric before stretching fabric and secure to each post similar to top and center rails.
 - H. Fabric: Leave approximately 2-inches between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and secure to posts & rails. Install fabric on security side of fence.
 - I. Tension or Stretcher Bars: Thread through or clamp to fabric 4-inches o.c., and secure to end, corner, pull, and gate posts with tension bands spaced not over 15-inches o.c.
 - J. Spot Welds: Spot weld wire mesh to post and rails at maximum spacing as indicated on project plans.
 1. Spot weld all hardware ties from wire mesh to horizontal rails and vertical posts.
 - K. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
 - L. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

80-1.02 EXPANDED METAL FENCES & GATES

GENERAL

1. Summary:
Section includes specifications for expanded metal mesh fence and gates (personal, and sliding or swing gates).
2. General Requirements:
This Section shall be performed in accordance with the General Conditions, Supplementary Conditions and all Sections in Division 1 of these Specifications. These documents must be read with the other Contract Documents and Sections as a whole to complete the intent of the contract.

3. Submittals:
 - A. Make submittals to the Owner’s Representative in accordance with the provisions of these specifications.
 - B. Product Data: Manufacturer’s technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.
 - C. Shop Drawings: Show location of fence, gates, each post, and details of post installation, extension arms, gate swing, hardware, and accessories.
4. Quality Assurance:
 - A. Single-Source Responsibility: Obtain chain link fences and gates as complete units, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

PRODUCTS

1. Approved Manufacturers:
 - A. Secura Expanded Mesh Fence System as manufactured by Alabama Metal Industries Corporation (AMICO), McNichols Co. Inc. or Engineer approved equal.
2. Fabric:
 - A. Fabric: Type I (expanded), Class 2 (hot-dip galvanized), Grade A (0.06 mm minimum coating thickness) Carbon HSLA steel conforming to ASTM A1011. Sheet steel slit and stretched into a rigid, open mesh diamond shape openings.
 1. Maximum carbon content of 0.15 percent
 2. Tensile strength shall be at least 40,000 psi with typical yield point of 38,000 psi
 3. Mesh Size: 3/4” x No. 9 Standard
 4. Short way of diamond run horizontally.
3. Framing:
 - A. Pipe shall be straight, true to section, material, and sizes specified on the plans with interior and exterior coating.
 - B. Unless otherwise noted, all pipe diameters labeled on the plans refer to Standard Pipe nominal diameters. The do not represent outside diameters unless specifically indicated.
 - C. Unless otherwise noted all pipe material denoted on plans or denoted as “Standard Pipe” shall be Schedule 40 steel pipe, ASTM A53 Grade B with a minimum yield strength of 35 ksi and an ultimate tensile strength of 60 ksi. All pipe shall be Hot-dipped galvanized steel pipe conforming to ASTM F1083, plain ends, standard weight (schedule 40) with not less than 1.8-oz. zinc per sq. ft. of surface area coated.
As an alternative, pipes denoted on the plans as Standard Pipe may be substituted with the following materials provided the pipes have diameters and thicknesses meeting or exceeding Standard Pipe.

1. ASTM A569 or A446, grade D, cold formed, electric welded with minimum yield strength of 50,000-psi and triple coated with minimum 0.9-oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B117 for 300-hours with the end point of 5-percent Red Rust.
 2. ASTM F1083, plain ends, Grade 50,000 psi, with not less than 1.8-oz. zinc per sq. ft. of surface area coated.
4. Fittings and Accessories:
- A. Fasteners and Fittings: Manufacturer fittings, and all hot-dip galvanized.
 1. Fittings: “No Access Fittings”, heavy pressed steel construction conforming to ASTM F626
 2. Bands: Secura Bands: 11 gauge by 1 inch steel with 3 inch neck and slotted hole
 3. Clamps: Secura Clamps: 11 gauge by 1 inch steel with 2 slotted holes
 4. Back Straps: Secura Back Straps: 11 gauge by 1 inch steel with 2 slotted holes
 5. Bolts: Carriage bolts 3/8 inch by 2 inch to secure fittings. Tighten securely and peen or scarf threads to prevent removal.
 - B. Gate Hardware: Hinges, latches, drop rods, as needed, shall be hot dip galvanized steel and sized to assure proper gate operation. Finish to match the fabric.
5. Gates:
- A. Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8-feet apart unless otherwise indicated.
 1. Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.
 2. Install diagonal cross-bracing consisting of 3/8-inch-diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.
 3. All gate frames shall be welded, hot dipped galvanized framing.

