Contract Documents and Construction Specifications

ORCHARD RUN WELL REHABILITATION

SCOTTS VALLEY WATER DISTRICT

svwd.org svwater

Scotts Valley Water District
Santa Cruz County, California

November 2026

Project Engineer: MONTGOMERY AND ASSOCIATES

SECTION 1 BID DOCUMENTS

TABLE OF CONTENTS

1-A NOTICE INVITING BIDS 1
1-B INSTRUCTION TO BIDDERS 4
1-C BID FORM 9
1-D BID BOND 13
1-E SUBCONTRACTORS LIST 15
1-F NON-COLLUSION AFFIDAVIT 16
1-G STATEMENT OF QUALIFICATIONS 17
1-H BIDDER CERTIFICATIONS 20
1-I IRAN CONTRACTING ACT CERTIFICATION 23

1-A NOTICE INVITING BIDS

SCOTTS VALLEY WATER DISTRICT

REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL

Date Issued: October 19th, 2026

Date Published October 19th, 2026

Notice is hereby given that sealed bids will be received by the Scotts Valley Water District ("District") in the District Office at the time, date and place below for furnishing all labor, materials, equipment, and services for the construction of improvements designated as the Scotts Valley Water District ORCHARD RUN WELL REHABILITATION at which time and place bids will be publicly opened and read.

Location: Scotts Valley Water District
2 Civic Center Drive, Scotts Valley CA 95066

Time: **Before 2:00 PM, Tuesday, November 16th, 2026**

After bids are opened, they will be referred to staff for subsequent action. The District reserves the right to reject any or all bids and to waive any errors or discrepancies. Any bids received after the scheduled closing time for receipt of bids will be returned unopened.

PROJECT DESCRIPTION

The Project involves redevelopment testing of Orchard Run Well including jetting, cleaning out of debris, installation of a test pump and finishing with installation of new District furnished HSLA column piping, along with a new pump and motor.

REQUIREMENTS

Contractor's License

To submit a bid the Contractor must possess licenses valid in the State of California for Class C-57 license. In accordance with the provisions of California Business and Professions Code Section 7028.15, a bid submitted to the District by a Contractor who is not licensed in accordance with applicable laws shall be considered non-responsive.

Time Limit for Completion

The successful bidder will have 40 calendar days to substantially complete the Project from the

Notice to Proceed. Liquidated Damages in the amount of $1,000 per day will be assessed for each calendar day the work remains incomplete beyond the time fixed above for completion pursuant to Section 2-F, Special Conditions, and Liquidated Damages.

Mandatory Pre-Bid Conference

A mandatory pre-bid conference will be held at 10 am on Thursday, November 5th, 2026 at 2 Civic Center Dr, Scotts Valley, CA 95066. Attendance at the pre-bid conference is mandatory for all prospective bidders.

Prevailing Wage and Labor Code Compliance

The District hereby advises all bidders that the successful bidder shall: (a) Employ the appropriate number of apprentices on the job site as set forth in California Labor Code 1777.5; (b) Provide Workers' Compensation coverage, as set forth in California Labor Code Sections 1860 and 1861; (c) Keep and maintain the records of work performed on the public works Project, as set forth in California Labor Code Section 1812; (d) Keep and maintain the records required under California Labor Code Section 1776 which shall be subject to inspection pursuant to California Labor Code Section 1776 and California Code of Regulations, Division 1, Chapter 8, Subchapter 3, Article 6, Section 16400(e); (e) Be subject to other requirements imposed by law; and (f) pay prevailing wages as required by Labor Code Sections 1770, 1773, 1773.1, 1773.6 and 1773.7 as amended.

Notice of Public Works Registration

Notice is hereby given that no contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5, with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a). No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement) if required by law.

OBTAINING DOCUMENTS

Electronic copies of all Contract Documents are available per request. All prospective bidders shall register with the District by calling 831-438-2363 or emailing engineering@svwd.org. The Contract Documents are also available on District website www.svwd.org.

CONTACT INFORMATION

Pre-Bid Inquiries. Bidders may submit pre-bid inquiries or clarification requests. Bidders are solely and exclusively responsible for submitting such inquiries or clarification requests not less than Fourteen (14) days prior to the scheduled closing date for the receipt of Bid Proposals. The District will not respond to any bidder inquiries or clarification requests unless such inquiries or clarification requests are timely submitted.

QUESTIONS CONCERNING THIS PROJECT SHOULD BE SUBMITTED TO THE OWNER'S REPRESENTATIVE:

Scotts Valley Water District

2 Civic Center Drive

Scotts Valley, CA 95066

Attn: Nate Gillespie, Operations Manager

(831)600-1903 ngillespie@svwd.org

www.svwd.org

END OF DOCUMENT

1-B INSTRUCTION TO BIDDERS

SCOTTS VALLEY WATER DISTRICT

REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL

GENERAL

The work to be performed is described in the Bid Documents and Plans, Drawings and Specifications titled REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL. All bidders shall carefully examine the Contract Documents and satisfy themselves as to their sufficiency. Prior to submission of a bid, the bidder shall notify the District of any conflicts, errors of discrepancies in the Contract Documents prior to the submission of its bid. Intended bidders shall have visited the site of the work and familiarized themselves with the conditions there existing as well as all other conditions relating the construction and labor under which the work will be performed and affecting cost, progress or performance of the work. The submission of a bid shall be considered an acknowledgment on the part of the Bidder of its familiarity with conditions at the site of work.

PRE-BID CONFERENCE

A mandatory pre-bid conference will be held at the time and place stipulated in the Notice Inviting Bids. The conference will be conducted by the District. Subcontractors and other interested parties are invited and encouraged to attend.

POSTPONEMENT OF BID OPENING

The District reserves the right to postpone the date and time for receiving and/or opening of bids at any time prior to the date and time established in the Notice Inviting Bids. Postponement notices may be faxed or emailed and will subsequently be mailed to registered plan holders of record in the form of addenda.

INTERPRETATIONS

No oral representations or interpretations will be made to any bidder as to the meaning of the Contract Documents. Requests for an interpretation shall be made in writing and delivered to the District's Representative at least fourteen (14) days before the bids are opened.

ADDENDA

Addenda may be issued to all known plan holders during the Bid period. Any and all addenda issued shall become a part of the Contract Documents shall be acknowledged on the Bid Form, and shall be fully considered by all bidders during their preparation of bids.

SUBSTITUTIONS

All substitution requests shall be submitted prior to the bid by November 9th, 2026 ("Substitution Request Deadline"). Substitution Requests will be approved or rejected by the District before award, except in the following circumstances: The specified product is no longer available or the proposed substitute product provides a substantial cost or time savings. Timely submitted Substitution Requests will be reviewed by the District and Architect to determine the equivalency of the proposed substitution with the specified materials/equipment. The District's decision to grant, deny or condition consent to substitute specified materials/equipment is final and not subject to further review or appeal. If the District consents to or conditionally consents to the substitution of specified materials/equipment, the District will issue an Addendum identifying the specified materials/equipment and the alternative materials/equipment consent to or conditionally consented to by the District. A Pre-bid Request for Substitution Request Form is contained in the forms included in Section 7 of the Contract Documents.

REQUIRED BID FORMS

Bids for the work shall be made on the forms contained in the section and shall include the following completed documents:

1-C Bid Form

1-D Bid Bond (or use form supplied by bonding company)

1-E Subcontractors List

1-F Statement of Qualifications

1-G Non-Collusion Affidavit

1-H Bidder Certifications

1-I Iran Contracting Act Certification

BID SUBMISSION

Before the deadline for the submission of bids, a complete set of bid forms listed above, shall be placed in an envelope, sealed, and addressed to the Owner's Representative:

Nate Gillespie, Operations Manager
Scotts Valley Water District
2 Civic Center Drive, Scotts Valley CA 95066

The envelope shall reflect the name of the Project. Bids shall give the prices proposed in figures and words, shall give all other information requested herein, and shall be signed by the bidder or an authorized representative. By submission of a bid, the bidder certifies that the bidder has obtained a complete set of the Contract Documents and is aware of the entire contents thereof, including all addenda.

BID OPENING

After the expiration of the time for submission of bids, all bids will be publicly opened, read, declared, and referred to staff for action.

MODIFICATION OF BIDS

Modification of a bid already received will be considered only if the modification is received prior to the time established for receiving bids.

WITHDRAWAL OF BID

Any bid may be withdrawn prior to the time established for receiving bids, provided that a written request for withdrawal of bids, executed by the bidder or his duly authorized representative, is filed with the District. The bid will be considered null and void and will be returned to the Contractor unopened. The withdrawal of a bid in such a manner will not prejudice the right of a bidder to file a new bid prior to the time established for receiving bids.

BID FORM

The Bid shall be submitted on Form 1-C-Bid Form**.**

BID PRICES

Bid prices shall include everything necessary for the completion of construction and fulfillment of the work described in the Contract Documents. Bid prices shall include all federal, state and local taxes including sales and use taxes. Costs for developing, submitting, and presenting bids are the sole responsibility of the bidder.

BID BOND

Bids shall be accompanied by a cashier's check, a certified check or a bidder's bond executed by an admitted surety in an amount not less than ten (10) percent of the aggregate of the bid amount, payable to the order of the District. The check or bond shall be a guarantee that the successful bidder, if awarded the work, will within ten (10) days after notice of its award to the successful bidder: (1) enter into a contract, (2) furnish a bond of faithful performance and a bond, (3) furnish insurance policies and endorsements and (4) prior to issuance of the final project payment the successful bidder must submit a warranty or maintenance bond. In case of refusal or failure to enter into the Contract, the bid guaranty check or bond, as the case may be, shall be forfeited to the District, the proceeds therefrom being hereby agreed upon as liquidated damages to the District on account of the delay in the execution of the Contract and required bonds and the performance of the work thereunder, and the necessity of accepting a higher or less desirable bid resulting from such failure or refusal to execute the Contract and the bonds as required. Upon the execution of the Contract and the approval on behalf of the District of the accompanying bonds and insurance policies and endorsements, all certified checks that accompany bids and that have not heretofore been returned will be returned, each to its maker. Form 1-D Bid Bond Form

SUBCONTRACTORS

In accordance with California Public Contracting Code Section 4100, et. seq., each bid shall have listed the name, type or trade, portion of work to be performed, and location of the place of business of each subcontractor who will perform work or labor or render service to the bidder in or about the construction of the work or improvement, or of any subcontractor licensed by the State of California who, under subcontract to the bidder, will specifically fabricate and install a portion of the work or improvement according to detailed drawings contained in the Bid Documents, in an amount in excess of one-half of one percent of the bidder's total bid or $10,000, whichever is greater. If the Contractor fails to designate in its proposal a subcontractor for any portion of the work as required above, the bidder shall be deemed to have agreed to perform such portion of the work itself and shall not be permitted to subcontract that portion of the work without the written permission of the District in accordance with applicable law. Form 1-E-Subcontractors List

BIDDER CERTIFICATIONS

The Contractor shall complete and submit with its bid the Statement of Qualifications Form 1-F – Statement of Qualifications

NON-COLLUSION AFFIDAVIT

In accordance with Public Contract Code Section 7106, the Contractor shall complete and file with its bid the Non-Collusion Affidavit. Form 1-G Non-Collusion Affidavit

BIDDER CERTIFICATIONS

The Contractor shall complete and submit with its bid the Bidder Certifications Form 1-H -- Bidder Certifications

Iran Contracting Certification
The Contractor shall complete and submit with its bid the Iran Contracting Certification Form 1-I – Iran Contracting Act Certification

BID IRREGULARITIES

Bids which contain omissions or material irregularities of any kind may be rejected. No oral, telegraphic, facsimile or telephonic bids or modifications will be considered. The District may, however, waive any irregularities in the bid process.

AWARD

If an award is made, it will be based on the lowest responsive, responsible bid.

INSURANCE, PAYMENT BOND, AND PERFORMANCE BOND

The successful bidder shall, within ten (10) days of the notice of award, provide the insurance, and the payment and performance bonds as required in Section 4-of the Contract Award Documents.

LOCAL BUSINESS LICENSE

All Contractors shall have a local business license before performing work on the Project if required by the City of Scotts Valley.

END OF DOCUMENT

1-C BID FORM

SCOTTS VALLEY WATER DISTRICT

REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL

Contractor: _____

Business Address: _____

Phone: _____ Email: _____

Contractor License: _____ Class: _____ Expiration Date: _____

DIR Registration _____

Pursuant to the Notice Inviting Bids, and in compliance with the Instructions to Bidders, having obtained and reviewed the Contract Documents and the project site, the undersigned hereby proposes to furnish all work, labor, materials, transportation, equipment, and services necessary, including State of California and local sales or use taxes, license, and permit fees, for the Scotts Valley Water District REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL

, all in accordance with the Contract Documents together with addenda issued prior to or at the time of bidding, if any, now on file with the District Representative, for the sum of:

Bid Schedule

ITEM NO.	DESCRIPTION	UNITS	EST. QTY.	UNIT PRICE	EXTENDED PRICE
1	Mobilization	LS	1		$ -
2	Permanent Pump Removal	LS	1		$ -
3	Initial Color Video Camera Survey	LS	1		$ -
4	Jetting Well Development	LS	1		$ -
5	Pumped Groundwater Management	LS	1		$ -
6	Mechanical Well Development	HR	36		$ -
7	Mobilize and Install Test Pump	LS	1		$ -
8	Pumping Development	HR	40		$ -
9	Variable Rate Pumping Test	LS	1		$ -
10	Dynamic Spinner Survey	LS	1		$ -
11	Test Pump Removal	LS	1		$ -
12	Final Color Video Camera Survey	LS	1		$ -
13	Well Disinfection	LS	1		$ -
14	Install Permanent Pump	LS	1		$ -
15	Demobilization & Cleanup	LS	1		$ -
TOTAL (Items 1 through 10)		**$**			**-**
11	Fill Removal (at District's Option)	HR	0		
12	Standby Time (at District's Option)	HR	0		

_____ Dollars $ _____

(Written Dollar Amount)

All bid entries must be filled in.

Addenda Received and Reviewed:

(Indicate with check marks in respective boxes)

Addenda Number and Date

_____ Reviewed _____

_____ Reviewed _____

_____ Reviewed _____

_____ Reviewed _____

_____ Reviewed _____

_____ Reviewed _____

The undersigned agrees that the enclosed cash deposit, cashier's check, certified check, or surety bond accompanying this bid shall be left on deposit with the District, that its amount is the measure of the liquidated damages which the District will sustain by the default of the undersigned through failure to execute and deliver the above agreement, insurance and bonds within ten (10) calendar days of written notice of the award of the contract and the money or surety bond so deposited by Contractor shall be collectible and become the property of the District in case of such default.

By submission of a bid, a bidder certifies possession of duly issued and valid contractor's license issued by the State of California, which license authorized bidder to contract to perform the type of work required by the Contract Documents. Should the bidder fail to provide below the number and classification of bidder's State of California Contractor's License, the District may reject this bid. Pursuant to Business and Professions Code 7028.15, the undersigned further certifies, under penalty of perjury under the laws of the State of California, that the representations made herein are true and correct.

Signed: _____ Date: _____

Name: _____ Phone: _____

Email: _____

Signed: _____ Date: _____

Name: _____ Phone: _____

_____ _____

Email: _____

Signed: _____ Date: _____

Name: _____ Phone: _____

Email: _____

(**NOTE TO BIDDERS:** No bid shall be valid unless signed by the person making the bid. If the party is an individual, the same shall be signed by the individual; if the party is a partnership, the name of the partnership shall be given and signed by one of the partners; if the party is a corporation, the bid should be signed by the corporation by its properly authorized officer or officers.)

END OF DOCUMENT

1-D BID BOND

TO BE EXECUTED BY BIDDER AND

SUBMITTED WITH BID FORM

Bid Bond to be 10% of Bid.

KNOW ALL MEN BY THESE PRESENTS: THAT

_____ as Contractor and

_____ as Surety,

hereinafter are jointly and severally held and firmly bound unto the Scotts Valley Water District ("District"), each in the penal sum of ten percent (10%) of the total amount of the bid of the Contractor for the work, this sum not to exceed _____ Dollars of lawful money of the United States to the District, the Contractor and Surety, jointly and severally, bind themselves forever firmly by these presents.

WHEREAS, the Contractor is herewith submitting its bid for the fulfillment of the project entitled:

SCOTTS VALLEY WATER DISTRICT REDEVELOPMENT AND TESTING OF ORCHARD RUN WELL

NOW, THEREFORE, the condition of this obligation is such that if the Contractor is awarded the Contract, and if the Contractor within the time specified in the proposal for such Contract enters into, executes and delivers to the District an agreement in the form provided herein complete with evidence of insurance, and if the Contractor within the time specified in the proposal gives to the District the performance bond and the labor and material bond on the forms provided in the Contract Documents for the above-referenced Project, then this obligation shall be void; otherwise, the Contractor and Surety will pay unto the District the difference in money between the total amount of the proposal of the Principal and the amount which the District legally contracts with another party to fulfill the contract if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

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

IT IS FURTHER DECLARED by the Surety herein that it is duly admitted and authorized as a Surety to do business in the State of California.

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

CONTRACTOR		SURETY	
Signed:	_____	Signed:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____

Note: Surety signature must be notarized

END OF DOCUMENT

1-E SUBCONTRACTORS LIST

Name of Subcontractor and Location of Place of Business	Description of Work	Subcontractor's License No.	DIR Registration Number*

(Bidder to attach additional sheets if necessary)

*Pursuant to Division 2, Part 7, Chapter 1 (commencing with section 1720) of the California Labor Code.

END OF DOCUMENT

1-F NON-COLLUSION AFFIDAVIT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FORM

State of California

County of Santa Cruz

_____ (name), being first duly sworn, deposes

and says that he or she is the _____(title)

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

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

Name: _____

Date: _____

Title: _____

END OF DOCUMENT

1-G STATEMENT OF QUALIFICATIONS

MINIMUM BIDDER QUALIFICATIONS

Bidders must be duly licensed in accordance with the California Business & Professions Code and have a history of work performance sufficient to meet the requirements of a responsible bidder in the California Public Contract Code Section 1104.

Bidders must have three (3) years of recent experience in the performance of work similar to the Project.

Bidders must demonstrate successful experience with the type of work of this Project, to include, within the past year, completed three (3) projects of a similar nature and complexity with a contract dollar amount of at (i) least 75% of the amount of Bidder's Bid or (ii) 125% of such amount in the aggregate.

Provide at least three (3) references for each project completed by the contractor which demonstrate successful completion of projects of a similar nature and complexity to the Project which is the subject of this bid process:

REFERENCE INFORMATION

Name of Project: _____

Total Project Cost: _____

Total cost of work: _____

Performed by bidder: _____

Date Contract _____

Awarded: _____

Owner Name: _____

Contact Person: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

REFERENCE INFORMATION

Name of Project: _____

Total Project Cost: _____

Total cost of work: _____

Performed by bidder: _____

Date Contract _____

Awarded: _____

Owner Name: _____

Contact Person: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

REFERENCE INFORMATION

Name of Project: _____

Total Project Cost: _____

Total cost of work: _____

Performed by bidder: _____

Date Contract _____

Awarded: _____

Owner Name: _____

Contact Person: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

The undersigned contractor hereby certifies it meets the Minimum Bidder Requirements and that the contact information listed above is true, complete and correct. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated: _____

Contractor: _____

END OF DOCUMENT

1-H BIDDER CERTIFICATIONS

TO BE EXECUTED BY ALL BIDDERS AND SUBMITTED WITH BID

The undersigned Bidder certifies to Owner:

STATEMENT OF CONVICTIONS

By my signature hereunder, I hereby swear, under penalty of perjury, that no more than one final, un-appealable finding of contempt of court by a Federal Court has been issued against Bidder within the past two years because of failure to comply with an order of a Federal Court or to comply with an order of the National Labor Relations Board.

CERTIFICATION OF WORKER'S COMPENSATION INSURANCE

By my signature hereunder, as the Contractor, I certify that I am aware of the provisions of Labor Code Section 3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.

CERTIFICATION OF PREVAILING WAGE RATES AND RECORDS

By my signature hereunder, as the Contractor, I certify that I am aware of the provisions of Labor Code 1773 of the California Labor Code, which requires the payment of prevailing wage on public projects. Also, that the Contractor and any subcontractors under the Contractor shall comply with California Labor Code 1776, regarding wage records, and with California Labor Code 1777.5, regarding the employment and training of apprentices. It is the Contractor's responsibility to ensure compliance by any and all subcontractors performing work under this Contract.

CERTIFICATION OF COMPLIANCE WITH PUBLIC WORKS CHAPTER OF LABOR CODE

By my signature hereunder, as the Contractor, I certify that I am aware of Labor Code Sections 1777.1 and 1777.7 of the California Labor Code and that Contractor and Subcontractors are eligible to bid and work on public works projects.

CERTIFICATION OF NON-DISCRIMINATION

By my signature hereunder, as the Contractor, I certify that there will be no discrimination in employment with regard to race, color, religion, gender, sexual orientation, age or national origin; that all federal, state, and local directives and executive orders regarding non-discrimination in employment will be complied with; and that the principal of equal opportunity in employment will be demonstrated positively and aggressively.