EXECUTION

1. Installation:
 - A. General: Install fence in compliance with ASTM F567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
 1. Apply fabric to outside of framework.

- B. Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
 - 1. If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4-times largest cross-section of post.
 - 2. Unless otherwise indicated, excavate hole depths approximately 3-inches lower than post bottom, with bottom of posts set not less than 36-inches below finish grade surface.
- C. Setting Posts: Center and align posts in holes 3-inches above bottom of excavation. Space a maximum 8-feet o.c., unless otherwise indicated.
 - 1. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment and hold in position during placement and finishing operations.
 - 2. Unless otherwise indicated, extend concrete footings 2-inches above grade and trowel to a crown to shed water.
- D. Top Rails: Run rail continuously through line post caps, bending to radius for curved runs and at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.
- E. Center Rails: Provide center rails where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary.
- F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.
- G. Fabric: Leave approximately 2-inches between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
- H. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- I. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

DIVISION XI MATERIALS

SECTION 90 – CONCRETE

Attention is directed to the Section 90, “Concrete” of the Standard Specifications and these Special Provisions.

90-1.01 CAST IN PLACE CONCRETE

GENERAL

1. Summary:
Provide and install all reinforcement, forms, and associated items required for all cast-in-place concrete as shown on the Drawings and specified herein.
2. General Requirements:
This Section shall be performed in accordance with the General Conditions, Supplementary Conditions and all Sections in Division 1 of these Specifications. These documents must be read with the other Contract Documents and Sections as a whole to complete the intent of the contract.
3. Submittals:
 - A. Make submittals to the Owner's Representative in accordance with the provisions of these specifications.
 - B. Shop Drawings; Reinforcement:
Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, and diagrams of bent bars and arrangement of concrete reinforcement. Include special reinforcement required at openings through concrete structures.
 - C. Concrete Design Mixes:
 1. The preparation of design mixes will be the responsibility of the Contractor.
 2. Written reports will be submitted to the Owner Representative of each proposed mix for review. Submit mix designs for each prepared mix. Do not begin concrete production until mixes have been reviewed by the Owner Representative.
 3. Adjustment of Concrete Mixes:
Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results and other circumstances warrant; at no additional cost to the Owner and as accepted by the Owner Representative. Provide submittals as in A above. Submit adjustment designs a minimum of 48 hours ahead of schedule for concrete production.
4. Codes and Standards:
Comply with the provisions of the following codes, specifications and standards, except as otherwise shown or specified:
 - A. ACI 301 "Specifications for Structural Concrete for Buildings".
 - B. ACI 311 "Recommended Practice for Concrete Inspection".
 - C. ACI 318 "Building Code Requirements for Reinforced Concrete".
 - D. ACI 347 "Recommended Practice for Concrete Formwork".
 - E. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
 - F. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
 - G. 2019 California Building Code

PRODUCTS

1. Form Materials:
 - A. Forms for Exposed Finish Concrete:

Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed, plywood-faced or other acceptable panel-type materials, to provide continuous, straight, smooth exposed surfaces. Furnish in largest practicable sizes to minimize number of joints, and to conform to joint system shown on Drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
 - B. Forms for Unexposed Finish Concrete:

Form concrete surfaces that will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least two (2) edges and one (1) side for tight fit.
 - C. Form Coatings:

Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
 - D. Earth Forms:

Unless otherwise indicated or required by the Structural Drawings, concrete for continuous footings may be placed directly against vertical excavated surfaces provided the material will stand without caving and provided the minimum reinforcing steel clearances indicated on the Drawings are maintained and suitable provisions are taken to prevent raveling of top edges or sloughing of loose material from walls of excavation. Dimensions for continuous footings given on Drawings are based on formed surfaces; if placed against excavated surfaces, increase minimum clearances for reinforcing to 3 inches. Sides of excavation shall be made with a neat cut and the width made as detailed on the Drawings.
 - E. Form Ties:

Metal, spreader type or snap tie, removable to 1/4" from concrete face, designed to prevent concrete spalling upon removal. Ties for exposed concrete shall be of the same type throughout the project.
2. Reinforcing Material:
 - A. Reinforcing Bar:

ASTM A615/A 615M, Grade 60, deformed, free of loose rust.
 - B. Steel Wire:

ASTM A82, plain, cold-drawn, steel.
 - C. Tie Wire:

#16 minimum, black and annealed.
 - D. Anchor Bolts: ASTM F1554, Grade 36.
 - E. Accessories:

Metal or plastic spacers, supports, ties, etc., concrete chairs, required for

spacing, assembling and supporting reinforcing in place. Legs of accessories to be of the type that will rest on forms without embedding into forms. Galvanize metal items where exposed to moisture, or use approved other non-corrodible, non-staining supports.