CERTIFICATION OF NON-DISQUALIFICATION

By my signature hereunder, as the Contractor, I swear, under penalty of perjury, that the below-indicated Bidder, any officer of Bidder, or any employee of Bidder who has a proprietary interest in such Bidder, has never been disqualified, removed, or otherwise prevented from bidding on, or completing a Federal, State, or local government project because of a violation of law or safety regulation, except as indicated on the separate sheet attached hereto entitled "Previous Disqualifications." If a statement of "Previous Disqualifications" is attached, please explain the circumstances.

CERTIFICATION OF ADEQUACY OF CONTRACT AMOUNT

By my signature hereunder, as the Contractor, pursuant to Labor Code Section 2810(a), I certify that, if awarded the Contract based on the undersigned's Bid, the Contract will include funds sufficient to allow the Contractor to comply with all applicable local, state, and federal laws or regulations governing the labor or services to be provided. I understand that Owner will be relying on this certification if it awards the Contract to the undersigned.

CERTIFICATION OF CONTRACT ACCEPTABILITY

By my signature hereunder, as Contractor, I certify that I have reviewed the Contract Documents and if selected, I will execute the Agreement form in its current form without substantive revisions.

CERTIFICATION OF COMPLIANCE WITH OFF-ROAD DIESEL REGULATIONS

By my signature hereunder, I hereby certify that Contractor will comply with 13 CCR Section 2449 regarding In-Use of Off Road Diesel Fuel Fleets all related reporting requirements. By submitting a bid, for a project involving the use of vehicles subject to the Off-Road Regulations, the bidder must obtain copies of the valid Certificates of Reported Compliance, as described in Off Road Regulation section 2449(n), for the fleet selected for the contract and their listed subcontractors, if applicable. All Certificates of Reported Compliance must be submitted to the County prior to award.

CERTIFICATION REGARDING DIR CONTRACTOR / SUBCONTRACTOR REGISTRATION

By my signature hereunder, as the Contractor, I certify that Contractor and all Subcontractors listed on the Subcontractors List are the subject of current and active contractor registrations pursuant to Division 2, Part 7, Chapter 1 (commencing with section 1720) of the California Labor Code. Subcontractors' registration numbers are as indicated on the Subcontractors List.

CERTIFICATION OF BIDDER

By my signature hereunder, as the Contractor, I certify that the foregoing information is true and correct.

Bidder: _____ (Name of Bidder)

Date: _____ (Date)

By: _____ (Signature)

Name: _____ (Print Name)

Title: _____ (title)

END OF DOCUMENT

1-I IRAN CONTRACTING ACT CERTIFICATION

As specified in the INSTRUCTIONS TO BIDDERS, pursuant to Public Contract Code section 2204, each bidder submitting a Bid in which the Total Amount set forth on its Bid Schedule is $1,000,000 or more must also submit with its bid this IRAN CONTRACTING ACT CERTIFICATION, and the failure to submit the IRAN CONTRACTING ACT CERTIFICATION may render the bid non-responsive.

The undersigned Bidder certifies as follows (check the applicable circumstance):

_____The company submitting the accompanying bid is not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code section 2203(b), and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

_____The company submitting the accompanying bid has previously received written permission from the District, pursuant to subdivision (c) or (d) of Public Contract Code section 2203, to submit a bid. A copy of the written permission from the District is submitted with the accompanying bid.

I, the person signing below, hereby certify that I am duly authorized to execute this certification on behalf of the Company identified below, and that I am aware that Public Contract Code section 2205 establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts.

Bidder: _____ (Name of Bidder)

Date: _____ (Date)

By: _____ (Signature)

Name: _____ (Print Name)

Title: _____ (title)

END OF DOCUMENT

SECTION 2 PROJECT SPECIFIC PLANS AND SPECIFICATIONS

TABLE OF CONTENTS

2-A DESCRIPTION OF WORK 1
2-B REPORTS AND INFORMATION ON EXISTING CONDITIONS 2
2-C CEQA CONDITIONS AND MITIGATION MEASURES 3
2-D PROJECT SPECIFIC PLANS AND SPECIFICATIONS 4
2-E ADDENDA 5
2-F SPECIAL CONDITIONS AND LIQUIDATED DAMAGES 6

2-A DESCRIPTION OF WORK

Please see 2-D Project Specific Plans and Specifications

END OF DOCUMENT

2-B REPORTS AND INFORMATION ON EXISTING CONDITIONS

N/A

END OF DOCUMENT

2-C CEQA CONDITIONS AND MITIGATION MEASURES

N/A

END OF DOCUMENT

2-D PROJECT SPECIFIC PLANS AND SPECIFICATIONS

END OF DOCUMENT

MONTGOMERY
& ASSOCIATES
Water Resource Consultants

October 13, 2026

TECHNICAL SPECIFICATIONS

Redevelopment and Testing of Orchard Well

Prepared for:

Scotts Valley Water District

2 Civic Center Drive

Scotts Valley, CA 95066

Prepared by:

Montgomery & Associates

1547A Third Avenue

Walnut Creek, California 94597

Contents

1 GENERAL SPECIFICATIONS 1
1.1 Summary of Work 1
1.2 Current Conditions 1
1.3 Schedule and Working Hours 2
1.4 Standards 2
1.5 Contractor Responsibilities 2
1.6 Submittals 3
1.7 Sanitation 3
1.8 Track-Out 4
1.9 Construction Water and Power 4
1.10 Solid Waste Disposal 4
1.11 Discharge of Generated Groundwater 4
1.12 Records 5
1.13 Noise Control 6
1.14 Spills, Leaks, and Releases 6
1.15 Payment 6
2 WELL REDEVELOPMENT AND TESTING 7
2.1 Mobilization (Bid Item No. 1) 7
2.2 Permanent Pump Removal (Bid Item No. 2) 8
2.3 Initial Color Video Camera Survey (Bid Item No. 3) 8
2.4 Jetting Well Development (Bid Item No. 4) 9
2.5 Pumped Groundwater Management (Bid Item No. 5) 10
2.6 Mechanical Well Development (Bid Item No. 6) 10
2.7 Mobilize and Install Test Pump (Bid Item No. 7) 11
2.8 Pumping Development (Bid Item No. 8) 13
2.9 Variable Rate Pumping Test (Bid Item No. 9) 14
2.10 Dynamic Spinner Survey (Bid Item No. 10) 15
2.11 Test Pump Removal (Bid Item No. 11) 16
2.12 Final Color Video Camera Survey (Bid Item No. 12) 16
2.13 Well Disinfection (Bid Item No. 13) 17
2.14 Install Permanent Pump (Bid Item No. 14) 17
2.15 Demobilization & Cleanup (Bid Item No. 15) 18
2.16 Fill Removal (DISTRICT Option) 18
2.17 Standby (DISTRICT Option) 19

Tables

Table 1. Orchard Well Screen Intervals 7

Figures

Figure 1. Site Location Map
Figure 2. Orchard Well Site Features

Appendices

Appendix A. Orchard Well As-Built Diagram
Appendix B. Partial National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water System Discharges to Waters of the United States (Order WQ 2014-0194-DWQ, NPDES No. CAG140001)
Appendix C. Summary of Required Contractor Submittals

1 GENERAL SPECIFICATIONS

These technical specifications describe the minimum standards for completion and acceptance of the work described herein and serve as the basis for bidding. The term CONTRACTOR is used herein to refer to the drilling contractor and their subcontractors and subconsultants; the term DISTRICT is used to refer to Scotts Valley Water District, their designated representative, or consultant. The following technical specifications establish minimum requirements to be met.

In general, site activities shall progress chronologically in the order they are presented in these technical specifications. Unless otherwise approved by the DISTRICT.

1.1 Summary of Work

The work to be conducted by CONTRACTOR includes the furnishing of all labor, materials, tools, supplies, equipment, transportation, appurtenances, and services—unless specifically excluded herein—necessary to implement the project.

The scope of work includes redevelopment and testing of the Orchard Well.

The following figures are provided in support of these technical specifications:

- Figure 1. Site Location Map
- Figure 2. Orchard Well Site Features

Figures appear at the end of this document.

1.2 Current Conditions

The Orchard Well is located at the DISTRICT's Orchard Run treatment facility in Scotts Valley, California. The facility includes the Orchard Well, groundwater treatment infrastructure, and associated site improvements. The well and treatment facilities are located within a fenced area with paved access and sufficient space for temporary equipment, water treatment systems, and fluid storage required to complete the redevelopment work.

The Orchard Well was installed in 2018 and is completed with 14-inch inside-diameter stainless steel casing and wire-wrap screen to a total depth of 1,465 feet below ground surface (bgs). The as-built well construction diagram is included as Appendix A.

The redevelopment program described in these specifications is intended to restore well yield, which has declined in recent years. Groundwater sampling identified evidence of iron-related

biological fouling, while a video survey identified accumulated fill and debris near the bottom of the well and plugging of the lower portion of the screen.

1.3 Schedule and Working Hours

Construction activities shall be limited to daytime hours between 0800 and 1800, Monday through Friday. Deviations from this schedule will be allowed only with prior DISTRICT approval.

1.4 Standards

The CONTRACTOR shall conduct all work in accordance with *State of California Water Well Standards, Bulletin No. 74-81* (December 1981) and *Bulletin No. 74-90* (June 1991), including any subsequent supplements or revisions; Santa Cruz County Ordinances 4901 and 5022; Chapter 7.70 of the Santa Cruz County Code relating to water wells; and other applicable federal, state, and local regulations.

1.5 Contractor Responsibilities

CONTRACTOR shall provide a single Project Manager to serve as the point of contact and CONTRACTOR representative for the duration of the project. The Project Manager shall be identified upon receiving notice to proceed, attend all recurring and task-specific project meetings, submit project submittals, and manage CONTRACTOR invoicing.

CONTRACTOR shall submit applications, pay requisite fees, and obtain all appropriate permits required to complete the scope of work that are not obtained by DISTRICT. CONTRACTOR shall comply with the terms and conditions of all permits obtained by CONTRACTOR and DISTRICT.

CONTRACTOR shall confine redevelopment and testing activities to DISTRICT's property.

CONTRACTOR shall take all necessary precautions to preserve the well site(s), as nearly as practical, to present condition. CONTRACTOR shall be responsible for replacing any damaged property. At all times during the progress of this project, CONTRACTOR is responsible for keeping the site free of litter and debris.

CONTRACTOR is fully responsible for maintaining security of all work areas at all times. CONTRACTOR shall take such measures as are necessary to prevent access of unauthorized persons or animals onto the site. Such measures shall include fencing, posting of signs, temporary closure of excavations, or other means, including hiring private security as needed,

and shall be maintained throughout the course of work. All barriers shall be in accordance with applicable site safety standards.

CONTRACTOR shall contain and dispose of construction-related trash, maintain an organized and safe work site, provide adequate sanitation facilities, and ensure vehicles leaving unpaved sites do not track mud onto public rights-of-way.

CONTRACTOR shall provide all necessary equipment, tools, and appurtenances for the timely completion of the work. CONTRACTOR's equipment shall be in complete and safe operating condition and shall be appropriately maintained and operated during the project. CONTRACTOR shall be solely responsible for the condition of their equipment and shall maintain an inventory of necessary spare parts for the timely repair of equipment in the event of a failure or breakdown. No payment shall be made for standby time or equipment rental caused by a breakdown or failure of CONTRACTOR's equipment.

CONTRACTOR shall maintain copies of all project permits at the construction site.

CONTRACTOR shall at all times maintain the well in a sanitary manner and prevent potential entry of pests or contaminants.

1.6 Submittals

A list of required submittals is included with each task. In addition, CONTRACTOR shall be responsible for receiving acceptance of all required equipment and information referenced elsewhere in these technical specifications. All submittals required from CONTRACTOR shall be considered part of the scope of work. Submittals shall be reviewed and comments provided by the DISTRICT within 5 business days of receipt. All submittals are subject to acceptance by the DISTRICT; submittal requirements shall be satisfied upon acceptance.

Submittals shall be provided electronically as a single PDF for each submittal unless otherwise approved by the DISTRICT.

The baseline project schedule shall be updated by CONTRACTOR upon request by the DISTRICT if significant changes occur to the planned sequence or duration of work.

1.7 Sanitation

CONTRACTOR shall provide and maintain adequate sanitation facilities appropriate to the number of personnel working on the site. Sanitation facilities shall be maintained in a clean and orderly condition throughout the duration of the work.

1.8 Track-Out

CONTRACTOR shall remove trackable mud, sand, grout, and other materials from undercarriages, tires, and other surfaces of equipment prior to moving equipment on or across public roads and pathways. CONTRACTOR shall immediately clean public rights of way.

1.9 Construction Water and Power

Construction water may be obtained from an on-site DISTRICT water connection or other DISTRICT-designated source. CONTRACTOR shall be responsible for coordinating water use with the DISTRICT and for conveying water from the approved source to the point of use. CONTRACTOR shall provide all temporary piping, hoses, meters, backflow prevention devices, fittings, and valves necessary to convey construction water.

CONTRACTOR shall provide all necessary power for completion of the work scope through temporary means such as generators.

1.10 Solid Waste Disposal

CONTRACTOR is responsible for the containment, hauling, and legal disposal of any solid waste generated. Analytical pre-profiling and manifest tracking of waste disposal will not be required for this project.

1.11 Discharge of Generated Groundwater

Development and testing groundwater will be diverted to the on-site storm drain inlet that flows to Carbonera Creek (Figure 2) under the State Water Resource Control Board (SWRCB) Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water System Discharges (Order WQ 2014-0194-DWQ, NPDES No. CAG140001), portions of which are included as Appendix B.

The full document can be accessed at:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0194_dwq.pdf

CONTRACTOR shall implement best management practices (BMPs) as required in the NPDES permit Section IV-A. These include, at a minimum, the following:

- Preventing aquatic toxicity through dechlorination

- Preventing riparian erosion and hydromodification by implementing flow dissipation and erosion control measures
- Minimizing sediment discharge, turbidity, and color impacts by implementing sediment, turbidity, erosion, and color control measures
- Preventing the cause of or contribution to an exceedance of turbidity limits; and complying with the action level of 100 NTU or less in discharged water

CONTRACTOR shall collect and provide discharge monitoring information required by the DISTRICT for NPDES permit compliance documentation (Section 1.12).

The site also includes an on-site sanitary sewer connection that may be used for discharge of redevelopment water that does not meet the NPDES permit conditions, subject to DISTRICT approval and applicable City of Scotts Valley discharge requirements. The sanitary sewer discharge rates shall not exceed 50 gallons per minute (gpm). Prior to discharging to the sanitary sewer, CONTRACTOR shall coordinate with the DISTRICT regarding any required notifications or approvals from the City of Scotts Valley.

1.12 Records

CONTRACTOR shall collect the measurements and keep records described in this section, as well as any required measurements or records described elsewhere in these Technical Specifications, permits, or license agreements. All work conducted by CONTRACTOR to execute these Technical Specifications shall be recorded in the driller daily log and/or on approved forms. Requirements for field measurements and records include those listed below.

Driller Daily Log: International Association of Drilling Contractors or American Petroleum Institute (API) standard daily logs, or similar, shall be maintained and used to record all site activities. Any hourly items shown in the Bid Schedule shall be clearly identified for quantity verification. Daily logs shall, at a minimum, document personnel present, shifts worked, depths bailed, airlifted, jetted, or developed, water levels, pumping rates, development progress, downtime due to equipment issues, and results of video surveys, spinner surveys, and other investigations conducted during the work.

NPDES Documentation: Records of water discharge volume and quality in compliance with the NPDES permitting documentation requirements (Section 1.11).

Miscellaneous: Records shall include any notable event or activity including accidents, violations, visitors, weather conditions, etc.

CONTRACTOR shall maintain records on a regular basis and in a legible, professional format.

1.13 Noise Control

CONTRACTOR shall implement reasonable noise control measures at all times to minimize disturbance to nearby residents, workers, and the general public. The work site shall be arranged and operated to minimize noise to the extent practicable, including use of properly maintained equipment, mufflers, shielding, and placement of noise-producing equipment away from sensitive receptors where feasible.

1.14 Spills, Leaks, and Releases

CONTRACTOR shall not cause the release of any hazardous or nuisance substances to the environment and shall use plastic sheeting or oil absorbent mats to protect the well site from spills of hydraulic oil, fuel, lubricants, or coolants from the redevelopment and support equipment. If a release occurs, CONTRACTOR shall contain and properly dispose of affected media and shall be responsible for all costs associated with remedial or corrective actions to mitigate the release. CONTRACTOR shall contact the relevant regulatory DISTRICT/agencies for appropriate reporting.

1.15 Payment

Costs for this project shall be defined by the completed and accepted Bid Schedule. The completed Bid Schedule shall be submitted by CONTRACTOR according to instructions from DISTRICT.

Payment will be made according to the line items in the Bid Schedule based on the actual unit quantities expended as determined by DISTRICT. Payment for lump sum items shall be made only upon satisfactory completion of the entire task.

Tasks identified in the Bid Schedule as being performed at the DISTRICT's option shall not be compensated unless specifically authorized by the DISTRICT prior to commencement of the work.

2 WELL REDEVELOPMENT AND TESTING

This section provides an overview of the redevelopment and testing of the Orchard Well. The screened intervals and well construction details relevant to redevelopment activities are summarized in Table 1 and shown on the as-built well construction diagram included in Appendix A.

Table 1. Orchard Well Screen Intervals

Interval	Depth (feet below top of casing)	Length (feet)
Screen 1	705.3 - 784.1	78.8
Screen 2	805.0 - 1,062.8	257.8
Screen 3	1,083.7 - 1,455	371.3
Cellar Section	1,455 - 1,465	10.0

2.1 Mobilization (Bid Item No. 1)

CONTRACTOR shall mobilize and set up all material and equipment, and perform all labor required to perform the scope of work. Equipment needed for the first 30 days of work shall be on site at start of the work.

2.1.1 Submittals

The following submittals shall be accepted by the DISTRICT prior to mobilization:

- Site plan including a scale drawing showing the proposed layout of equipment, temporary facilities, fluid storage tanks, groundwater treatment equipment, discharge piping, and staging areas.
- Groundwater management and treatment system plan, including treatment methods, storage capacity, discharge routing, and supporting product information.
- Applicable permits, including but not limited to Underground Service Alert ticket(s) and road encroachment permit(s) (if applicable).
- Baseline project schedule identifying anticipated start and completion dates for major project tasks including mobilization, pump removal, video surveys, jetting, mechanical redevelopment, pump development, performance testing, final video survey, disinfection, pump installation, and demobilization.

Submittals shall be provided electronically as a single PDF for each submittal unless otherwise approved by the DISTRICT.

The baseline project schedule shall be updated by CONTRACTOR upon request by the DISTRICT if significant changes occur to the planned sequence or duration of work.

2.1.2 Execution

CONTRACTOR's equipment, temporary facilities, groundwater management system, storage tanks, and operations shall remain within DISTRICT property and in locations approved by the DISTRICT. CONTRACTOR shall set up work facilities in a neat and orderly manner and maintain safe access to all areas of the site throughout the duration of the work.

2.2 Permanent Pump Removal (Bid Item No. 2)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to remove the DISTRICT's permanent well pump and associated discharge piping.

2.2.1 Submittals

Submittals are not required for this section.

2.2.2 Execution

CONTRACTOR shall remove the DISTRICT's permanent well pump and associated discharge piping. CONTRACTOR shall store the DISTRICT's permanent well pump, and remove and dispose of the column pipe.

2.3 Initial Color Video Camera Survey (Bid Item No. 3)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to complete a color video of the well prior to beginning redevelopment.

2.3.1 Submittals

The following submittals are applicable to this section:

- The name and qualifications of the firm proposed to complete the video survey
- One copy of the video survey in AVI format and 2 copies of the written report

2.3.2 Execution

Allow the well to remain idle for at least 24 hours. Prior to, and if necessary during the survey, introduce sufficient quantity of clear water into well to produce clear viewing conditions. Run a

dynamic vertical downhole view video from top of well to the bottom of well at a speed not exceeding 30 feet per minute. Video shall be in color, with side-scan capabilities, and include an automatic depth indicator to the nearest 0.1 foot.

If survey fails to produce a clear picture of internal casing condition, introduce clear, potable water and conduct survey to DISTRICT's satisfaction until a clear video is obtained.

2.4 Jetting Well Development (Bid Item No. 4)

CONTRACTOR shall furnish all materials and equipment and provide all labor necessary to mechanically clean the well by high-pressure water jetting. Jetting activities shall be performed after completion of the initial color video survey and initial fill removal activities.

2.4.1 Submittals

The following submittals are applicable to this section:

- Well development field logs

2.4.2 Materials

The jetting tool shall meet the following minimum requirements:

- Minimum of 4 jets equally spaced circumferentially around the tool
- Jets positioned approximately ½ inch from the inside face of the well screen
- Capable of producing a minimum jet velocity of 150 feet per second
- Capable of operating at pressures up to 18,000 pounds per square inch at the surface
- Capable of being centralized within the casing
- Capable of rotating continuously during operation

2.4.3 Execution

Jetting services shall be performed by WellJet, LLC. CONTRACTOR shall jet the screened intervals while continuously rotating and vertically moving the jetting tool. A total of 2 passes will be completed.

The first pass shall be completed by moving the jetting tool across all screen intervals from the bottom of the well to the top at a rate of approximately 1 foot per minute. Upon completion, remove the jetting tool from the well and measure the well depth to determine the amount of

accumulated material within the well. If accumulated material obscures any portion of the screened interval, CONTRACTOR shall remove sufficient material by open-ended airlifting, bailing, or other DISTRICT-approved methods to restore access to the screen prior to resuming jetting operations.

A second jetting pass shall then be completed using the same procedure described above while moving the tool vertically at a rate of approximately two feet per minute. Upon completion of the second pass, accumulated material shall be measured and documented.

Additional fill removal activities may be performed at the direction of the DISTRICT under Bid Item 11 (Fill Removal).

2.5 Pumped Groundwater Management (Bid Item No. 5)

CONTRACTOR shall be responsible for providing all equipment and labor necessary to mobilize, maintain, and operate a groundwater management system capable of containing and disposing generated groundwater in compliance with Section 1.11.

2.5.1 Submittals

Submittals are not required for this section.

2.5.2 Execution

CONTRACTOR shall mobilize and install a groundwater management system adequate to ensure well redevelopment and testing tasks can proceed without delay. The groundwater management system must be installed and approved by DISTRICT prior to the beginning mechanical development (Section 2.6) and must remain on site for the duration of the work. Conveyance of discharged water to the designated point shall be achieved using closed pipe.

CONTRACTOR shall collect water quality samples from the discharge water to ensure compliance with the permit as described in Section 1.11.

2.6 Mechanical Well Development (Bid Item No. 6)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to perform well redevelopment by means of open-ended airlifting and swabbing with airlifting.

2.6.1 Submittals

The following submittal is applicable to this section:

- Well development progress logs

2.6.2 Materials

The following materials are applicable to this section:

1. Dual Swab Tooling:
   a) Two swabs separated by no more than 10 feet of slotted pipe with sufficient slots and appropriate air compressor capacity to airlift at a rate of 250 gpm
   b) Outside diameter of flanges no more than 1 inch smaller than inside diameter of screen section of well
   c) Eductor Pipe, fitted with airline to allow airlift pumping

2.6.3 Execution

Static water level and filter pack level shall be recorded at the beginning of each shift. Addition of filter media shall be added through the feed tube only at the direction of and under supervision by DISTRICT.

Clean water shall be continuously added to the feed tube during mechanical development operation by use of a garden hose or similar.

Install the dual swab tool to the top of the screened interval. The well shall be developed by swabbing and airlifting with the dual swab tool from the top of the screen to the bottom, then from the bottom of the screen to the top. The screen shall be swabbed in 20-foot sections while simultaneously airlifting. Each 20-foot screen section shall be worked until successive swabbing produces little change in color and discharge is relatively clear, estimated to be approximately 30 minutes for each 20-foot interval of screen. This period may be extended or shortened by DISTRICT based on condition of discharge water. Upon completion of an interval, move to the next 20-foot interval and repeat until all screened intervals have been swabbed.

The well cellar shall be cleaned of accumulated material using open-ended airlifting if necessary following mechanical development.

CONTRACTOR shall be compensated according to the hourly well development bid item for work conducted in well screen sections only. The time required to move tooling through the unperforated well-casing section(s) shall not be considered development and therefore will not be paid for by DISTRICT.

2.7 Mobilize and Install Test Pump (Bid Item No. 7)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to install a test pump and associated discharge piping as specified below.

2.7.1 Submittals

The following submittal is applicable to this section:

- Test pump details including pump intake depth, bowl specifics including number of stages and diameter, pump column diameter, and all other applicable dimensions.

2.7.2 Materials

The following materials are applicable to this section:

1. Vertical Turbine Pump installed to a depth of 795 feet bgs:
   a) Capable of producing up to 1,000 gpm from the well
   b) Do not equip with a foot valve, which would prevent backspin and interfere with surging.
2. Variable Frequency Drive capable of operating the Vertical Turbine Pump
3. Provide in-line digital flow meter registering in units of gallons per minute, together with a totalizer that reads in units of gallons, and capable of measuring pump discharge within plus or minus 5% of true flow rate.
4. Throttling Valve: Suitable to accurately regulate pumping rates throughout required range. Gate valves shall not be used for throttling.
5. Rossum Sand Tester to measure amount of sand produced from well
6. Sampling Port: One 0.75-inch sampling port equipped with a ball valve and spigot
7. Access Tubes:
   a) One 1.25-inch inside diameter with perforations 10 feet along the bottom and including an end cap, adequate for insertion of water level sensing devices into well before, during, and after test pumping. Must allow free passage of pressure transducers that are 0.75-inch diameter and approximately 8 inches long.
   b) One 2-inch inside diameter spinner survey access tube extending at least 1 foot below the lowest component of the pump assembly and suitable for insertion of spinner survey tooling.
   c) Securely fastened to pump column assembly

2.7.3 Execution

CONTRACTOR shall install in the well a variable-speed turbine pump to complete pumping development. The pump shall not be equipped with a foot valve or other backflow preventers. Pump intake shall be set at a depth of 795 feet bgs unless otherwise directed by DISTRICT.

2.8 Pumping Development (Bid Item No. 8)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to develop the well by means of pumping and surging.

2.8.1 Submittals

The following submittal is applicable to this section:

- Field development data sheets

2.8.2 Execution

Static water level and filter pack level shall be recorded at the beginning of each shift. Addition of filter media shall be added through the feed tube only at the direction of and under supervision by DISTRICT.

Clean water shall be continuously added to the feed tube during mechanical development operation by use of a garden hose or similar.

Development pumping shall be conducted by alternately pumping (turning the pump on) and surging (turning the pump off and letting the water in the column pipe fall back into the well) at a specific flow rate, until pumping and surging at that flow rate produces visibly clear water and until no significant improvements in specific capacity are observed, as determined by DISTRICT. Surging operations shall include 3 surges after 60 minutes of continuous pumping unless otherwise approved by DISTRICT. Pump the well at an initial rate not to exceed 200 gpm or as low as is feasible. Discharge rate shall be incrementally increased up to 1,000 gpm, or as directed by DISTRICT.

Development pumping shall continue for a minimum of 40 hours unless otherwise approved by DISTRICT. Flow rate, water level, turbidity, and sand content shall be recorded at intervals of 15 minutes after the start of pumping following a surge cycle.

At the conclusion of development pumping, CONTRACTOR shall determine the required settings to obtain the flow rates for well and aquifer testing, as determined by DISTRICT, based on well development records.

2.9 Variable Rate Pumping Test (Bid Item No. 9)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to complete a variable rate pumping test as described herein. CONTRACTOR shall also keep records on the type of pumping equipment used including engines, drive components, bowls, lines, and shafts. CONTRACTOR shall keep records of operation of equipment during the test including engine revolutions per minute and horsepower, fuel use, and other essential information that will be useful in designing a pump system.

2.9.1 Submittals

The following submittals are applicable to this section:

- Well testing data sheets

2.9.2 Materials

The temporary pump used for well development shall be used for performance testing unless other pumps and equipment are necessary to satisfy the requirements of this specification or as determined by DISTRICT.

2.9.3 Execution

A variable rate pumping (step drawdown) test shall be conducted following well development activities and shall be scheduled to begin when the water level has recovered to static groundwater level as determined by DISTRICT.

The well shall be tested at rates of approximately 200, 400, 600, and 800 gpm, or as directed by DISTRICT. The variable rate pumping test shall be conducted for a total duration of 8 hours (120 minutes each step). CONTRACTOR shall operate the pump and change the discharge rate as directed by DISTRICT. An electric water level meter will be furnished by DISTRICT. Sand content measurement shall be recorded at 1-hour intervals by CONTRACTOR using a Rossum sand tester. CONTRACTOR shall be responsible for maintaining the desired pump operation schedule. If necessary, adjustments in the pumping rate shall be made using an in-line butterfly valve, not engine throttle. **CONTRACTOR shall not make adjustments to the pumping rate after the first 2 minutes of pumping at each rate without approval from DISTRICT**.

Measure depth to water, flow rate, and discharge PSI at the following intervals, unless otherwise specified by DISTRICT:

1. 1 minute to 10 minutes: Measure at 1-minute intervals

2. 10 minutes to 20 minutes: Measure at 2-minute intervals
3. 20 minutes to 30 minutes: Measure at 5-minute intervals
4. 30 minutes to 60 minutes: Measure at 10-minute intervals
5. 60 minutes to 120 minutes: Measure at 15-minute intervals

After the pump is stopped, the temporary test pump shall remain in the well undisturbed, unless otherwise specified by DISTRICT. CONTRACTOR shall not be responsible for monitoring groundwater levels during recovery period.

2.10 Dynamic Spinner Survey (Bid Item No. 10)

CONTRACTOR shall furnish all materials, equipment, and labor necessary to conduct a dynamic spinner survey of the well while pumping at approximately 400 gpm. Following completion of the variable rate pumping test, the well shall be allowed to recover to static groundwater level as determined by the DISTRICT. Following recovery, CONTRACTOR shall restart the test pump and maintain a pumping rate of approximately 400 gpm. The dynamic spinner survey shall be conducted after not less than five hours of continuous pumping and while maintaining a pumping rate of approximately 400 gpm. The exact timing of the survey shall be at the direction of the DISTRICT. CONTRACTOR shall employ **Pacific Surveys, LLC**, for this activity, or equal approved by DISTRICT.

2.10.1 Submittals

The following submittals are applicable to this section:

- The name and qualifications of the firm proposed for completing spinner survey.
- Two field hardcopies of the spinner/flow profile log. The log shall also be provided in a digital data format, both as PDF and LAS files. Spinner/flow profile shall have a vertical scale of 50 feet per inch and horizontal scale appropriate to the log type and response values.

2.10.2 Execution

CONTRACTOR shall furnish professional logging services for the dynamic spinner survey. Following completion of the variable rate pumping test, the well shall be allowed to recover to static groundwater level as determined by the DISTRICT. CONTRACTOR shall then conduct the dynamic spinner survey while maintaining a pumping rate of approximately 400 gpm, or as otherwise directed by the DISTRICT.

2.11 Test Pump Removal (Bid Item No. 11)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to remove the well pump and associated discharge piping. CONTRACTOR shall not remove pump from well until performance testing is complete.

2.11.1 Submittals

Submittals are not required for this section.

2.11.2 Execution

When the dynamic spinner survey is complete, CONTRACTOR may remove the well pump and associated discharge piping.

2.12 Final Color Video Camera Survey (Bid Item No. 12)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to complete a color video of the well prior to acceptance of the well by DISTRICT. The color video survey shall verify that the well is free of structural defects and clear of all debris throughout the entire depth of the well prior to acceptance of the well by DISTRICT. If any defects or debris are found, CONTRACTOR shall make repairs to, or remove debris from, the well as necessary, prior to acceptance of the well by DISTRICT.

2.12.1 Submittals

The following submittals are applicable to this section:

- The name and qualifications of the firm proposed to complete video survey
- One copy of the video survey in AVI format and 2 copies of the written report

2.12.2 Execution

If necessary, airlift the well clean of debris prior to conducting the survey, then allow the well to remain idle for at least 24 hours. Prior to, and if necessary during the survey, introduce sufficient quantity of clear water into well to produce clear viewing conditions during survey. Run a dynamic vertical downhole view video from top of well to the bottom of well at a speed not exceeding 30 feet per minute. Video shall be in color, with side-scan capabilities, and include an automatic depth indicator to the nearest 0.1 foot.

If survey fails to produce a clear picture of internal casing condition, introduce clear, potable water and conduct survey to DISTRICT's satisfaction until a clear video is obtained.

2.13 Well Disinfection (Bid Item No. 13)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to disinfect the well.

2.13.1 Submittals

The following submittal is applicable to this section:

- Sodium hypochlorite safety data sheet and NSF-60 certification

2.13.2 Materials

Liquid sodium hypochlorite solution shall be certified to NSF/ANSI/CAN Standard 60 and shall be used in accordance with the latest revision of AWWA C654. Regular household bleach may not be used. No fragranced products or other products with additives will be allowed. Sodium hypochlorite shall be provided in the original sealed container. Sodium hypochlorite shall be recently purchased and properly stored to ensure the concentration of the solution has not degraded.

2.13.3 Execution

Disinfect well prior to installation of the permanent pump by adding sufficient sodium hypochlorite solution to achieve 100 ppm chlorine concentration in the well. The well shall be disinfected by swabbing the chlorine solution into the water column using a surge block, nylon brush or other DISTRICT-approved method.

Prior to installation, the permanent pump, HSLA column pipe, PVC sounding tube, spinner survey access tube, and associated equipment shall be disinfected by spray application of a 200 ppm sodium hypochlorite solution. Following disinfection, the equipment shall be rinsed with clean potable water to remove excess disinfectant prior to installation.

2.14 Install Permanent Pump (Bid Item No. 14)

CONTRACTOR shall furnish all material and equipment and provide all labor necessary to install the DISTRICT's permanent pump and associated discharge piping as specified below.

2.14.1 Submittals

Submittals are not required for this section.

2.14.2 Execution

CONTRACTOR shall install in the well the DISTRICT's permanent pump with DISTRICT-supplied HSLA column pipe, re-install the DISTRICT's existing PVC sounding tube, and install a permanent spinner survey access tube. Pump intake shall be set at a depth of 795 feet bgs unless otherwise directed by DISTRICT. A permanent spinner survey access tube shall be installed with a minimum inside diameter of 2 inches. The access tube shall extend at least 1 foot below the lowest component of the pump assembly and shall be suitable for future spinner surveys.

The DISTRICT shall be present during startup of the permanent pump. CONTRACTOR shall verify proper motor rotation and perform insulation resistance testing (megger testing) of the motor and power cable prior to placing the pump into service.

Following permanent pump installation, the DISTRICT shall conduct startup, purging, and bacteriological confirmation sampling as required prior to returning the well to service.

2.15 Demobilization & Cleanup (Bid Item No. 15)

CONTRACTOR shall remove all material and equipment from the site following acceptance of the Orchard Well by the DISTRICT.

2.15.1 Submittals

Submittals are not required for this section.

2.15.2 Execution

Complete removal of all material, temporary facilities, and municipal waste from the site to the satisfaction of DISTRICT. CONTRACTOR shall notify DISTRICT at the completion of demobilization and site cleanup activities.

2.16 Fill Removal (DISTRICT Option)

CONTRACTOR shall furnish all materials and equipment and provide all labor necessary to remove accumulated fill and debris from the well when directed by the DISTRICT.

2.16.1 Submittals

No submittals are required for this section.

2.16.2 Execution

At the direction of the DISTRICT, CONTRACTOR shall remove accumulated fill and debris from the well by bailing, airlifting, or a combination thereof. The method of fill removal shall be determined by CONTRACTOR and shall be subject to DISTRICT approval.

Fill removal may be performed at any stage of the redevelopment process when, in the opinion of the DISTRICT, accumulated material obstructs access to the screened intervals, prevents completion of redevelopment activities, or interferes with testing and evaluation of the well.

The DISTRICT may terminate fill removal activities at any time if progress is limited or if the effort required is not justified by the anticipated benefit to well performance.

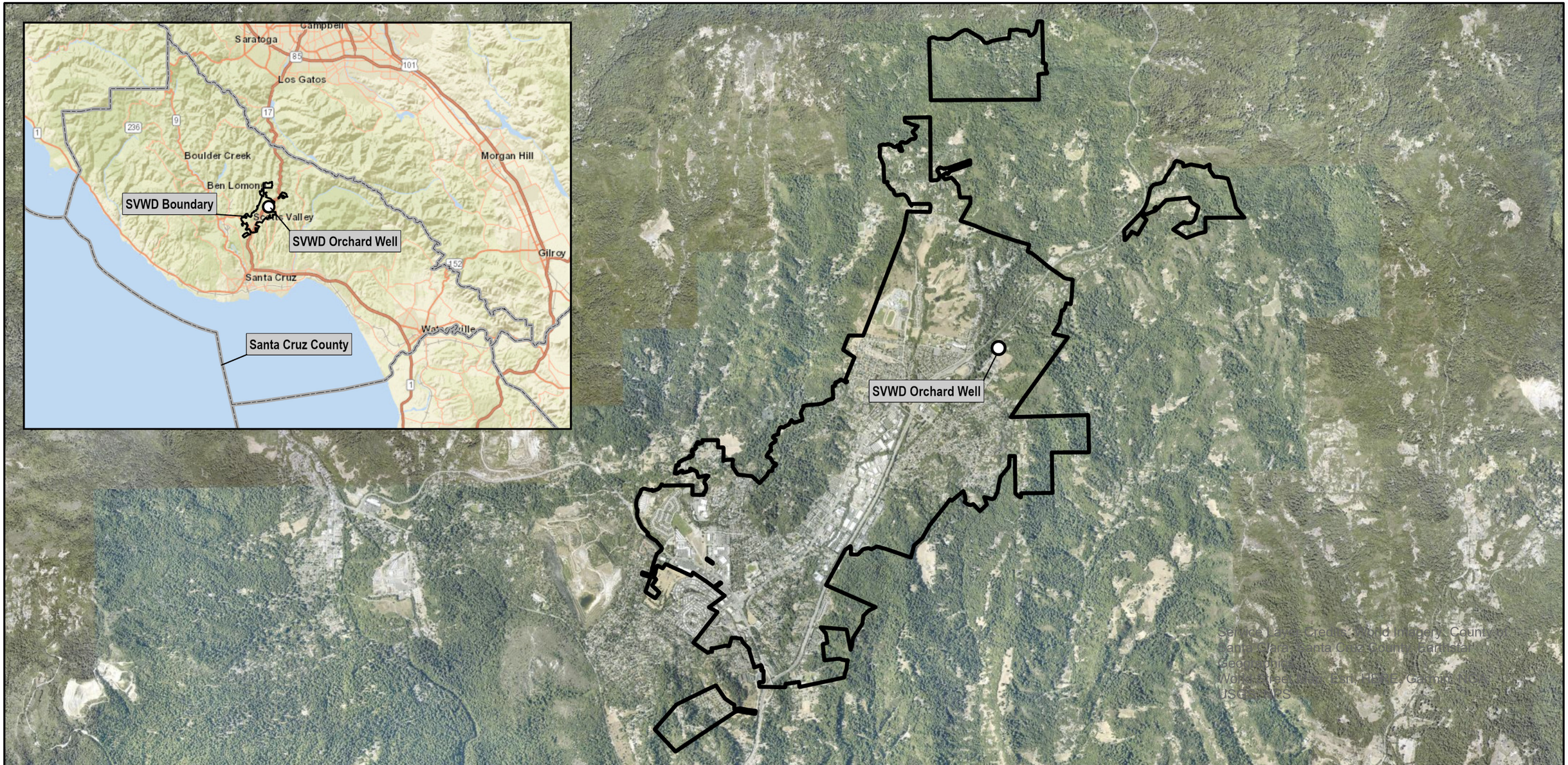
CONTRACTOR shall measure and document the depth to accumulated material before and after each fill removal event.

CONTRACTOR shall be compensated based on the hourly Fill Removal bid item for time actively spent removing accumulated material at the direction of the DISTRICT. Time associated with mobilization, standby, equipment repair, or delays unrelated to active fill removal shall not be compensated under this bid item.

2.17 Standby (DISTRICT Option)

During the progress of redevelopment operations, it may be necessary for DISTRICT to perform work that will require CONTRACTOR to stand idle ("standby time"). In such an event, DISTRICT shall request in writing CONTRACTOR to cease operations and shall state the anticipated extent or duration thereof. CONTRACTOR shall promptly furnish such assistance and cease operations.