3. Concrete Materials:
 - A. Portland Cement:
Type II conforming to requirements of ASTM C150, Type I or II. Use only one brand of cement throughout the project, unless otherwise acceptable to Owner Representative.
 - B. Normal Weight Aggregates:
Conform to requirements of ASTM C33. Fine aggregate shall be clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances. Maximum size shall be as indicated for each type of concrete.
 - C. Water:
Clean, fresh, potable.
 - D. Water-Reducing Admixture:
ASTM C494, Type A. Do not use calcium chloride or admixtures containing calcium chloride.
 - E. Fly Ash:
ASTM C618
4. Related Materials:
 - A. Joint Filler:
ASTM D1751 and C1752 - preformed, non-extruding asphalt saturated cellulistic fiber, Burke or equal.
 - B. Joint Sealer:
ASTM D1190, hot pour rubber type. Manufacturer - Burke or equal, color as approved by Owner Representative. Silicone sealant or one part Urethane Sealant or two parts Urethane - pour grade.
 - C. Curing Compound:
ASTM C309, Type I, Class B, Burke Aqua Resin Cure, or equal.
5. Proportioning and Design of Mixes:
 - A. Mixes will be designed to provide concrete with the following properties:
 1. Foundations: 3,000 psi 28-day compressive strength. 1" maximum size aggregate. Maximum slump = 4 inches. Maximum water-cement ratio of 0.60. Minimum cement content of 517 lbs. per cubic yard. Up to 15% of the required cement content may be substituted with fly ash per ASTM C618.
 - B. Admixtures:
 1. Use admixtures for water-reducing in strict accordance with the manufacturer's directions, if desired by Contractor and approved by Owner Representative.
 2. Use amounts of admixtures as recommended by the manufacturer for climatic conditions prevailing at the time of placing. Adjust

quantities and types of admixtures as required to maintain quality control.

- C. Slump Limits:
Proportion and design mixes to result in concrete slump at the point of placement with maximum variance of 1" for a specified slump provided concrete remains properly workable.
6. Ready-Mix Concrete Mixing:
- A. Comply with requirements of ASTM C94, and as herein specified. Delete the references for allowing additional water to be added to the batch for material with insufficient slump. Addition of water to the batch will not be permitted.
 - B. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required.
 - 1. When the air temperature is between 85°F and 90°F, reduce the mixing and delivery time from 1½ hours to 75 minutes.
 - 2. When the air temperature is above 90°F, reduce the mixing and delivery time to 60 minutes.

EXECUTION

- 1. Forms:
 - A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied, until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
 - B. Design formwork to be readily removable without impact, shock or damage to cast-in-place surfaces and adjacent materials.
 - C. Form Ties:
Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
 - D. Provisions for Other Trades:
Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
 - E. Wetting:
Keep forms sufficiently wetted to prevent joints opening up before concrete is placed.
- 2. Placing Reinforcement:
 - A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for details and methods of reinforcement placement and supports, and as herein specified.
 - B. Clean reinforcement of loose rust and mill scale, earth, ice, and other

materials that reduce or destroy bond with concrete.

- C. Accurately position, support and secure reinforcement against displacement by formwork, construction or concrete placement operations. Locate and support reinforcing by metal chairs, runners, spacers and hangers as required.
 - D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
 - E. All reinforcing in slabs to be supported by concrete chairs; hooking reinforcement in position not allowed. Place chairs immediately prior to concrete pour to prevent reinforcing from being deformed by being walked on.
3. Joints:
- A. Construction Joints:
 - 1. Locate and install construction joints as shown on the Drawings, so as not to impair the strength or appearance of the structure, as acceptable to the Owner Representative. The maximum slab area between construction joints shall be 650 square feet.
 - B. Control Joints:
 - Provide weakened plane sawcut joints as shown on the plans.
4. Concrete Placement:
- A. Pre-Placement Inspection:
 - Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades to permit the installation of their work; cooperate with other trades in setting such work, as required. Thoroughly wet wood forms immediately before placing concrete, as required where form coatings are not used. Coordinate the installation of joint materials and vapor barriers with placement of forms and reinforcing steel.
 - B. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing,
 - C. Placing Concrete in Forms:
 - 1. Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 2. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use

equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 304, to suit the type of concrete and project conditions.

3. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the placed layer of concrete and at least 6" into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.

D. Placing Concrete Slabs:

1. Deposit and consolidate concrete slabs in a continuous operation, within the limits of construction joints, until the placing of a panel or section is complete.
2. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Bring slab surfaces to the correct level with a straightedge and strikeoff. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic concrete surface. Do not disturb the slab surfaces prior to beginning finished operations.
4. Maintain reinforcing in the proper position during concrete placement operations by placing concrete chairs immediately prior to pour. Hooking reinforcing in position is not allowed.

E. Cold Weather Placing:

1. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306.
2. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in writing by the Owner Representative.

F. Hot Weather Placing:

1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F.
3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
4. Wet forms thoroughly before placing concrete.
5. Do not use retarding admixtures unless otherwise accepted in mix designs.

5. Finish of Formed Surfaces:
 - A. Smooth Form Finish:

For above-grade formed concrete surfaces covered by cement plaster or otherwise not exposed-to-view. This is the as-cast concrete surface as obtained with selected form facing material arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed.
 - B. Related Unformed Surfaces:

At tops of walls, horizontal offsets and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.
 - C. Sacking Finish:
 1. At all exposed concrete, provide a sacked finish by coating the concrete wall with sacking mix.
 2. Coat entire surface with sacking mortar as soon as surface of concrete approaches surface dryness.
 3. Thoroughly and vigorously rub mortar over area with clean burlap pads to fill all voids.
 4. Trowel with a sponge rubber float to a uniform, level surface.
 5. While mortar is still plastic but partially set (so it cannot be pulled from voids), sack-rub surface with dry mix of sacking mortar (leave out water). There should be no discernible thickness of mortar on concrete surface, except in voids, all surfaces should be uniformly textured.
 6. Immediately begin a continuous moist cure for 72 hours.
6. Slab Finishes:
 - A. All slabs to receive steel trowel finish or as otherwise noted. Float Finish:
 1. Apply float finish to slab surfaces that are to receive trowel finish as herein after specified.
 2. After screeding and consolidating concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding ¼" in 10' when tested with a 10' straightedge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
 - B. Trowel Finish:

Apply trowel finish to interior monolithic slab surfaces that are to be exposed-to-view, and slab surfaces that are to be covered. After floating, first trowel finish operation using a power-driven trowel. Begin final

troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10' when tested with a 10' straightedge. Grind smooth surface defects which would telegraph through applied covering system.

C. All exposed slabs shall have a light broom finish.

7. Concrete Curing and Protection

A. Duration:

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperature, and maintain without drying at a relatively constant temperature for a period of time necessary for hydration of cement and proper hardening.
2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 24 hours.
3. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven (7) days and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

B. Curing Methods:

1. Moisture Curing:
Provide moisture curing by keeping surface continuously wet by covering with water or a continuous water-fog spray.
2. Membrane Curing:
 - a. Apply membrane-forming curing compound to damp concrete surfaces at immediately upon completion of water-fog spray application. Apply uniformly in 2-coat continuous operation by power-spray equipment in accordance with manufacturer's directions. Recoat areas which are subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - b. Do not use curing compounds on surfaces which are to be covered with a coating material applied directly to concrete or with a covering material bonded to concrete, such as flooring, painting, and other coatings and finish materials, unless otherwise acceptable to Owner Representative.

C. Curing Formed Surfaces:

Initially cure unformed surfaces, such as slabs and other flat surfaces by moist curing. Final cure unformed surfaces by membrane or moist curing, as applicable, for full curing period.

8. Removal of Forms:

Formwork not supporting weight of concrete, such as sides of footings, walls, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10°C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

9. Concrete Surface Repairs:

- A. Repair and patch defective areas with cement mortar immediately after removal of forms, but only when acceptable to Owner Representative.
- B. Cut out honeycomb, rock, pockets, voids over ½" diameter, and holes left by tie rods and bolts, down to solid concrete, but in no case to a depth of less than 1". Make edges of cuts, perpendicular to the concrete surface. Before placing cement mortar, thoroughly clean, dampen with water and brush-coat the area to be patched with neat cement grout. Proprietary patching compounds may be used when acceptable to Owner Representative.