FIGURES



EXPLANATION

- SVWD Orchard Well
- Scotts Valley Water District
- Counties

N

0 0.5 1 1.5 2

Miles

Scotts Valley Water District
Santa Cruz County, California

Figure 1. Site Location Map

MONTGOMERY & ASSOCIATES

2026

H:\Scotts_Valley_WD\2026_Orchard_Rehab\03_GIS\Reports and Deliverables\ArcPro_Orchard_Rehab\Orhcard_Rehab_2026.aprx, 8/4/2026

EXPLANATION

- SVWD Orchard Well
- On-Site Storm Drain
- Site Boundary
- Property Boundary

N

0 25 50 75 100

Feet

Scotts Valley Water District
Santa Cruz County, California

Figure 2. Well Site Features

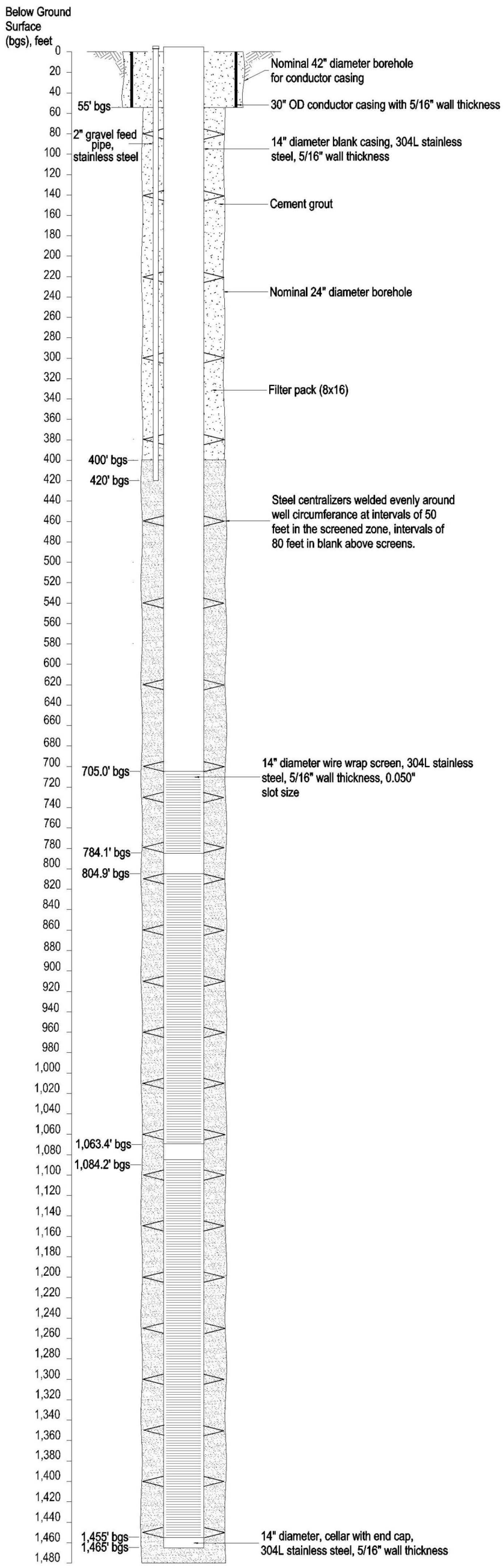
MONTGOMERY & ASSOCIATES

2026

H:\Scotts_Valley_WD\2026_Orchard_Rehab\03_GIS\Reports and Deliverables\ArcPro_Orchard_Rehab\Orhcard_Rehab_2026.aprx, 9/4/2026

Appendix A

Orchard Well As-Built Diagram



Note:
The Screen depths on this as-built diagram are based on the downhole video (2/22/2018). These depths differ slightly from the depths recorded by the drilling contractor during well construction and reported to DWR. The actual depths recorded by the downhole video are important for well operations and are therefore included on this diagram.

Scotts Valley Water District

AS-BUILT DIAGRAM OF THE ORCHARD WELL

HydroMetrics WRI

3/28/2018 Prepared by: Nick Byler Checked by: Georgina King

Appendix B

Partial National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water System Discharges to Waters of the United States (Order WQ 2014-0194-DWQ, NPDES No. CAG140001)

STATE WATER RESOURCES CONTROL BOARD
1001 I Street, Sacramento, California 95814
http://www.waterboards.ca.gov/water_issues/programs/npdes

ORDER WQ 2014-0194-DWQ
GENERAL ORDER NO. CAG140001

STATEWIDE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR DRINKING WATER SYSTEM DISCHARGES TO WATERS OF THE UNITED STATES

Discharges from drinking water systems to surface waters in California are subject to waste discharge requirements as set forth in this Order, and as authorized by a Notice of Applicability issued by the Deputy Director of Water Quality (Deputy Director). Definitions for the purpose of this Order are included in Attachment A. Key definitions are as follows:

Table 1. Key Definitions for the Purpose of this Order

Drinking Water System[1]	A system with 1000[2] connections or greater that are regulated by the State Water Board Division of Drinking Water or a local county department of health, with the primary purpose of transmitting, treating and distributing safe drinking water. Drinking water systems include state owned/operated facilities such as parks, campgrounds, and rest areas *[1] This Order applies to community water systems as defined in Attachment A of this Order. This Order does not apply to non-community water systems or non-transient water systems as defined in Attachment A of this Order.* *[2] Systems with fewer than 1000 connections that discharge to waters of the United States have the option to enroll in this Order. Non-enrollment does not exempt dischargers from Clean Water Act requirements.*
Drinking Water System Discharge	Short-term or seasonal discharges from a drinking water system of water that has been dedicated for drinking water purposes
Water Purveyor	Any entity that discharges from a drinking water system, including water purveyors, wholesalers, distributors, districts, municipalities, private companies, and other entities that own or operate a community drinking water system
Discharger	A water purveyor that is authorized to discharge under this Order through an approved Notice of Applicability issued by the Deputy Director of Water Quality
Waters of the United States	Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act. For the purpose of this Order, the terms “surface water,” and “receiving water” are interchangeably used to mean “waters of the United States,” unless noted otherwise

Table 2. Administrative Information

This Order was adopted by the State Water Board on November 18, 2014:
This Order shall become effective on February 26, 2015 (100 days after the adoption date of this Order)
This Order shall expire on February 25, 2020

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the State Water Board on November 18, 2014.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Dorene D'Adamo

NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board

Table of Contents

I. Scope of Statewide General Order and Required Regulatory Coverage 4
A. Water Purveyors NOT Required to Enroll in This Order 5
B. Discharges Authorized Under This Order 6
C. Discharges Not Authorized Under This Order 7
II. Permit Coverage and Application Requirements 7
A. Permit Coverage 7
B. Permit Effective Date 8
C. Application Package Requirements 8
D. State Water Board Notice of Applicability 9
E. Permit Coverage Termination 10
F. Permit Transfer 10
III. Findings 11
IV. Discharge Specifications and effluent limitations
(Only Applicable to Discharges that enter a Water of the U.S.) 13
V. Receiving Water Limitations 16
VI. Multiple Uses or Beneficial Reuse 16
VII. Provisions 17
A. Standard Provisions 17
B. Monitoring and Reporting Program Requirements 17
C. Special Provisions 17
D. Noncompliance 17
VIII. Compliance Determination For Planned Discharges 17
A. Permit Compliance for Planned Discharges only 18
B. General 18
C. Total Residual Chlorine 18

List of Tables

Table 1. Key Definitions for the Purpose of this Order 1
Table 2. Administrative Information 2

List of Attachments

ATTACHMENT A – DEFINITIONS A-1
ATTACHMENT B1 – NOTICE OF INTENT B-1
ATTACHMENT B2 – NOTICE OF NON-APPLICABILITY B-6
ATTACHMENT C – EXAMPLE BEST MANAGEMENT PRACTICES (BMPs) C-1
ATTACHMENT D – STANDARD PROVISIONS D-1
ATTACHMENT E – MONITORING AND REPORTING PROGRAM E-1
ATTACHMENT F – FACT SHEET F-1
ATTACHMENT G – WATER BODIES WITH TOTAL MAXIMUM DAILY LOADS (TMDLs)
AND WASTE LOAD ALLOCATIONS (WLAs) TO WATER PURVEYORS G-1
ATTACHMENT H - MAP OF THE REGIONAL WATER QUALITY CONTROL BOARDS H-1

I. SCOPE OF STATEWIDE GENERAL ORDER AND REQUIRED REGULATORY COVERAGE

This Order is a National Pollutant Discharge Elimination System (NPDES) general permit that authorizes discharges from drinking water systems, as defined on Page 1 of this Order. This Order provides regulatory coverage for short-term or seasonal planned and emergency (unplanned) discharges resulting from a water purveyor's essential operations and maintenance activities undertaken to comply with the federal Safe Drinking Water Act, the California Health and Safety Code, and the State Water Board's Division of Drinking Water permitting requirements for providing reliable delivery of safe drinking water.

Planned discharges include regularly scheduled, automated, or non-regularly scheduled activities that must take place to comply with mandated regulations and that the water purveyor knows in advance will result in a discharge to surface water. Emergency discharges include unplanned discharges that occur due to facility leaks, system failures, operational errors, or catastrophic events for which the water purveyor is not aware of the discharge until after the discharge has commenced. Planned and emergency discharges may occur directly, through a constructed storm drain or through another conveyance system, to waters of the United States (U.S.).

The Federal Water Pollution Control Act (also referred to as the Clean Water Act) section 402 requires that a discharge of any pollutant or combination of pollutants to surface waters that are deemed waters of the U.S., with certain exceptions, be regulated by a NPDES permit. (For the purpose of this Order, the terms "waters of the United States [or U.S.]", "surface waters" and "receiving waters" are used interchangeably unless noted otherwise.) On September 22, 1989, the U.S. Environmental Protection Agency (U.S. EPA) granted the State of California, through the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards), the authority to issue NPDES permits pursuant to title 40 Code of Federal Regulations parts 122 and 123.

Discharges of a pollutant from a drinking water system, regardless of the size of the system, are required to be regulated by an NPDES permit if the discharges flow into a water of the U.S. Title 40 Code of Federal Regulations part 122.28 provides for issuance of general permits to regulate a category of dischargers if they involve the same or substantially similar types of operations; discharge the same type of waste; require the same type of effluent limitations or operating conditions; require similar monitoring; and are more appropriately regulated under a general order rather than individual orders. Discharges from drinking water systems that result from mandated activities to protect public health are of substantially similar types of operations, discharging the same type of waste.

This Order requires all water purveyors in California with drinking water system discharges to waters of the U.S. as described in Section I.B of this Order, except those water purveyors that meet the exception criteria identified in section I.A of this Order, to obtain NPDES regulatory coverage through enrollment in this statewide NPDES General Order. The water purveyor shall submit an application package to the State Water Board in accordance with section II.C.1 *Application Package Requirements* any time after the effective date of the permit but no later than **September 1, 2015**.

A. Water Purveyors NOT Required to Enroll in This Order

Water purveyors that meet any of the following criteria, items 1 through 6, are NOT required to submit an application package to obtain coverage through enrollment in this particular statewide NPDES General Order; this Order is, however, available for water purveyors that meet the criteria of items 1 through 3 below and choose to enroll. (This Order does not exempt any water purveyor from federal Clean Water Act requirements to obtain NPDES regulatory coverage for its discharges to waters of the U.S.) By **September 1, 2015**, water purveyors that meet any one of the items 2 through 5 below shall submit to the State Water Board a Notice of Non-Applicability form (see Attachment B-2) that certifies NPDES regulatory coverage from this Order is not required. A water purveyor with multiple community water systems in California need only submit one Notice of Non-Applicability for its systems that meet the same criterion.

1. The drinking water system has fewer than 1000 connections that deliver drinking water to end users. (This does not include water wholesalers as defined in Attachment A that deliver water to other drinking water systems); or

2. The water purveyor discharges solely to a municipal separate storm sewer system(s) (MS4) and has an established local agreement with the MS4 permittee to discharge into its system(s),

   AND

   The corresponding Regional Water Board Executive Officer provides written confirmation to the State Water Board Deputy Director that the local agreement provides sufficient regulation of the subject drinking water system discharges through an existing MS4 NPDES permit; or

3. The water purveyor is an MS4 permittee, or co-permittee, named on a State Water Board or a Regional Water Board issued MS4 permit that also authorizes discharges from drinking water systems, and all drinking water system discharges solely discharge into its own MS4 system; or

4. The water purveyor's discharge is regulated under an existing individual site-specific NPDES permit issued by the Regional Water Board because: (1) the discharge from the system is outside of the scope of this low threat Order, and/or (2) a Total Maximum Daily Load (TMDL) was adopted and the Regional Water Board determined that TMDL-specific permit requirements for its drinking water system(s) discharges are appropriate because those discharges may contribute to the impairment of the water body; or

5. All discharges from the drinking water system do not discharge to a water of the U.S.; or

6. The discharge is exempt from the legal requirement to obtain an NPDES permit under federal law.

After review, a Notice of Non-Applicability Approval by the State Water Board's Deputy Director of Water Quality (Deputy Director) may be issued. If the Notice of Non-Applicability is not complete or the discharge is deemed ineligible, the Deputy Director will send a response letter to the applicant outlining: (1) the missing information that deems the Notice of Non-Applicability incomplete, or (2) why the described discharge is not eligible and thus the water purveyor must obtain coverage under this Order. The State Water Board will provide the water purveyor **60 days from the date of the response letter** to provide State Water Board staff the items necessary to complete the Notice of Non-Applicability or to submit a complete application package in accordance with section II.C of this Order.

B. Discharges Authorized Under This Order

This Order authorizes drinking water system discharges (as defined on Page 1) resulting from a water purveyor's essential operations and activities undertaken to comply with the federal Safe Drinking Water Act, the California Health and Safety Code, and the State Water Board's Division of Drinking Water permitting requirements. Discharges authorized by this Order are composed solely of water that is dedicated by drinking water facilities for the primary purpose of providing safe and reliable drinking water. Additionally, discharges authorized under this Order are determined to not adversely affect or impact beneficial uses of the receiving waters when properly managed through best management practices. Such discharges include, but are not limited to, discharges from supply wells, transmission systems, water treatment facilities, water distribution systems, and storage facilities. Any discharges that are likely to cause or contribute to an exceedance of a water quality objective other than those granted an exception under the State Water Board Resolution 2014-0067, will not be authorized under this Order.

This Order authorizes single discharges at one identified location and multiple simultaneous discharges at multiple locations. Authorized discharges to waters of the U.S. may include, but are not limited to, the following discharges:

1. Planned Discharges Due To:

a. Groundwater supply well flushing or pump-to-waste.
b. Groundwater well development, rehabilitation, and testing.
c. Groundwater monitoring for purpose of supply well development, rehabilitation and testing.
d. Trench dewatering of drinking water during planned repairs.
e. Transmission system installation, cleaning, and testing.
f. Water treatment plant operations (excluding filter backwash that is discharged to a water of the U.S).
g. Distribution system storage tank or reservoir releases.
h. Distribution system dewatering, flushing, and pressure testing.
i. Fire flow / fire hydrant testing.
j. Meter testing.

k. Automated water quality analyzers operations.
l. Pressure relief valves.
m. Unscheduled activities that must be undertaken to comply with mandates of the Federal Drinking Water Act and California Health and Safety Code.

2. Emergency (Unplanned) Discharges Due To:

a. Emergency drinking water system failures and repairs including transmission and distribution system failures and repairs.
b. Trench dewatering due to an emergency failure.
c. Operation errors.
d. Catastrophic events.

C. Discharges Not Authorized Under This Order

The State Water Board does not authorize any of the following discharges to waters of the U.S. under this Order:

1. Discharges that are not within the scope of this Order as described in section I and/or are not authorized by a Notice of Applicability issued by the Deputy Director of Water Quality (Deputy Director); or

2. Discharges to a water of the U.S. with a total maximum daily load (TMDL) that prescribes a waste load allocation to a water purveyor, where the Deputy Director determines that the requirements of this Order are not consistent with the assumptions and requirements of the TMDL and thus compliance with this Order is not sufficient for the water purveyor to comply with the imposed TMDL requirements; or

3. Discharges from new drinking water systems (not an expansion of an existing system) into a Clean Water Act section 303(d)-listed impaired water body that is impaired for a constituent that exists in the new discharge at a concentration greater than the criteria used to establish the impairment of the water body, and for which a regional water board has issued an individual permit that addresses the TMDL requirements; or

4. Direct discharges into areas designated by the State Water Board as Areas of Special Biological Significance (ASBS).

II. PERMIT COVERAGE AND APPLICATION REQUIREMENTS

A. Permit Coverage

This Order provides regulatory coverage to water purveyors with existing and potential authorized discharges as set forth in section I.B to waters of the U.S. from a community drinking water system that does not adversely affect or impact beneficial uses of the

receiving water. Permit coverage may include discharges from work conducted by contractors on behalf of the water purveyor.

B. Permit Effective Date

This Order becomes effective **February 26, 2015**, 100 days after the adoption date of this Order. Any time after the effective date but no later than **September 1, 2015**, all water purveyors that do not meet the criteria of section I.A. of this Order shall submit a complete application package in accordance with the following section II.C.

C. Application Package Requirements

To obtain regulatory coverage under this Order, a water purveyor must submit to the State Water Board a complete application package that includes all the following items. A water purveyor with multiple drinking water systems in California need only submit one complete application package (with individual Notice of Intent forms for each of its drinking water systems) and obtain one Notice of Applicability for regulatory coverage of all its systems that discharge to waters of the U.S.

1. **Notice of Intent.** A completed Notice of Intent form for each of its drinking water systems (shown as Attachment B1 of this Order), signed and certified in accordance with section V.B., *Signatory and Certification Requirements*, of Attachment D – Standard Provisions.

2. **Application Package Fee.** A fee payable to the State Water Board in accordance with California Code of Regulations, title 23, or subsequent fee regulations updates. The current fee schedule is available at the following website: http://www.waterboards.ca.gov/resources/fees

   Only one fee is required for an application package requesting coverage for multiple drinking water systems.

3. **Site Information.**
   a. A site schematic showing the following items:
      i. The general location of the community drinking water facilities and/or the boundaries of the water purveyor's service area(s); and
      ii. The general location of groundwater supply wells and/or any discharge locations to surface waters; and
      iii. General identification of the portion of the community water system that discharges within a 300-foot conveyance distance from the receiving water(s) and/or within a 300-foot radius of the receiving water(s).
   b. Names of all named receiving water bodies and/or major downstream water bodies.

c. A description of the multiple uses of the water prior to surface water discharge or beneficial reuse that the discharges will serve (i.e. ground water recharge, irrigation).

d. Reason(s) that the discharge water cannot be utilized for multiple uses or beneficial reuse. (Refer to section VI. MULTIPLE USES OR BENEFICIAL REUSE, below)

4. **Total Maximum Daily Loads (TMDL) Constituent-specific Application Package Supplement** (applicable for discharges into waters of the U.S. identified in section III. K of the Fact Sheet). A supplement to the application requirements listed above shall include the following items:

   i. **Laboratory Analysis of TMDL-specific constituent(s).** (The laboratory analysis shall be conducted by a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP).) The application package supplement shall include a laboratory analysis sheet(s) indicating the concentration of the applicable TMDL specific constituent(s) in the drinking water system discharge at the point of discharge. The monitoring and analysis shall be conducted in accordance with title 40 Code of Federal Regulations part 136. The water purveyor shall submit the following items for the application supplement to be deemed complete:

      a) A minimum of two samples representative of the drinking water system discharge that contains or has the potential to contain the greatest concentration or level of constituent/parameter associated with the TMDL constituent/parameter. The samples shall be taken at a location after the appropriate treatment or controls are implemented for the constituent associated with the TMDL; and

      b) The estimated minimum and maximum discharge volume per discharge event; and

      c) The estimated average discharge volume from the system per year. The estimated volumes may be based on historical data.

   ii. **TMDL-specific Best Management Practices.** Description of site-specific best management practices that properly treat and/or control corresponding TMDL constituents in the discharge to a concentration or level less than the water purveyor's applicable TMDL-specific permit requirement (s) as set forth in Attachment G, if any.

The supplemental analytical information will be used to confirm that the discharge does not contribute to the specific impairment of the TMDL-related waterbody(ies) and that the requirements in this Order are sufficient to ensure compliance with the specific TMDLs.

D. State Water Board Notice of Applicability

After the water purveyor's application package is deemed complete, the Deputy Director will issue a Notice of Applicability. Regulatory coverage for the planned and emergency

discharges that occur within the areas identified in the application package commences with the date of issuance of a Notice of Applicability to the water purveyor. If the submitted application package is not complete in accordance with previous section II.C., or the discharge is deemed ineligible for coverage under this Order, the Deputy Director will send a response letter to the applicant outlining: (1) the missing information that renders the application package incomplete, or (2) why the described discharge is not eligible for coverage under this Order. The water purveyor will have **60 days from the date of the response letter** to provide State Water Board staff the items necessary to complete the application package.

E. Permit Coverage Termination

1. **Termination of Existing Regional Water Board Permit Coverage.** Upon the issuance of the NOA in accordance with this Order, the State Water Board expects the applicable Regional Water Board to terminate regulatory coverage under an existing non-MS4 Regional Water Board NPDES permit for discharges within the scope of this Order.

2. **Termination of Statewide Permit Coverage or Revocation of Notice of Non-Applicability.** The Deputy Director may terminate coverage or revoke a Notice of Non-Applicability Approval (NONAA) under this Order for any of the specified causes, and require application for coverage under an individual or other NPDES permit as set forth in title 40 Code of Federal Regulations part 122.28(b)(3). Causes for permit coverage termination or NONAA revocation include, but are not limited to, the following:
   a. Violation of any term or condition of this Order; or
   b. Misrepresentation or failure to disclose all relevant facts in obtaining permit coverage or non-applicability status under this Order, or
   c. Written request from a Discharger to terminate enrollment because discharge has ceased or that the permit is no longer needed.

   Annual permit fees will be assessed by the State Water Board up to the date of written termination notification from the State Water Board to the Discharger, or the date of a termination request letter from the Discharger to the State Water Board, whichever is applicable.

3. **Qualified Biologist Certification Following Project Completion.** Upon completion of the project, the Discharger shall provide certification by a qualified biologist that beneficial uses of the receiving waters have been restored. For drinking water system discharges, completion of the project is when the water purveyor ceases discharges from its drinking water system under this Order, or when the State terminates NPDES permit coverage for the discharge(s).

F. Permit Transfer

A change in ownership of the facilities authorized to discharge through coverage under this Order requires the current owner to provide written notice to the State Water Board

at least 30 days in advance of transfer of ownership. The Deputy Director may determine that the new owner must submit an application package to seek coverage under this Order if the nature or location(s) of the discharge(s) have changed from the application package on file.

III. FINDINGS

The State Water Board finds the following:

A. Legal Authorities. This Order serves as statewide Waste Discharge Requirements (WDRs) pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by the U.S. EPA, and the California Water Code, chapter 5.5, division 7 (commencing with § 13370). This Order shall serve as a statewide general NPDES permit for point source discharges from single or multiple discharge points to surface waters, storm drains, and other storm water conveyances leading to waters of the U.S.

B. Background and Rationale for Requirements. The Fact Sheet (Attachment F) contains background information and rationale for the requirements in this Order, and is hereby incorporated into and constitutes findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

C. Termination of Existing Coverage Under Similar Regional Water Board Orders. The State Water Board's intention in the issuance of this statewide NPDES Permit is to provide consistent and efficient regulation of discharges from drinking water systems statewide. To provide such consistency, the State Water Board intends that existing regulatory coverage under an existing non-MS4 Regional Water Board NPDES permit for discharges regulated under this Order will be terminated by the applicable regional water board upon issuance of the Notice of Applicability to a water purveyor per the terms of this Order.

D. Threat and Complexity of Discharge.
When mitigated through implementation of appropriate management practices, treatment and/or controls, discharges from community water systems, as defined under this Order, pose no adverse effects or impacts to beneficial uses of the receiving waters. In accordance with the State Water Board fee regulations, the discharges that are regulated under this general NPDES Permit require minimal or no additional treatment systems to meet limits and pose no significant threat to water quality and therefore are of low threat and low complexity.

E. State Implementation Policy. As adopted in March 2000, and amended in February 2005, the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP) establishes implementation provisions for priority pollutant criteria, and objectives and provisions for chronic toxicity control. Section 5.3 of the SIP allows for the granting of a categorical exception for drinking water system activities conducted to fulfill statutory requirements mandated by federal and state regulations.

F. California Ocean Plan. In 1972, the State Water Board adopted the Water Quality Control Plan for Ocean Waters of California (hereinafter Ocean Plan), as amended. The latest Ocean Plan amendment became effective on August 19, 2013. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean waters of the State. To protect the beneficial uses of ocean water, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan and are applicable to those discharges directly into the Ocean or indirectly via a storm water system that drains into the Ocean near the location of discharge. This Order does not authorize direct discharges into Areas of Special Biological Significance (ASBS).

Section III.J of the Ocean Plan allows the State Water Board to grant an exception where the State Water Board determines that the exception will not compromise protection of the ocean waters or beneficial uses and the public interest will be served.

G. Exception Resolution. On November 18, 2014, the State Water Board adopted a Resolution approving an exception to the State Implementation Policy and the Ocean Plan to water purveyors statewide for discharges from drinking water systems from complying with specified priority pollutant criteria and ocean plan objectives. As provided in Resolution 2014-0067, the State Water Board granted an exception per section 5.3 of the State Implementation Policy to water purveyors statewide, for planned and emergency discharges to inland surface waters, enclosed bays and estuaries. Similarly, as provided in Resolution 2014-0067, the State Water Board granted water purveyors with drinking water system discharges to the ocean, other than direct discharges into ASBS, an Ocean Plan exception for compliance with specified Ocean Plan objectives. As further discussed in the Fact Sheet (Attachment F), the State Water Board finds that in accordance with the requirements of the SIP and Ocean Plan, discharges from drinking water systems qualify for an exception of the State Implementation Policy and Ocean Plan per Resolution 2014-0067.

H. California Environmental Quality Act. Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA), (commencing with section 21100) of Division 13 of the Public Resources Code.

Additionally, pursuant to CEQA, Public Resources Code section 21100 et seq., on November 18, 2014 the State Water Board adopted Resolution 2014-0067 approving a Mitigated Negative Declaration for excepting the type of discharges as covered under this Order from specified requirements of the State Implementation Policy and the California Ocean Plan.

I. Total Maximum Daily Load (TMDL) Implementation. A review of Regional Water Board TMDLs found that, as of the adoption date of this Order, only the Los Angeles Regional Water Board and the San Diego Regional Water Board have TMDLs that either directly apply waste load allocations to, or may indirectly imply that waste load allocations are applicable to, the discharges from drinking water systems regulated under this General Order. None of these TMDLs established waste load allocations that apply exclusively to discharges from drinking water systems. These TMDLs are

applicable to the discharges from drinking water systems authorized under this Order and are therefore implemented by this Order.

This Order requires TMDL-related sampling of discharges from drinking water systems identified in a TMDL. If a Regional Water Board determines that any of these TMDLs, or any newly approved TMDLs, establish requirements that should be implemented through TMDL-specific permit requirements for the discharges from drinking water systems that are authorized under this Order, the Regional Water Board may issue permit(s) for those discharges, with coverage under this Order subsequently terminated. Alternatively, if further TMDLs are adopted that address pollutants that are likely to be in discharges from drinking water systems, and allocate waste loads specifically to water purveyors regulated under this Order, the State Water Board may consider adding additional TMDL-specific permit requirements to Attachment G of this Order in a subsequent permit amendment or renewal.

J. Notification of Interested Parties. State and Regional Water Board staffs have conducted eight stakeholder meetings statewide, and numerous other informal communications, and have notified prospective water purveyors and interested agencies and persons of the intent to issue this statewide NPDES permit and prescribe these statewide waste discharge requirements. The State Water Board provided an opportunity for all interested parties to submit written comments and testimony.

K. Consideration of Public Comment. The State Water Board, in an August 5, 2014 public hearing, heard and considered public comments pertaining to the draft Order. The State Water Board also considered all written public comments submitted by the public comment due date of August 19, 2014, prior to adopting this Order. The Fact Sheet (Attachment F) provides details regarding the public notice and public hearing.

THEREFORE, IT IS HEREBY ORDERED that, in order to meet the provisions contained in California Water Code, Division 7 (commencing with section 13000) and regulations adopted thereunder, and the provisions contained in the Clean Water Act and regulations and guidelines adopted thereunder, a water purveyor shall comply with the requirements of this Order. Water purveyors that have obtained coverage under this Order shall comply with the requirements in sections IV. through VII. (Discharge Specifications and Effluent Limitations, Receiving Water Limitations, Multiple Uses or Beneficial Uses Provisions, and Compliance Determination), Attachments D and E (Standard Provisions and Monitoring and Reporting Program) of this Order, and Attachment G (TMDL-related requirements) as applicable.

IV. DISCHARGE SPECIFICATIONS AND EFFLUENT LIMITATIONS (ONLY APPLICABLE TO DISCHARGES THAT ENTER A WATER OF THE U.S.)

For purposes of this Order, references to “discharge(s)” mean discharge(s) that may occur directly, through a constructed storm drain, or through other conveyance system, to waters of U.S. The Discharger shall comply with the following discharge specifications and effluent limitations.

A. Specification for Implementation of Best Management Practices

1. The Discharger shall implement best management practices (BMPs) that treat or control pollutants from its discharges to maintain compliance with this Order. Implementation of BMPs includes proper management, and routing of discharges to control the pollutants of concern. The Discharger shall properly manage planned discharges and implement proven BMPs provided by professional associations or institutes such as the American Water Works Association, to protect beneficial uses of the receiving water body(ies). For emergency discharges, the Discharger shall implement BMP procedures as soon as feasible while concurrently protecting public health and safety. Attachment C of this Order provides example BMPs.

   At minimum, the Discharger shall implement BMPs for planned discharges to achieve the following performance measures:

   i. Prevent aquatic toxicity by using dechlorination chemical additions, implementing equivalent proven dechlorination methods, and/or assuring that the chlorine in the discharge dissipates naturally; such that the level of chlorine in the discharge is less than 0.019 mg/L prior to entering a receiving water.

   ii. Prevent riparian erosion and hydromodification by implementing flow dissipation, erosion control, and hydromodification-prevention measures; and

   iii. Minimize sediment discharge, turbidity and color impacts by implementing sediment, turbidity, erosion and color control measures.

2. For Groundwater Supply Well Operations, the Discharger shall implement treatment systems or BMPs for all groundwater well development, rehabilitation, or operation discharges to waters of the U.S. to ensure these discharges:

   (1) Do not cause or contribute to an exceedance of the receiving water limitation for turbidity in Section V.G. of this Order, and

   (2) Comply with a turbidity action level of 100 Nephelometric Turbidity Units (NTUs) or less in the discharge. An exceedance of the turbidity numeric action level of 100 NTU is not a violation of this Order, but any exceedance does require that the Discharger take action to modify, change or enhance BMPs when the turbidity level is greater than 100 NTU, until the turbidity level is 100 NTU or less.

3. The Discharger shall implement quality assurance and quality control protocol to assure best management practices, monitoring, and reporting are effective, valid, and in compliance with this Order. The Discharger shall train all personnel operating the drinking water system and responding to emergency discharges to assure the quality assurance and quality control protocol is properly implemented.

4. For planned discharges, BMPs shall be implemented prior to and during discharges that enter a water of the U.S. For planned discharges from pressure relief valves (*i.e.*, due to testing or maintenance) and unchlorinated pump-to waste wells, BMPs

shall be implemented unless infeasible (e.g., inaccessible, inadequate space). For emergency discharges, BMPs shall be implemented as soon as feasible following assurance that public safety, property, and infrastructure are protected.

5. In fulfilling the requirements of this section, the Discharger may implement the example BMPs contained in Attachment C, or proven BMPs per updated approved guidance established by industry experts, professional associations, or entities (e.g. *2014 Edition of the BMP Manual for Drinking Water System Releases* published by the California-Nevada Section of the American Water Works Association).
6. The Discharger shall maintain a documented log of all BMPs implemented for its different types of discharges that enter a water of the U.S., and make it available to State and Regional Water Board staff upon request.
7. The Discharger shall modify BMPs as necessary to maintain compliance with the requirements of this Order. If monitoring results or other available information demonstrate that the discharge is not in compliance, the Discharger shall determine the source of non-compliance, and develop and implement new or revised BMPs as necessary. As part of this process, the Discharger shall validate the effectiveness of any new or revised BMPs to achieve the requirements of this Order. All non-compliance and corresponding corrective actions to address non-compliance shall be reported to the State Water Board in the annual report, as required in the Monitoring and Reporting Program (Attachment E) of this Order. A log documenting the additional or revised BMPs shall be made available upon request by staff of the State and/or Regional Water Board.

B. Effluent Limitations

1. All Discharges of Superchlorinated Water:

a. The total chlorine residual concentration in the discharge shall not exceed 0.019 mg/L.

b. A field monitoring result with a total residual chlorine concentration greater than or equal to 0.1 mg/L shall be deemed out of compliance with a chlorine effluent limitation.

2. All Planned Discharges directly into, or within 300 feet of, Inland Surface Waters, Enclosed Bays, and Estuaries

a. The total chlorine residual concentration in the discharge shall not exceed 0.019 mg/L.
b. A field monitoring result with a total residual chlorine concentration greater than or equal to 0.1 mg/L shall be deemed out of compliance with a chlorine effluent limitation.

3. All Planned Discharges directly into, or within 300 feet of, Ocean Waters

a. The total chlorine residual concentration in the discharge shall not exceed 0.008 mg/L.
b. A field monitoring result with a total residual chlorine concentration greater than or equal to 0.1 mg/L shall be deemed out of compliance with a chlorine effluent limitation.

c. The turbidity concentration in the discharge shall not exceed 225 NTU at any time.

V. RECEIVING WATER LIMITATIONS

Receiving water limitations are based on water quality objectives contained in Regional Water Quality Control Board Basin Plans and State Water Board water quality control plans, including the Ocean Plan, and policies, and are a required part of this Order. Drinking water system discharges to the receiving water that are authorized to discharge under this Order shall not cause or contribute to the exceedance of a water quality objective or standard in the receiving water, other than water quality objectives or standards for parameters that have been granted an exception under the State Water Board Resolution 2014-0067 and are not part of a TMDL, and at minimum shall not cause or contribute to an occurrence of the following in the receiving water:

A. pH. The pH level to be outside the range of the pH receiving water objective in a corresponding Regional Water Board basin plan.

B. Chemical Constituents. Chemical constituents to be present in concentrations that adversely affect beneficial uses.

C. Floating Material and Trash. Floating material, debris or trash to be present that cause nuisance or adversely affect beneficial uses.

D. Sediment and Total Suspended Solids. The sediment load and total suspended solids discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

E. Toxicity. Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

F. Hydromodification. Velocity and/or volume of discharge to modify the existing physical characteristics of a water body.

G. Turbidity. Turbidity concentrations to exceed corresponding Regional Water Board basin plan water quality objectives for turbidity.

VI. MULTIPLE USES OR BENEFICIAL REUSE

The discharge to surface waters may be considered wasteful when it is feasible for the water to be used prior to discharge. The State Water Board strongly encourages all water purveyors to put all or part of the discharge water to multiple uses or a beneficial reuse prior to discharge into surface water. Because of the high quality of the discharge water addressed in this Order, discharges authorized under this Order that are put to multiple use or beneficial reuse are not required to be monitored and generally not required to obtain any other waste discharge requirements if the water that would otherwise be discharged is instead collected and reused for landscape irrigation, agricultural irrigation or other uses in

a manner that augments the existing water supply, or if the discharge is directly or indirectly discharged to: (1) storm water capture basin(s), (2) low impact development features, or (3) other groundwater-recharge system(s).

VII. PROVISIONS

A. Standard Provisions

The Discharger shall comply with all Standard Provisions in Attachment D.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program requirements in Attachment E.

C. Special Provisions

1. Reopener Provisions

The State Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

a. If present or future investigations demonstrate that the discharges governed by, and in compliance with, this Order cause adverse impacts on water quality or beneficial uses of the receiving waters;

b. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted;

c. To include specific implementation provisions in Attachment G for any existing or newly adopted TMDLs;

d. If an administrative or judicial decision on a separate NPDES permit or Waste Discharge Requirements addresses requirements applicable to discharges authorized in this Order; and/or

e. As otherwise authorized by law.

D. Noncompliance

Noncompliance with any requirement of this Order may be subject to enforcement action by the State Water Board and/or Regional Water Board as authorized under the Porter Cologne Water Quality Control Act (Water Code Section 13000), consistent with the State Water Board's enforcement policy.

VIII. COMPLIANCE DETERMINATION FOR PLANNED DISCHARGES

Compliance with the final effluent limitations contained in Section IV.B of this Order will be determined as specified below:

A. Permit Compliance for Planned Discharges only

Compliance with applicable effluent limitations, BMP implementation requirements, receiving water limitations, monitoring, notification, and reporting requirements of the permit constitutes compliance with this Order. Due to the infeasibility of a Discharger to self-monitor compliance with receiving water limits in distant receiving water bodies (for discharges into drainage conveyance systems), non-compliance with receiving water limitations for indirect discharges will be determined based on additional site-specific information made available to the Water Boards indicating that drinking water system discharges caused or contributed to the exceedance of the receiving water limitations and adversely impacted beneficial uses.

B. General

Compliance with effluent limitations shall be determined using monitoring and reporting protocols defined in the Monitoring and Reporting Program of this Order. For purposes of reporting and administrative enforcement by the State and/or Regional Water Boards, the Discharger shall be deemed out of compliance with the effluent limitations if the constituent concentration or level is greater than the effluent limitation and greater than or equal to the minimum level (ML, also known as the Reporting Level (RL)) of properly calibrated in-field monitoring equipment.

C. Total Residual Chlorine

Handheld chlorine measuring devices that are U.S. EPA-approved are appropriate to measure residual chlorine in the field for compliance determination. The minimum level of a hand-held chlorine meter used to determine compliance with the total chlorine residual effluent limitations is 0.1 mg/L or lower. A discharge monitoring result with a total residual chlorine concentration greater than or equal to 0.1 mg/L shall be deemed out of compliance with a chlorine effluent limitation. Due to other possible interferences of these handheld devices, if readings are false positives, these will not be evaluated for compliance if explanation of cause of false positive is provided.

Appendix C

Summary of Required Contractor Submittals

Submittal	Specifications Sections	Due
Section 2 - Well Redevelopment and Testing		
Site Plan	2.1	Prior to mobilization
Groundwater Management and Treatment System Plan	2.1	Prior to mobilization
Applicable Permits	2.1	Prior to mobilization
Baseline Project Schedule	2.1	Prior to mobilization
Name and qualifications of the firm proposed to complete the video survey	2.3	Prior to use
One electronic copy of the completed video survey and written survey report	2.3	Within 24 hours of completion
Well development field logs	2.4	Daily during development
Well development progress logs	2.6	Daily during development
Test pump details including pump intake depth, bowl specifics including number of stages and diameter, pump column diameter, and all other applicable dimensions	2.7	Prior to use
Field development data sheets	2.8	Daily during development
Well testing data sheets	2.9	Within 24 hours of completion
Name and qualifications of the firm proposed for completing spinner survey	2.10	Prior to use
One electronic copy of the completed spinner flowmeter survey and associated report, including LAS files	2.10	Within 24 hours of completion
Name and qualifications of the firm proposed to complete the video survey	2.12	Prior to use
One electronic copy of the completed video survey and written survey report	2.12	Within 24 hours of completion
Sodium hypochlorite safety data sheet and NSF-60 certification	2.13	Prior to use

2-E ADDENDA

N/A

END OF DOCUMENT

2-F SPECIAL CONDITIONS AND LIQUIDATED DAMAGES

MODIFICATIONS TO THE GENERAL CONDITIONS

Time Allowed for Completion

Due to time constraints on completing the Project, the Contractor shall submit all required bonds and evidence of insurance within ten (10) days of the date the Contract is awarded. The Owner intends to issue a Notice to Proceed within fifteen (15) days of the date the Contract is awarded.

Substantial Completion of this Project shall be completed within 40 consecutive calendar days from the date established in the Notice to Proceed for the commencement of the work.

Final Completion shall occur within 45 consecutive calendar days from the date established in the Notice to Proceed for the commencement of the work.

Damages for Delays

For the period of time that any portion of the work remains unfinished after the time fixed for an interim milestone and/or Substantial Completion, as modified by extensions of time granted by the Owner, it is understood and agreed by the Contractor and the Owner that the Contractor shall pay the Owner the damages listed below.

	Dollars Per Day Liquidated Damages (Amount in Dollars)
Substantial Completion	$1,000.00
Final Completion	$1,000.00

SUBSTANTIAL COMPLETION

Substantial completion of the Project requires that the following portions of the Work must be completed in accordance with the requirements of the Contract Documents.

Completion of the work as required by the Contract Documents to allow the Owner to occupy and utilize the Project for its intended purpose.

Completion of the Corrective Work Item List.

Training has been completed for all electrical, mechanical and instrumentation systems.

All testing required by the Contract and Specifications has been successfully completed.

All process equipment shall be installed and operational.

All instrumentation and control systems, local and remote, are fully tested and functional. All interlocked functions between equipment items are tested and documented.

All alarms are fully functional, tested and demonstrated to properly associate locally, remotely and in the SCADA system.

All items related to health and safety of Owner operations and maintenance staff, including warning signs, guardrails, and safety equipment shall be complete.

Portions of the Work not essential to the system operation, which can be completed without interruption of system operations, may be completed after the Work is substantially complete, and may include the following items:

Final Site Clean-Up

All record drawings have been submitted, updated, reviewed and approved.

Completion of the Final Punch List prepared by the Construction Manager.

CONTRACT ADMINISTRATION

The following project representatives are hereby designated by the Owner:

Owner Representative:	Nate Gillespie, Scotts Valley Water District	(NAME)
Design Consultant:	Bill DeBoer, Montgomery and Associates	(NAME)
Construction Manager:		(NAME)

All communications to and from the Contractor shall be routed through the Owner's Representative.

END OF DOCUMENT

SECTION 3 STANDARD SPECIFICATIONS

TABLE OF CONTENTS

3-A GENERAL TECHNICAL REQUIREMENTS 1
3-A.01 Mobilization 1
3-A.02 Existing Facilities 3
3-A.03 Clearing and Grubbing 3
3-A.04 Safety 5
3-A.05 Traffic Control 7
3-A.06 Erosion Control 15
3-A.07 Utility Marking Systems 18
3-B POTABLE WATER SYSTEM 20
3-B.01 General Requirements 20
3-B.02 Transmission and Distribution Pipelines 24
3-B.03 Service Pipe Materials 31
3-B.04 Fittings 35
3-B.05 Thrust Restraint 38
3-B.06 Bolting Procedures 41
3-B.07 Casing and Duct Installations 42
3-B.08 Valves 46
3-B.09 Fire Hydrants 63
3-B.10 Wharf Head Fire Hydrant 67
3-B.11 Pipe Assembly Enclosures 68
3-C RECYCLED WATER SYSTEM 72
3-C.01 General Requirements 72
3-C.02 Recycled Water Transmission and Distribution Pipelines 74
3-C.03 Service Pipe Materials 77
3-C.04 Fittings 77
3-C.05 Thrust Restraint 78
3-C.06 Bolting Procedures 78

3-C.07 Casing and Duct Installations 78
3-C.08 Valves 79
3-C.09 Pipe Assembly Enclosures 80
3-D SITE WORK 81
3-D.01 Bedding, Backfill, and Aggregate Bases 81
3-D.02 Backfill 81
3-D.03 Sand Backfill 82
3-D.04 Aggregate Bases 84
3-D.05 Installation and Construction 85
3-D.06 Paving 88
3-D.07 Asphalt Concrete Pavement 88
3-D.08 Cold-Mix Asphalt Concrete 89
3-D.09 Paint Binder and Prime Coat 90
3-D.10 Miscellaneous Areas 90
3-D.11 Construction 90
3-D.12 Measurement 92
3-D.13 Fog Seal 93
3-D.14 Seal Coat 95
3-D.15 Concrete Structures 95
3-D.16 Minor Concrete Structures 97
3-D.17 Construction and Installation 98
3-D.18 Preparation and Forms 101
3-D.19 Jointing and Tooling 102
3-D.20 Placement 104
3-D.21 Chain Link Fencing 105

3-A GENERAL TECHNICAL REQUIREMENTS

3-A.01 Mobilization

(A) General

Mobilization shall include but not be limited to, all work necessary to move onto the job site all personnel, equipment, tools, and materials, establish all offices, buildings, and temporary site facilities, temporary sanitary facilities, prepare and maintain record drawings, provide emergency response, and generally prepare for construction.

(B) Project Office

The Contractor shall establish and maintain for the duration of the project, a project office located within an approximate one (1) hour drive of the project site. The project office shall be established and operational within five (5) working days of the effective date of the Notice to Proceed or prior to commencing work, whichever is the earlier.

The project office shall be equipped with electrical service; Wi-Fi service; a conference table and chairs seating not less than six (6) people; two (2) desks and a plan table each with appropriate chairs.

(C) Field Office

Where provided for in the Contract Documents, the Contractor shall establish and maintain for the duration of the project, a field office located at the project site for use of his supervisory personnel. The field office shall be equipped with electrical service; wi-fi service; a conference table and chairs seating not less than six (6) people; two (2) desks and a plan table each with appropriate chairs.

Additionally, when provided for in the Contract Documents, the Contractor shall establish and maintain for the duration of the project, a similar but separate office located adjacent to the Contractors project office for use of the Engineer's field observation personnel. The Engineer's office shall be equipped with electrical service; telephone service consisting of a minimum of a Wi-Fi connection; one (1) desk and a plan table each with appropriate chairs; and one lockable filing cabinet. The Contractor shall be solely responsible for arrangements for utility services for both offices.

The Contractor shall suitably grade an area sufficient to park not less than six (6) light trucks and/or passenger vehicles. The parking area shall be not more than 50 LF from the farthest of the two offices. The parking area and its access drive shall be surfaced with aggregate base

material, crushed rock or other appropriate material. The Contractor shall maintain the parking area to provide a stable free draining parking surface, and shall take appropriate measures to minimize dust.

The field office shall be established and operational within five (5) working days of the effective date of the notice to proceed or prior to commencing work on the project, whichever is the earlier.

(D) Bulletin Board

Where provided for in the Contract Documents, the Contractor shall install a bulletin board in a conspicuous location at the field office or on the job site for the posting of such notices as may be required by regulatory agencies. Said bulletin board shall be a minimum of 2-LF by 4-LF in size, constructed of substantial material such as plywood, mounted on posts and protected against the weather and vandalism. The Engineer shall have access to this bulletin board at all times for the posting of notices at such times as work is not in progress on the site.

(E) Record Drawings

Record drawings shall be kept on file in the project office. Record drawings shall be updated continuously throughout the course of the work. Record Drawings shall be reviewed monthly by the District Representatives to verify plans are being kept up-to-date. The District may withhold progress payment until Record drawings have been deemed current by District Representatives. Upon completion of work, the Contractor shall submit all copies of record drawings to the District in a hard copy and digital format.

(F) Emergency Response

The Contractor shall maintain an emergency telephone number and shall be able to have competent personnel to the project site within one (1) hour or that time provided for in the Contract Documents from the time a call is placed to the emergency telephone number.

(G) Measurement and Payment

Mobilization shall be considered a lump sum item. The contract lump sum price for Mobilization shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work necessary for the movement of personnel, equipment, supplies and incidentals to the project site; the establishment and maintenance of the project and Engineer's offices (including payment of regular utility charges); maintenance of record drawings; and for all other work and operations which must be performed prior to

beginning work on the various contract items on the project site. The method of establishing relative completion of this item for partial payments shall be as provided for in Section 5-A-General Conditions, "Contract Administration" of these contract documents.

3-A.02 Existing Facilities

(A) General

The Contractor is hereby advised that certain facilities may exist within the limits of work. Such facilities may include but are not limited to, existing water works, sanitary sewerage, storm drainage, traffic signals, natural gas, electric, telephone, cable television, highway structures, and buildings. The Contractor shall at all times protect those facilities not indicated to be removed, whether or not shown to be protected, and shall only remove those facilities indicated to be removed in accordance with the Contract Documents, the directions of the Engineer, and the direction of the owner of the facilities. Where the existing facility interferes with the Contractor in the performance of his work under the Contract, the Contractor shall bear full responsibility for the location, protection, and relocation or restoration of such facility, in accordance with the requirements of the owner of such facility.

The presence of such facilities shown on the Project Plans and provided for in the Contract Documents is for the convenience of the Contractor in preparing his proposal and planning his work and is prepared from the best information available to the Engineer at the time of preparation. The District makes no warranty, expressed or implied, as to the adequacy, completeness, and accuracy of such information. The Contractor shall satisfy himself with regards to the existence of such facilities and their impact on his operation.

Where such facilities are found to exist in locations other than those marked by the owner of such facilities, the Engineer may consider the Contractors request for an extension in time or additional compensation. Such compensation shall be contingent upon the Contractors conformance with the provisions of Section 5-A General Conditions "Differing Site Conditions" of these contract documents.

(B) Measurement and Payment

No separate measurement will be made for work relating to existing facilities. Payment for protecting and adjusting these facilities shall be considered as included in the contract unit or lump sum price for other items of work and no additional compensation will be allowed therefor.

3-A.03 Clearing and Grubbing

(A) General

Work under this section shall be performed in accordance with "Existing Highway Facilities" and "Clearing & Grubbing" in the current CALTRANS Standard Specifications.

Clearing and grubbing shall consist of removing and disposing of all objectionable material from within the limits of work as defined by the Contract Documents. Objectionable material shall be that material which interferes with the prosecution of or would otherwise be detrimental to the work, including but not limited to, paving materials, trees, brush and vegetation, unsuitable soils, debris, trash, rubbish, minor structures such as sheds, shelters and fences, and all extraneous water within the work limits.

(B) Preservation of Property

The Contractor shall take precautions to protect all public and private properties and improvements not indicated to be removed including but not limited to, utilities and structures, trees, landscaping, roadways, drainage courses, and buildings encountered within or adjacent to the project limits. The Contractor shall also protect all existing facilities indicated to be removed until the Engineer deems that the function of such facilities has passed to the improvements provided for under the Contract or that such function is no longer required.

Only those trees and plants designated for removal shall be removed.

(C) Final Cleaning Up

Nothing herein shall be construed as relieving the Contractor of his responsibility for final clean-up of the project. Items which are required to be salvaged, including traffic signs and any other items so noted on the Plans, shall be carefully removed and delivered to the District. Except as otherwise provided in the Project Special Provisions, all other materials removed are the property of the Contractor and shall be disposed of by him at his expense in a manner approved by the Engineer.

Burning will not be permitted.

(D) Disposal

Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the project boundary in accordance with the provisions outlined in "Disposal of Materials" in the current CALTRANS Standard Specifications.

(E) Drainage

Throughout the prosecution of the work under the Contract, the Contractor shall keep all the work areas free of all water including but not limited to, rainwater, groundwater, and leachate and shall take precautions to prevent runoff onto adjacent properties. These precautions shall include but not be limited to dikes, berms, channels, diversions, pumping equipment, and other facilities necessary to control runoff. All work areas shall be constructed or provided with proper and adequate drainage facilities to avoid trapped and/or ponded water which may cause failure of or damage to constructed improvements or adjacent properties.

(F) Measurement and Payment

The contract unit or lump sum price for Clearing and Grubbing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work in clearing work areas, disposing of objectionable materials, and providing drainage and no additional compensation will be allowed therefor.

Any change in the quantity or extent of work to be performed under clearing and grubbing caused by the issuance of a Contract Change Order will be paid in accordance with the provisions of Section 5 Contract Administration of these contract documents.

3-A.04 Safety

(A) General

The Contractor shall bear full responsibility for compliance with all applicable safety and health standards, rules, regulations, and orders established by the State of California Department of Occupational Safety and Health (Cal-OSHA) and the Federal Department of Occupational Safety and Health (OSHA).

In the event of an emergency, the Engineer may direct the Contractor to use other equipment, personnel, or methods when, in the opinion of the Engineer, the use of improper or insufficient personnel, materials, or methods would present a hazard to the public or expose the Districts facilities to a risk of damage. The Engineers direction shall only be in the interest of stopping unsafe practices and shall not be construed as superintendence of the Contractors forces.

(B) Safety Plan

When provided for in the Contract Documents and whenever the Contract Documents provide for extended trenching operations in excess of 5-LF in depth, the Contractor shall have prepared by an engineer registered in the State of California (hereinafter referred to as the Safety Engineer), a Safety Plan for safety measures on the project. This Safety Plan shall include but not be limited to, the following:

- Traffic control requirements for the delivery of materials;
- Storage and handling of delivered materials, including but not limited to installation as required;
- Shoring plans for all excavations including but not limited to underground tanks, tank ventilation, retaining walls, vaults, and piping;
- Provisions for compliance with the OSHA requirements for Permit-Required Confined Spaces;
- Any other plans required for compliance with those regulatory agencies having jurisdiction over the work.

(C) Safety Inspections

The Safety Engineer for this Safety Plan shall make periodic inspections of the site and the work to ensure compliance with these requirements and to make any adjustment or revision to the original safety plan required by field conditions or the Contractor's work. A report of each inspection shall be submitted to the Engineer within one working day of the inspection. No work or element of work noted in the Safety Plan or this report shall be commenced without the approval of the Safety Engineer. Any work or condition not in compliance with these requirements shall be immediately corrected to the Safety Engineers satisfaction or suspended until such time as compliance can be met. Suspended work shall not recommence until receipt of written notice from the Safety Engineer to the Engineer that corrective action has been taken to his satisfaction.

(D) Site Investigations

The Contractor and his Safety Engineer are encouraged to perform their own site investigations to satisfy themselves as to the conditions on-site including if desired, additional subsurface investigations. No additional compensation will be considered for changed conditions that might reasonably have been foreseen by such investigation. Arrangements for site investigations may be arranged through the Engineer or the District.

(E) Measurement and Payment

When the Contract Documents provide a proposal item for Safety Plan or Trench Safety, the contract lump sum price for Safety Plan or Trench Safety shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work in preparing the Safety Plan, implementing the Safety Plan, constructing embankment shoring and performing safety inspections and no additional compensation will be allowed therefor.

When the Contract Documents do not provide a proposal item for Safety Plan or Trench Safety, compliance with applicable safety laws, regulations, and ordinances shall be considered as incidental to other items of work and included in the contract unit or lump sum price for such items of work and no additional compensation will be allowed therefor.

3-A.05 Traffic Control

(A) Description

The Contractor shall provide a traffic control system commensurate with public safety and the requirements of agencies having jurisdiction over the work (City of Scotts Valley or Santa Cruz County). All work shall be in accordance with the CALTRANS Manual of Traffic Controls, these Standard Specifications, and the Contract Documents. All traffic control systems shall be installed and operated in accordance with these Standard Specifications and the requirements of agencies having jurisdiction over the work. The exact spacing of elements of the traffic control plan may be adjusted to account for the field conditions as found. No elements shall be installed without the prior written approval of the Engineer.

The Contractor shall perform all traffic control measures required by the Contract Documents, encroachment permits, and as directed by the Engineer as provided for elsewhere herein. When provided for in the Contract Documents, the Contractor shall prepare a Traffic Control Plan that delineates the traffic control measures anticipated by the Contractor, those required by agencies having jurisdiction over the work area, and any special provisions cited in the Contract Documents.

(B) Traffic Control System

In general, the traffic control system used shall be in general conformance with the provisions of Standard Plan No. T12, “Traffic control system for lane closure on multilane conventional highways” and Standard Plan No. T13, “Traffic control system for lane closure on two lane conventional highways” of the current CALTRANS Standard Specifications. Specific placement of all signs, barricades, cones, delineators, and flaggers shall be adjusted to reflect conditions found in the field while maintaining the intent of such standard plans.

When provided for in the Contract Documents, the Contractor shall have a Traffic Safety Plan prepared by an engineer registered in the State of California as a Traffic Engineer.

Throughout the term of the contract, the Contractor shall maintain all traffic control measures, including but not limited to, construction area signs, flaggers, cons and delineators, and other

measures required by the Contract Documents, encroachment permits, the Traffic Engineer, and the Engineer as provided for elsewhere in these Standard Specifications.

The Contractor shall maintain all traffic control equipment and procedures in good working order throughout the life of the contract and shall promptly repair or replace any elements of the traffic control plan damaged or displaced during construction, due to any cause, at the direction of the Engineer.

(C) Encroachment Permit Requirements

All work on public rights-of-way shall be subject to the Encroachment Permit conditions of the Agencies of jurisdiction. The Contractor shall be thoroughly familiar with such permit conditions in preparing his proposal. Throughout the Contract, the Contractor shall comply with all requirements and conditions of such permits regarding traffic control in and around the limits of work.

(D) Construction Area Signs

(1) Description - Construction area signs shall include all temporary signs necessary for the control of traffic through or around the work area, including both stationary mounted and portable signs as defined herein. The Engineer shall make the sole determination of what type of sign or signs may be used for construction traffic control.

(2) Stationary-Mounted Signs - Stationary-mounted signs shall be installed on wood posts in general conformance with Standard Plan No. T12, “Traffic control system for lane closure on multilane conventional highways” and Standard Plan No. T13 “Traffic control system for lane closure on two lane conventional highways” of the current CALTRANS Standard Specifications. The exact spacing of stationary-mounted signs shall be adjusted as required by field conditions agencies having jurisdiction over the work areas. All elements of the traffic control system shall be shown on the traffic control plan.

All stationary-mounted signs shall be constructed of sheet aluminum base material not less than 0.063-inch thick. Reflective sheeting shall meet current CALTRANS Standard Specifications for Reflective Sheeting Aluminum Signs. Used signs may be considered satisfactory if the sheeting has not deteriorated due to weathering, vandalism, or other causes that impair visibility or legibility. The colors of reflective sheeting shall be in accordance with the Manual of Traffic Controls, and shall not have faded to the point where there is a discernible difference between the daytime and nighttime when viewed under vehicle headlamps on low-beam.

Legends may be applied by the screening process or by the use of pressure sensitive cut-out sheeting. Size and spacing of letters and symbols shall be in accordance with CALTRANS sign specifications sheets available from the CALTRANS Central Office of Business Management.

(3) Portable Signs - Portable signs shall be 3 types; rigid, flexible, and flashing.

(a) Rigid Portable Signs

Rigid portable signs shall be in accordance with Section 3-A.05, "Traffic Control" (2) Stationary-Mounted Signs of these Standard Specifications and mounted on portable folding or non-folding barricades, Type I, II, or III in accordance with the "Manual of Traffic Controls" published by the CALTRANS. Rigid portable signs may be permitted by the Engineer as a substitute for stationary-mounted signs where, in the opinion of the Engineer, use of stationary-mounted signs would be impracticable due to field conditions. When rigid portable signs are substituted for stationary-mounted signs, only Type III barricades shall be used and they shall be counterweighted with a sufficient number of sandbags to prevent their displacement. The Contractor may submit an alternative design for a substitute to the stationary-mounted sign but shall not install such substitute without the written approval of the Engineer. The Contractor shall not substitute portable, rigid signs for stationary-mounted signs without the express written direction of the Engineer unless such substitution is provided for in the Contract Documents.

As required by field conditions, the rigid portable barricades shall be counterweighted with a sufficient number of sandbags or other weights to prevent displacement or overturning due to weather and traffic conditions found in the field.

Solid materials such as concrete masonry units, concrete debris or other materials that could become a hazard if struck by traffic shall not be used to ballast portable barricades.

(b) Flexible Portable Signs

Flexible portable signs shall be fabricated from cotton drill, flexible industrial nylon mesh fabric, or other fabric material approved by the Engineer. Size, legend, and color shall be in accordance with Section 3-A 05, "Traffic Control" (2) Stationary-Mounted Signs of these Standard Specifications.

Flexible, portable signs shall be mounted on commercially fabricated stands approved by the Engineer. Such stands shall position the sign a minimum of 5-LF above the roadway surface and shall be so constructed as to withstand displacement or upset due to wind or traffic activity. If

necessary, the base of the stand shall be counter-weighted by a sufficient number of sandbags or other weights to ensure stability in the weather and traffic conditions found in the field.

Solid materials such as concrete masonry units, concrete debris or other materials that could become a hazard if struck by traffic shall not be used to ballast portable signs.

Flexible, portable signs shall only be used for daily operations and shall not be used to control traffic during periods when the Contractor has ceased operations for the day.

(c) Flashing Arrow and Message Boards

Flashing arrow and message boards shall be used to enhance the conveyance of traffic control information to drivers approaching the work areas. Each flashing arrow or message board shall be in accordance with the provisions of “Flashing Arrow Signs” of the CALTRANS Standard Specifications and “Lighting Devices” of the “Manual of Traffic Controls” published by CALTRANS.

(4) Traffic Cones, Portable Delineators, and Portable Barricades - Wherever required by the Contract Documents, the Traffic Control Plan, or the Engineer, the Contractor shall provide cones, delineators, or portable barricades to define the work areas.

(a) Traffic Cones and Delineators

Traffic cones and portable delineators shall be fabricated from highly pigmented fluorescent orange polyvinyl material.

The base of each traffic cone shall be integral to the top. The base may be orange or black in color and shall be of sufficient weight to minimize displacement or overturning due to either or traffic conditions found on site. Additional weight may be added by sand bags or other low profile, pliable material. The overall height of the cone shall be at least 28 inches with a minimum bottom inside diameter of 10.5 inches. Traffic cones shall be capable of direct or glancing impact from a vehicle without damage to either the vehicle or the traffic cone. The base shall be square or rectangular to prevent rolling. Traffic cones shall be as manufactured by Services and Materials Company or approved substitute.

Portable delineators shall be fabricated of material of sufficient rigidity to remain upright when unattended and collapsible or flexible upon direct or glancing impact from a vehicle without damage to either the vehicle or the portable delineator. The base shall be square or rectangular to prevent rolling.

The vertical portion of the portable delineator shall be not less than 3-inches in width or diameter. The minimum height shall be 37-inches above the pavement surface. A minimum of two (2) reflective bands each not less than three (3) inches wide shall be mounted a minimum of 1 ½ inches apart at least one of the bands is between 30 and 36-inches above the road surface. Portable delineators shall be manufactured by Services and Specialties Company or approved substitute.

(b) Reflective Bands

Reflective bands shall be silver-white in color and fabricated from flexible sheeting having not less than the following dry reflectance values at a 0.2 and 0.5 degree divergence angle, expressed in units of candlepower per foot candle per square foot as determined by California Test 642. The wet reflectance values shall be not less than 90 percent of the dry values when tested in accordance with the Federal Highway Administration Specification FP-79, Section 718.01.

TABLE 2-01
Reflectance Values of Reflective Band Sheeting

Divergence Angle (degrees)	Incidence Angle (degrees)	Dry Reflectance Value
0.2	-4	250
0.2	30	95
0.5	-4	200
0.5	30	60

Only one type of portable delineator shall be used on the project.

(c) Barricades

Barricades fabricated in accordance with “Barricade Characteristics” and “Typical Barricades” of the CALTRANS Manual of Traffic Controls shall be placed adjacent to all open excavations, stockpiles material, or equipment left unattended with the permission of the Engineer. Barricades left in-place during periods of darkness shall be equipped with battery-operated flashing amber lights in accordance with Section 3-A.05 “Traffic Control” (d) Portable Flashing Beacons of these Standard Specifications. Each lit barricade shall be inspected and tested for flasher operation daily and repaired or maintained as necessary. Illuminated and/or reflectorized cones and delineators shall not be used in lieu of portable barricades for night traffic control.

(d) Portable Flashing Beacons

Portable flashing beacons shall consist of a lighting unit, a flasher unit, a standard, a battery power source, and a base. The units shall be assembled to form a complete, self-contained flashing unit which can be delivered to the job site and placed in immediate operation.

The lens shall have a visible diameter of 6-inches of plastic or glass conforming with ANSI Standard D-10.1 for yellow traffic signal lens.

The flasher shall be capable of a sustained 50 to 60 flashes per minute.

The battery power source shall be mounted in the base and the base shall be capable of attachment to a Type I, Type II, or Type III portable barricade.

The portable flashing beacons shall be Flex-O-Lite, as manufactured by Flex-O-Lite, Incorporated or approved substitute.

(E) Flaggers

The Contractor shall provide flaggers to direct traffic through the work area in addition to the construction area signs whenever necessitated by the field conditions, the Traffic Plan, or directed by the Engineer. Flaggers shall be equipped with all safety clothing and communication equipment required by the Industrial Safety Orders of the State of California and the current edition of the CALTRANS publication "Instructions to Flaggers". Flaggers shall be dedicated to traffic control and shall not be assigned any other duties while acting as flaggers.

Paddle signs used by flaggers shall be in accordance with Section 3-A 05, "Traffic Control" (2) Stationary-Mounted Signs of these Standard Specifications. The sign shall be handhold able for extended periods of time at a height of 5-LF above the pavement surface. A rod-mounted flagger sign may be used instead of the paddle-type at any time and shall always be used where prolonged queuing is anticipated. When flaggers are out of sight of each other, both shall be equipped with two-way radio equipment with channels dedicated solely to the flagging operation. Additionally, in areas where full road closure controlled by flaggers is necessary, an additional person shall be stationed at the actual site of work equipped with a radio on the same channel or frequency as the flaggers. This person shall act as the liaison between the flaggers and the construction operation and shall keep the flaggers informed of the status of the operation. This person shall also be dedicated to the flagging operation. As necessary, flaggers may direct the foreman or superintendent to temporarily suspend operations to permit passage of traffic.

Queue times shall be kept as short as possible and in no case longer than 15 minutes. Emergency vehicles, school buses, and other vehicles that demonstrate an emergency need shall be passed through immediately.

(F) One-Way Traffic, Lane Closures, and Detours

The Contractor shall maintain at least one lane open to traffic at all times while construction activities are in progress. The Contractor shall provide all flaggers necessary to control vehicles through the work area. Flaggers shall be located at each end of the work area and shall be able to maintain communications via visual signal or two-way radio communication at all times. The Superintendent or his appointee shall oversee the construction activities to ensure that the flaggers are fully informed of all traffic conditions at all times.

Except as provided for in the District Contract documents, no streets may be closed or detours made without the express written approval of the Engineer and the Agency of jurisdiction over the work areas. If the Contractor proposes to close lanes on multi-lane streets or detour public traffic around work areas, he shall submit a plan for such detour at least 4-working days or that period provided for in the Contract Documents prior to his proposed schedule to commence detours or lane closures. This plan shall include but not be limited to, the following information:

- Limits of detour or lane closures;
- Reason for detour or lane closure;
- Duration of detour or lane closure;
- Signing and controls for detour and lane closure;
- Additional information that will assist in the review of the plan.

No lane closure or detour shall be effectuated without the express written permission of the Engineer and the Agency of jurisdiction. When a Traffic Control Plan is provided for in the Contract Documents, the plan for detours and lane closures shall be included in such Traffic Control Plan.

(G) Pedestrian Access

The Contractor shall provide pedestrian access through the work areas at all times. This access may move from one side of the street to the other as construction activities require. The Contractor shall be responsible for the safety of all pedestrians transiting the work areas at all times.

(H) Access to Adjacent Properties

The Contractor shall maintain access to adjacent properties at all times during construction. When construction activities require that such access be interrupted, the Contractor shall first notify all property owners and/or tenants that their access will be interrupted, the commencement and duration of the interruption, and request that the property owners and/or tenants provide the Contractor with any special access requirements such as but not limited to, those of the elderly or the disabled. The access to all adjacent properties shall be restored whenever construction activities are not in progress, at the end of each work day, and over all weekends or holidays. The access shall be restored by the closure of the excavation, removal of materials and equipment, or installation of steel plates to transition over construction activities.

The Contractor shall notify the property owner and/or tenant at least 24-hours in advance of interrupting access by personally contacting the property owner and/or tenant. Door hangers may be used to provide this notification. The Contractor shall notify the Engineer of all instances where disruption of access will be required and of the notification of the property owners and/or tenants.

The requirement for notification 24-hours in advance may be waved when the following conditions are met:

The duration of interruption is less than 2-hours;

- The property owners have been notified immediately prior to commencing the interruption;
- The Contractor assists the property owner and/or tenant to leave the property prior to commencing the interruption;
- The Contractor accommodates any request for assistance by the property owner and/or tenant in accessing the property;
- The property owner and/or tenant is unavailable at the time of commencing the interruption and during the interruption.

(I) Open Trenches

No trenches shall be left open overnight or when construction activities are not in progress. Each trench shall be backfilled to the surface or covered with steel plates if backfilling is impracticable. The Contractor shall not open more trench than can be successfully completed and backfilled in one day. Where this requirement may be impracticable, the Contractor shall request permission from the Engineer to extend the trench to its practical limit and to cover it with steel plates.

Open trenches parallel to traveled lanes shall be marked with cones, delineators, or portable folding barricades during active construction operations. There shall be a sign at each end of the trench warning of an open trench. The Contractor shall be responsible for the safety of all persons having access to an open trench including but not limited to the general public, the Contractors personnel, and employees and agents of agencies having jurisdiction over the work areas.

(J) Measurement and Payment

(1) Lump Sum Basis - When traffic control is provided for in the Contract Documents to be paid for as a lump sum item, the contract lump sum price shall include full compensation for all labor, materials, equipment, and tools and for doing all work in establishing traffic control through and around the work areas. It shall include but not be limited to, the Traffic Control Plan, all construction area signs, cones, delineators, portable barricades, flashing lights, and flaggers and the notification, installation, maintenance, and equipage necessary for the control of traffic through and around the work site.

(2) Work under Time and Materials Basis - When traffic control is provided for in the Contract Documents to be paid on a time and materials basis, the Contractor shall maintain all records and receive all approvals from the Engineer for the establishment and maintenance of traffic control through and around the work areas. The Contractor shall submit records in accordance with 6-3 Measurement and Payment for all labor, materials, equipment, and tools and for doing all work in establishing and maintaining the traffic control system through and around the work areas. Such records shall include but not be limited to, the Traffic Control Plan, all construction area signs, cones, delineators, portable barricades, flashing lights, and flaggers and the notification, installation, maintenance, and equipage necessary for the control of traffic through and around the work site.

(3) Incidental Basis - When a pay item for traffic control is not included in the Contract Documents, all costs for such traffic control shall be considered as incidental to other items of work and all costs associated with traffic control shall be included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

3-A.06 Erosion Control

(A) General

At all times during the prosecution of the work on a project, the Contractor shall take all measures necessary to prevent damage to the work areas or adjacent properties due to the erosion of materials caused by the effects of weather. Such measures shall include but not be

limited to, channelization, berms, dikes, catchment structures, sedimentation basins, silt fences, and seeding in accordance with these Standard Specifications, the Contract Documents, and agencies having jurisdiction over the site of the work.

(B) Erosion Control Plan

The Contractor shall have an erosion control plan for the management of storm runoff within the work areas. Such plan for work involving the mass grading of soils shall include drawings that show the overall site of work, the routing and control of runoff through the work areas, sedimentation basins, and other pertinent details.

The Contractor shall have the erosion control plan for mass grading areas prepared by a Registered Civil Engineer and comply with the Regional Water Quality Control Board's Storm Water Pollution Prevention Plan Requirements (SWPPP).

An erosion control plan will not be required for the construction of pipelines; however, the Contractor shall take such measures as are necessary to prevent the erosion of the trench line or adjacent property. Such measures shall be approved by the Engineer prior to commencing construction.

(C) Maintenance

The Contractor shall be responsible for the inspection and maintenance of all erosion control facilities constructed as part of the project. In anticipation of any forecast storm, the Contractor shall inspect and, as appropriate, restore all erosion control facilities to ensure that optimum protection is provided. During any storm or storms that continue more than one day, the Contractor shall inspect and restore all erosion control measures on a daily basis, including weekends and holidays as necessary. The Contractor shall provide all materials, equipment, and personnel necessary to accomplish erosion control.

Upon completion of all work on the project and, as appropriate, successful germination of erosion control seeding, the Contractor shall remove all erosion control measures and structures and restore the site to its original condition, insofar as practicable.

If the Engineer determines that the implementation of erosion control measures constitutes an emergency, the Contractor shall have responsible personnel on the site within one hour of verbal notification by the Engineer and shall immediately commence work on such erosion control measures as are required by current conditions. If the Engineer determines that forces other than the Contractors must be mobilized due to a condition posing an imminent hazard to

life or property, he will authorize the mobilization of such forces as are necessary for the protection of life and property.

In determining unavoidable delays in accordance with Section 5-A General Conditions of these Contract documents, erosion control work will not be considered constructive work on the project in the calculation of the number of hours worked to make that determination.

(D) Seeding

Areas including but not limited to, cut slopes, fill slopes, building pads, and mass grading that are to be left in an exposed condition upon completion of all work shall be seeded by the hydro-mulch process with a mixture of grasses and seed conforming with the requirements of the Santa Cruz County Erosion Control Mix in the proportions listed in Table 2-02.

TABLE 2-02
Santa Cruz Erosion Control Mix

Seed	Percentage by Weight
Blando Brome Grass	42.50%
Hycon Rose Clover	34.18%
Zorro Fescue	8.21%
Creeping Red Fescue	14.01%
Various	1.10%

If the Contractor wishes to use an alternative mixture, he shall submit the mixture to the Engineer for approval prior to proceeding with the seeding operation.

The seed shall be thoroughly mixed with inert fiber material, fertilizer (16-20-0) and water and applied under pressure with a nozzle. The selection of agitator, air pressure, and nozzle size shall be the responsibility of the Contractor. The total application rate for erosion control seeding shall not be less than 35 pounds per acre. Inert fiber shall be applied with the seeding at a rate of at least 2,000 pounds per acre. Fertilizer shall be applied at the rate of 350 pounds per acre.

Except as provided for in the Contract Documents, the Contractor shall be responsible for providing adequate watering of the seed mix until such time as the site evidences adequate germination. Such evidence shall be the presence of healthy, vigorous plants over the entire

site. Areas in excess of 100 square-feet evidencing poor or non-existent germination shall be reseeded where directed by the Engineer.

(E) Measurement

Except where provided in the Contract Documents to be paid on a unit price or lump sum price basis, erosion control measures shall be considered as incidental to other items of work and no measurement will be made thereof.

Where provided in the Contract Documents to be paid for on a unit price basis by area, the quantities of erosion control will be determined by measurement of the area to be treated for erosion control to the nearest 10 square-feet or 1 square-yard.

(F) Payment

Where provided for in the Contract Documents to be paid for as a unit price or lump sum price item, the contract unit or lump sum price for Erosion Control shall include full compensation for providing all materials and equipment and for performing all work involved in Erosion Control including but not limited to, erosion control plans, grading, channelization, sedimentation basins, seeding, maintenance and inspection, and emergency response as provided for in these Standard Specification, the Contract Documents, and as directed by the Engineer.

3-A.07 Utility Marking Systems

(A) General

Wherever provided for in the Contract Documents, the Contractor shall mark the improvements in accordance with the colors shown in Table 2-03. Buried pipelines and facilities may be marked by the use of pigmented pipe materials, epoxy coated pipe and fittings, detectable locator tape, above grade flexible marking post, painted covers or such other marking system as may be provided for in the Contract Documents.

The Contractor shall submit color chips for approval in accordance with Section 6-D Submittals of the District Construction Documents prior to applying or installing any markings. All paint and coating materials shall be applied in accordance with the Manufacturer's recommendations. The specific color cited herein shall be considered as the basis of comparison by which the submitted color will be evaluated.

TABLE 2-03
Colors for Utility Marking

Product	Color	Equivalent Color Standard		
		Ameron	Carboline	Rust-Oleum[2]
Raw Water	Med. Grey	GR-2	2713	V2188
Potable Water	OSHA Safety Blue	BL-6	S150	V2124
Recycled Wastewater	OSHA Safety Purple	- -	- -	V2167
Backwash Water	Buff Brown	BR-3	G243	V2171
Chlorine (NaCl)	Haze Green	GN-5	2369	- -
Caustic (NaOH)	Deep Yellow	YE-4	56071	V2147
Meta-Bisulfite (H2SO2)	OSHA Safety Black	BK-2	C900	V2176
Poly Ortho Phosphate (PO)	OSHA Safety White	WH-2	S800	V2192
Gaseous Product (Gas, Oil, Diesel, Steam, Chemical)	OSHA Safety Yellow	YE-3	S625	V2143
Electric	OSHA Safety Red	RD-2	S525	V2163
Communications (Telephone, CATV, Fiber Optic)	OSHA Safety Orange	OR-2	S401	V2155
Wastewater, Storm Drain	OSHA Safety Green	GR-6	S375	V2133
Compressed Air	Ivory	YE-2	0857[1]	- -

[1] Lead free

[2] Rust-Oleum Colors are for Labor Saver Hard Hat Industrial Coatings.

Underground utility installations shall be marked with a detectable underground utility marking tape in colors conforming with the American Public Works Association Uniform Color Code or that of the local One Call Locating Agency.

(B) Measurement and Payment

No separate measurement will be made for work relating to marking systems. Payment for installing and painting marking systems shall be considered as included in the contract unit or lump sum price for other items of work and no additional compensation will be allowed therefor.

END OF DOCUMENT

3-B POTABLE WATER SYSTEM

3-B.01 General Requirements

(A) Private Fire Services

Private fire services shall be sized in accordance with the requirements of the Scotts Valley Fire Protection District and these Standard Specifications. No taps or services of any kind will be allowed on the District maintained side of such private fire services.

Fire service connections shall be in conformance with District Standard Plan 10.

(B) Combination Fire and Domestic Services

Where directed by the Scotts Valley Fire Protection District, combination services shall be installed in accordance with Standard Plan No.1, No. 2 & No. 4. With the exception of the domestic service tap shown thereon, no taps of any kind will be permitted on the District maintained side of such combination fire and domestic services. The property owner of record shall be responsible for the installation and maintenance of all piping and appurtenances on the property side of the meter assemblies as provided for in said standard plan.

(C) Non-Domestic Services

All services supplying water for irrigation, commercial, and industrial uses, and those connecting to private systems simultaneously served in whole or in part by sources other than the District shall be installed in accordance with the provisions shown on the Standard Plans and Project Plans and shall be in accordance with Section 3-B.01, "General Requirements" (K) Cross-Connection Control, of these Standard Specifications. If irrigation is supplied by Scotts Valley Water District's recycled water system, shall be installed in accordance with the District's Recycled Water System Standards and Specifications.

(D) Distribution System Layout

All pipe lines within the distribution system shall be constructed at the locations provided for on the approved Project Plans. Except as expressly permitted by the Engineer, all new pipelines shall be installed in the public right-of-way. In the absence of public right-of-way within the project limits, pipelines shall be installed in private rights-of-way. Where it is impractical to install pipelines within rights-of-way as provided for herein, every effort shall be made to install pipelines in areas providing the greatest potential for access for future system operations. The actual location of the pipelines shall be approved by the Engineer prior to issuing the plans for construction.

All pipelines shall extend to the property boundaries of the project or the projections thereof and completely across the frontage of all single parcels within the project.

(E) Minimum Pipe Size

The minimum pipe size within the distribution system shall be 6-inches inside diameter. Pipelines of less than 6-inch diameter may be used only if approved by the District Representatives prior.

(F) Valve Type and Spacing

All valves smaller than 10-inch diameter shall be resilient wedge type gate valves. All valves 12-inch and larger shall be butterfly type. Valves shall be spaced at intervals not exceeding 500-feet in all distribution systems. Where a continuous run of pipe does not exceed 600-feet, an intermediate valve may not be required. Valves on continuous runs of pipe shall be located at the projection of property lines and at intervals that divide the total length as evenly as possible.

Valves shall be located on each branch of a three-way and four-way intersection, at each fire hydrant, at each blow-off assembly, at each private fire service, and where directed by the Engineer. Valves shall be installed on the fitting at the main pipeline in each instance.

Valves shall also be located at each end of pipelines crossing private property through easements, casings, major stream or channel crossings, at the projected property lines of hospitals, schools, and major industrial users.

(G) Air and Vacuum Valves

Combination air and vacuum release valves shall be installed at each high point in the pipeline where air can be trapped during filling of the pipelines. All combination air and vacuum release valves shall be installed in accordance with Standard Plan No. 24, “Air Valve Installation” or Standard Plan No. 25, “Below Grade Air Valve Installation”.

(H) Blow-Off Valves

Blow-off valves shall be installed at each low point in the pipeline to facilitate flushing of the pipeline. Blow-off valves shall also be installed at the terminus of all temporary and permanent dead ends not provided with a fire hydrant. All blow-off valves shall be installed in accordance with Standard Plan No. 23 “Blow-Off Installation”.

(I) Minimum Trench Dimensions

All pipelines shall be designed for a minimum pipe coverage based on the values found in Table 3-05, "Minimum Trench Dimensions" of these Standard Specifications and with Standard Plan No. 14, No. 15 and No. 16.

All pipelines shall be designed to be constructed at the minimum depth whenever possible. Any deviation from the minimum depth shall be done as gradually as possible with the minimum of fittings and approved by the Engineer in advance.

TABLE 3-05
Minimum Trench Dimensions

Pipe Diameter	Trench Width	Main Depth of Cover	Service Depth of Cover
6-inch	18-inches	36-inches	24-inches – 36-inches
8-inch	20-inches	36-inches	24-inches – 36-inches
14-inch and larger	Diameter + 12-inches	36-inches or as Directed	24-inches 36-inches

(J) Service Connections

All service connections shall be made in accordance with these Standard Specifications and Standard Plans and the direction of the Engineer. Multiple services from one connection to the pipeline must be approved by the Engineer during design review. The District will furnish and install the meter. All customer side plumbing shall be the responsibility of the property owner. All piping and appurtenances from the pipeline to the meter shall be installed by the pipeline contractor unless otherwise approved. All parcels fronting the improvements shall have a service installed to the meter and sized for the anticipated use of the parcel. The size of the service shall be approved by the Engineer prior to soliciting proposals for construction.

(K) Cross-Connection Control

(1) General - Each service connecting to the District distribution system shall be subject to a review of that service's potential for cross-connection of non-potable water in accordance with the requirements of Title 17 of the State of California Administrative Code. All services for the purpose of supplying water for uses other than domestic potable supply including but not

limited to, fire protection, irrigation, recycled water, industrial processes, and those having an alternative source of water on-site shall be subject to this review.

(2) Cross-Connection Control Materials - All materials for use in backflow prevention assemblies shall be in accordance with these Standard Specifications and the current requirements of the District Cross-Connection Control Policy and Procedures.

Reduced pressure principle backflow prevention assemblies shall be on the current list of approved devices published by the University of Southern California Foundation for Cross-Connection and Hydraulic Research and shall be testable and serviceable in-situ. Each assembly shall be equipped with 2 shut-off valves tapped for testing and a means of locking the valves to prevent tampering. Isolation valves and unions shall be so located that the entire assembly can be removed and replaced without excavation or interference with surface obstructions. Test cocks shall be so located as to permit testing and sampling on the supply and service sides of the assembly and each element thereof.

(3) Cross-Connection Control Construction - Each reduced pressure principle backflow prevention assembly shall be located as close as practicable to the meter serving it or at the point of connection during flushing and disinfection operations. All construction shall be in accordance with the following District Water System Standard Specifications:

1. Service Connection
2. Meter Box Detail
3. 1-inch and Smaller Multiple Branched Service Installation
4. 2-inch Combination Service
   Combination ¾ inch Fire and Domestic Service Installation
5. 2-inch and Smaller Service Installation
6. 3-inch or 4-inch Service installation
7. 6-inch and Larger Fire Service Installation
8. 2-inch and Smaller Backflow Prevention Assembly Installation
9. Standard 4-inch and Larger Fire Service Installation

(L) Testing, Inspection, and Maintenance

Upon completion of construction and prior to activating the service, all reduced pressure assemblies shall be tested and inspected by the District's Cross-Connection Control Program Specialist.

The owner of the assembly shall have the assembly inspected and tested by a qualified technician approved by the District. Such inspection and testing shall be conducted at the

frequency required by the District and in no case less than once annually. A report of each such test and inspection and a record of all maintenance work shall be submitted to the District's Cross-Connection Control Program Specialist within 10 working days of completion of the inspection or maintenance.

The owner of the assembly shall be responsible for all costs associated with such inspection and any required maintenance determined by such inspection and testing.

Failure on the part of the owner to submit the required testing reports and to perform all maintenance required to maintain the assembly in the proper working order shall be cause for discontinuation of service and the assignment of all penalties under the law.

3-B.02 Transmission and Distribution Pipelines

(A) Description

All pipelines constructed for the purpose of conveying potable water from a source, storage facility, pumping facility, or treatment facility to the point of use shall be defined as transmission and distribution pipelines. This definition shall also include but not be limited to, piping assemblies at such facilities, fire hydrant laterals, and services 3-inch and larger to the meter. Unless specifically indicated otherwise on the Project Drawings or allowed by prior written permission of the District, all transmission and distribution pipelines shall be constructed using ductile iron pipe or PVC C900.

Services smaller than 3-inch, fittings, valves, and appurtenances shall be installed and constructed in accordance with other sections of these Standard Specifications and the Contract Documents.

(B) Ductile Iron Pipe

Where called for in the Contract Documents or at the Contractor's discretion and subject to the Engineer's prior approval, transmission, and distribution water mains may be constructed of cement-lined, centrifugally cast ductile iron pipe conforming with the requirements of AWWA C151, Class 50. Joints shall be of the push-on bell type with restraining gaskets. Each full length of pipe (18-LF) shall be provided with one bell type joint. Cement-mortar lining shall conform with the requirements of AWWA C104. (U.S. Pipe TYTON7 with FIELD-LOK7, TRFLEX7, or approved substitute.)

(C) Ductile Iron Pipe (Above Ground)

All above ground piping shall only be ductile iron piping. Ductile Iron Pipe assemblies including but not limited to, storage tank piping, pump stations, treatment plants, and wells. Except as provided for on the Project Plans.

(D) Poly Vinyl Chloride (PVC) Pipe

(1) General - All polyvinyl chloride (PVC) pipe shall be cast-iron equivalent outside diameter with push-on bell type joints. Each joint shall be equipped with one elastomeric gasket. Each full length of pipe (20-feet) shall be provided with one bell type joint. Where provided for in the Contract Documents, PVC pipe shall be equipped Certa-Lok restrained joints as manufactured by CertainTeed Corporation. Each joint shall be equipped with one elastomeric gasket and the grooved restraint system of the C900/RJ Restrained Joint PVC System as manufactured by CertainTeed Corporation.

Pipe wall thickness by pressure class and dimension ratio shall be as found in Table 3-02 PVC Pipe Pressure Class of these Standard Specifications.

TABLE 3-02
PVC Pipe Pressure Class

Pressure Class	Dimension Ratio (DR)
100	Not Permitted
150	18
200	14

(2) Pipelines 12-inch Diameter and Smaller - Except as provided for in the Contract Documents, all transmission and distribution water mains 12-inches in diameter and smaller shall be constructed of polyvinyl chloride (PVC) pipe in accordance with the requirements of AWWA C900.

(3) Pipelines 14-inch Diameter and Larger - Except as provided for in the Contract Documents, all transmission, and distribution water mains 14-inches in diameter and larger shall be constructed of polyvinyl chloride (PVC) pipe in accordance with the requirements of AWWA C905.

(4) Pipe Color - All pipe materials shall be manufactured with an ultraviolet protecting pigment. Pipe materials for potable water systems shall be pigmented in white including bell couplings.

(E) Pipeline Construction, Fabrication, and Installation

(1) Trenching - The Contractor shall bear full responsibility for safety related to his trenching operations and comply with all federal, state and local statutory requirements including the State of California Division of Industrial Safety and Federal Office of Safety and Health Administration.

Trenching, bedding, and backfill operations including but not limited to, pavement cutting and restoration, excavation, shoring, and steel plates shall be in accordance with 3-D.01 "Bedding, Backfill, and Aggregate Base" of these Standard Specifications. Insofar as practicable and at all times on grades in excess of 1-foot horizontal to 10-feet vertical (10 percent), trenching and pipe laying operations shall proceed uphill from the lowest point with the bell end leading.

(2) Daily Limits - The Contractor shall excavate only that length of trench in which he can safely and properly install pipe and backfill daily. No trenches may be left open when the Contractor is not actively prosecuting work related to that trench. To facilitate the prosecution of the work, the Contractor may request to use plates to cover open trenches. The use of steel plates shall be dependent upon the prior approval of the Engineer.

(3) Handling and Placing - The Contractor shall employ such devices and equipment as will enable the pipe to be transported, stored, and installed in its final location or configuration, as provided for in the Contract Documents.

Pipe to be installed in trenches shall be lowered into the trench using lowering slings and other devices that will prevent an uncontrolled drop into the trench. Compacted bedding material conforming with 3-D.01 "Bedding, Backfill, and Aggregate Base" of these Standard Specifications shall be installed in the bottom of the trench and compacted prior to placing pipe in the trench. Bell holes shall be excavated such that the pipe is fully supported by the pipe barrel. Pipe shall not be permitted to be supported solely by the bells. Where the Contract Documents call for or the Contractor elects to use sand/cement slurry backfill material, the pipe shall be supported on wooden blocks or other supports on each side of every joint. Such blocks shall be of such dimension as to raise the pipe high enough to clear the bells and long enough to span at least 2/3 of the trench width. Wooden blocks shall be redwood or pressure treated timber.

(4) Separation from Non-Potable Lines and Hazardous Facilities - New Treated drinking water mains shall be constructed in compliance with the California Code of Regulation (CCR) Title 22, Division 4, Chapter 16, Article 4, Section 64572.

If conditions requires construction at clearances less than those prescribed by the above-mentioned code, approval from the California Department of Public Health shall be obtained prior to construction.

Four feet clear horizontal distance shall be maintained between water service laterals and sanitary sewer laterals. Three feet clear distance shall be maintained between water service laterals and other utility lines.

Joint Trench with water lines and other utilities are prohibited.

If separation requirements cannot be met, encasing the potable water main may be an approved solution by the Districts Representatives. Encasement pipe must be PVC C900 and length of encasement must be approved by District Representatives prior to installation.

(5) Locator Wire - A wire to be used for future subsurface location shall be installed concurrent with pipe laying operations. The wire shall be a minimum of No. 10 AWG stranded and coated. The wire shall be continuous for the entire length of pipe laid. The wire shall be secured to the pipe by either tape, mastic, or looping at a maximum interval of 10-LF. Connections between lengths of wire shall be made either by soldering, or wire nut connectors. Each connection shall be at least double-wrapped with PVC electrical tape with each turn lapping the previous turn by at least 50-percent. The wire shall be brought to the surface at each valve box with at least 2-feet of wire more than that required to reach the surface. In bringing the wire to the surface, the wire shall be routed outside the barrel of the valve box then led into the barrel at the top of the barrel and below the surface structure. The wire shall be protected during backfilling operations to prevent displacement or continuity breaks. Any damage to the locator wire shall be immediately repaired.

(6) Hydrostatic Testing - Upon completion of pipeline construction, the Contractor shall fill the pipeline with water from an approved source, normally the existing pipeline to which the new pipeline will be connected. The District will provide the water for hydrostatic testing up to and including one retest of the pipeline. Water necessary for all additional hydrostatic testing may be charged to the Contractor in accordance with these Standard Specifications. All work in hydrostatic testing of pipelines shall conform to the requirements of AWWA C600, these Standard Specifications, and the Contract Documents.

The Contractor shall provide all pumps, fittings, labor, equipment, and materials and all assistance necessary, including but not limited to, temporary thrust restraint and connection to the supplying water source for the hydrostatic testing of all pipelines. Hydrostatic testing shall be performed in the presence of the District’s Inspector. Test pressures shall be a minimum of

155-psi or 150-percent of the service pressure for the pipeline, whichever is the greater, at the highest point in the distribution system to be tested. At no time shall the test pressure be allowed to exceed the working pressure rating of the weakest pipe, valve, fitting, or service on the line to be hydrostatically tested.

Test pressures shall be held for a minimum of 2 hours or that period of time provided for in the Contract Documents. During the hydrostatic test, the pressure shall not be allowed to vary more than 5-psi above or below the required test pressure. Tests shall not be held against closed line valves without the prior written approval of the Engineer and all hydrant valves shall be open. Where service lines have been installed prior to conducting the hydrostatic test, the service line to the meter stop shall be included in the test. An additional allowance of 0.0078-gph/inch of service line diameter may be included for each service line included in the hydrostatic test in the calculation of allowable leakage in such cases.

Upon completion of pipeline construction all pipelines and pump suction barrels shall be hydrostatically tested and observed for leaks. The Contractor shall schedule the hydrostatic test with the Engineer at least one working day in advance of the test. The pipelines or pump suction barrels shall be filled and carefully brought to the test pressure. Failure of any portion of the system shall be cause for rejection and the Contractor shall promptly identify and correct deficiencies causing the failure. The hydrostatic test shall be repeated until a satisfactory test is achieved. All visible leaks shall be promptly repaired regardless of the actual leakage measured.

This procedure shall be followed until an acceptable test is achieved. The Contractor may be charged for the Engineer's time for re-inspection for all tests past the first retest in accordance with these Standard Specifications.

Cross-Connection Control shall be implemented per Section 3-B.01, ”General Requirements” (K) Cross-Connection Control of these Standard Specifications during hydrostatic testing.

(a) Allowable Leakage - The allowable leakage will be calculated by the following formula:

PVC $La\ (ND\ \sqrt{P})/7{,}400$ DIP $La = (ND\ \sqrt{P})/3{,}700$

Where: La = Allowable leakage in gallons per hour

D = Nominal diameter of the pipe in inches

P = Test pressure in psi

N = The number of joints in the length of pipe tested

Leakage is typically measured by leaving the pump used to conduct the pressure test attached to the main. At the end of the required two-hour duration, the calculated acceptable leakage volume is placed in the feed bucket for the pump. The main is then pumped back up to the pressure at which the test began. If the water in the bucket runs out before the test pressure is reached, the main fails. The District may provide a meter when small leakage quantities must be measured accurately.

(b) Equipment - The Contractor shall provide a test pump capable of supplying 300-psi static pressure, a means of adding replacement water during the test, and gauges and meters to monitor the pressure and replacement water used.

(7) Flushing and Disinfection - All disinfection will be performed by the Contractor. The Contractor shall provide access to the pipe to be tested, including service taps for chlorination in accordance with these Standard Specifications. All disinfection shall be in accordance with AWWA C651, “Disinfecting Water Mains”. Except as otherwise required by the District, chlorination shall be accomplished after preliminary flushing at a minimum velocity of 2.5-ft/s in accordance with the provisions of the Continuous Feed Method as found in AWWA C651. Chlorinated water shall be brought to a minimum concentration of 25-mg/l as determined by testing a sample of the water immediately.

The Contractor shall assist District forces in this flushing operation including but not limited to, providing water trucks, hoses, valves, neutralizing chemicals, and directing the discharge to a safe disposal point.

The Contractor shall allow a period of 2 working days from the time the sample is taken until the results are available. Bacteriological samples will be taken for analysis only during normal working hours Monday through Thursday noon (holidays excluded) of any week.

Upon completion of a satisfactory test for chlorine residual, the main shall be flushed at a velocity of not less than 2.5-ft/s for a minimum period of 15-minutes until the chlorine residual drops to 0.5-mg/l or less. The District may require that the chlorine residual be reduced to some lower concentration. At this time, a bacteriological test shall be taken in accordance with AWWA C651, “Bacteriological Tests”. Should this test fail to produce results satisfactory to the local Department of Environmental Health, the flushing and disinfection shall be repeated until such time as a satisfactory test is made.

The Contractor may be charged for re-inspection and re-testing in accordance with these Standard Specifications.

Upon completion of chlorination and a satisfactory test, the Contractor shall remove the service pipe, cross connection control, meter stop, and the meter box and restore the surface to its final condition as described elsewhere herein. The Contractor shall neutralize the chlorine laden water with a solution of sodium thiosulphate in accordance with AWWA C651 prior to disposing of disinfection water.

Insofar as practicable, locations of chlorine taps and blow-offs for flushing will be shown on the project plans. The Contractor shall provide an allowance in his proposal for the cost of all chlorine taps shown plus at least 2 additional taps that may be required by field conditions.

Upon completion of disinfection, the line will be flushed by District forces using the blow-off points indicated on the plans.

Super-chlorinated water shall be dechlorinated before being discharged to a sanitary sewer. Flushing into the Sanitary sewer shall be coordinated with the City of Scotts Valley sanitation department 48-hours prior to flushing.

Laboratory testing Monday through Friday can be done by Scotts Valley Water District staff. The Contractor shall hire his own laboratory to perform the analysis if occurring during the weekend. Such laboratory shall have the prior approval of the local Department of Environmental Health and District representatives. The District's Inspector shall take the sample and deliver the sample to the Contractor in a sealed bottle with a District transmittal form. The Contractor shall then deliver the sample to the laboratory and return the transmittal form and a minimum of 3 copies of the test results to the Engineer. The sample shall not be considered acceptable until written approval of the Engineer is received by the Contractor.

SVWD will notify Contractor of the results of the test. Should either of the initial Bacti-Test samples indicate the presence of coliform bacteria or should any of the General Physical test fail, flushing and sampling (both bacteriological and GP) shall be repeated once. If isolated sample points indicate coliform bacteria, flushing and re-sampling of those points may be approved by the District. If satisfactory results are unachievable, the main must be re-chlorinated and re-sampled. After re-chlorination, if satisfactory results are still unachievable, the Contractor shall locate and remove the source of contamination.

(F) Measurement Quantities

Measurement quantities of transmission and distribution pipeline will be measured to the nearest 1 linear foot increment or portion thereof along the centerline of the pipeline as constructed. Except as provided for in the Contract Documents, all fittings and thrust restraint

systems installed as part of such pipeline shall be considered as incidental to the construction of such pipelines and no additional compensation will be allowed therefor.

Except as provided for in the Contract Documents, quantities of pipeline constructed as part of pipeline assemblies including but not limited to, that piping for wells, booster stations, and tanks shall be considered as incidental to the construction of such piping assemblies and no additional compensation will be allowed therefor.

(G) Payment

The contract unit price paid per linear foot for Ductile Iron Pipe (DIP) or PVC C900 the contract lump sum price paid for piping assemblies shall include full compensation for furnishing all labor, tools, equipment, materials, and incidentals and for doing all work involved in construction of the pipeline complete in place, including but not limited to, excavation, bedding, backfill, pavement repair, handling and transportation, thrust restraint, fittings, corrosion protection, disinfection, flushing, and hydrostatic testing as specified in these Standard Specifications and as provided for in the Contract Documents and no additional compensation will be allowed therefor.

3-B.03 Service Pipe Materials

(A) Description

Service pipe materials shall be defined as all pipe and tubing necessary to convey potable water from a transmission or distribution pipeline to the point of use. Service pipe materials shall also include all pipe and tubing included as a portion of or integral to appurtenances, pumps, and tanks and all fittings necessary for the construction or installation of service pipe materials.

Except as provided elsewhere herein or in the Contract Documents, all pipeline and services larger than 3-inch in diameter shall be provided, constructed or installed as provided for in Section 3-C.02, "Recycled Transmission and Distribution Pipelines" of these Standard Specifications.

(B) Copper Tubing

(1) Materials - Copper tubing shall be Type "K" soft seamless copper tubing conforming with the requirements of ASTM B88M, Type K, and AWWA C800. Copper tubing shall be used for all services in which the service pressure exceeds 200-psi. In all other installations, copper tubing shall only be used as incidental material in the installation of above grade piping assemblies and for residential water services.

Except as provided for in the Contract Documents, fittings for Type "K" copper tubing shall be of the Grip Tite, pack joint, or compression type conforming with the requirements of AWWA C800, Section 5.

(2) Construction - Threads of fittings shall receive a liberal coating of pipe thread compound immediately prior to assembly and the follower shall then be securely threaded onto the fitting without over tightening and damaging the threads.

In laying the copper tubing the Contractor shall ensure that the tubing is not subject to point loads due to any source, kinking or crimping, cuts, scratches, or abrasions in excess of 10-percent of the tubing wall thickness. All tubing shall be cut using a cutter designed for cutting copper tubing. Damaged tubing shall be removed and replaced in accordance with the provisions of these Standard Specifications.

In approaching and leaving fittings and meters, the tubing shall not be bent in a curve with a radius tighter than 30 times the nominal diameter of the tubing. A straight run of tubing at least 10 times the nominal diameter shall be provided on each side of each fitting. A tubing bender shall be used to prevent crimping of the copper tubing.

Any damage to the tubing or fitting including but not limited to evidence of over tightening, misaligned threads, burring or scarring of machined faces, or any evidence of leakage shall be cause for rejection. If a leak is found to be caused by debris, the debris shall be cleared and the tubing and fitting visually inspected for damage before being charged. If the leak recurs upon charging of the line, the tubing and fitting shall be removed and replaced whether or not the cause can be determined.

When the total continuous length of tubing is less than 3-feet, the entire length shall be removed and replaced. When the total length of copper tubing exceeds 3-feet, the damaged fitting shall be removed along with the preceding 6-inches (minimum) and replaced with a brass Grip Tite pack joint, or compression type coupling and replacement fitting and a length of Type "K" copper tubing.

Where copper tubing is to be connected to a dissimilar metal, a dielectric union shall be used to isolate the materials and prevent corrosion.

(C) Polyvinyl Chloride Service Piping (PVC)

(1) PVC service piping shall be Schedule 40 or Schedule 80 polyvinyl chloride (PVC) pipe conforming with the requirements of ASTM D1784 and D1785. Polyvinyl chloride service piping

shall only be used as incidental material in the installation of above grade piping assemblies and the reconnection of customer plumbing to meters.

Fittings for PVC service piping shall conform to the following ASTM specifications:

Solvent Weld, Schedule 40 (Slip x Slip)	ASTM D2466
Solvent Weld, Schedule 80 (Slip x Slip	ASTM D2467
Solvent Weld Iron Pipe thread (Slip x IPT)	ASTM F437
Iron Pipe Thread	ASTM D2464

Cement for solvent weld pipe and fittings shall be in accordance with ASTM D2564. Primers for solvent weld pipe and fittings shall be in accordance with ASTM F656. The method of installation and assembly for solvent weld fittings and pipe shall be in accordance with ASTM D2855. The specific method of assembly, class of pipe, and fittings shall be as provided for in the Contract Documents. If conditions in the field vary from or are not provided for in the Contract Documents, the Contractor shall request direction from the Engineer prior to proceeding with the installation and assembly of PVC service piping.

(2) Construction - The Contractor shall assemble solvent weld fittings and pipe in accordance with the provisions of ASTM D2855 and these Standard Specifications. Pipe ends and the interior of fittings shall be cleaned of all loose and deleterious material and primed with solvent primer in accordance with the manufacturer's recommendations. A liberal coating of cement shall then be applied to both surfaces to be mated. The pipe shall be immediately inserted into the fitting or socket and rotated approximately 180 degrees to ensure complete and even coverage of the cement and surfaces. The joint shall be held for at least 30 seconds until the cement has taken its initial set and no movement of the joint occurs. The pipe shall not be charged before the minimum time recommended by the manufacturer of the cement. Any leaks discovered upon charging the line shall be repaired by removing the joint or fitting in question and replacing the entire assembly.

Threaded PVC fittings and pipe nipples shall be Schedule 80. In assembling threaded PVC pipe and fittings, the Contractor shall take care that the pipe is not scored in excess of 1/10th of the wall thickness. Threads of fittings shall receive a liberal coating of pipe thread compound compatible with PVC pipe immediately prior to assembly and the pipe shall then be securely threaded onto the fitting without over tightening and damaging the threads.

Any damage to the pipe or fitting including but not limited to, evidence of over tightening, misaligned threads, burring or excessive scarring of pipe and fitting surfaces, or any evidence of leakage shall be cause for rejection. If a leak is found to be caused by debris, the debris shall be

cleared and the assembly visually inspected for damage before being charged. If the leak recurs upon charging of the line, the fitting shall be removed and replaced whether or not the cause can be determined.

When the total continuous length of PVC service piping is less than 3-feet, the entire length shall be removed and replaced. When the total length of PVC service piping exceeds 3-feet, the damaged fitting shall be removed along with the preceding 6-inches (minimum) and replaced with the appropriate type of coupling, PVC service piping, and a replacement fitting.

(D) Iron Service Piping

(1) Material - Iron service piping shall be galvanized or black welded/seamless steel pipe conforming with the requirements of ASTM A53. All subsurface installations shall be galvanized pipe. Iron service piping shall only be used for appurtenances including but not limited to, blow-offs, backflow prevention assemblies, and in piping assemblies for facilities including but not limited to, pump stations, storage tanks, and treatment plants.

Fittings for iron service piping shall be threaded malleable iron welded/seamless type conforming with the requirements of ASTM A865. Fittings shall be either galvanized or black iron matching the pipe of the assembly.

(2) Construction - Pipe ends and the interior of fittings shall be cleaned of all loose and deleterious material. Pipe ends shall be mechanically threaded to match the threaded fittings in accordance with ASTM A865 and cleaned of all scale, shavings, cutting oil, and other deleterious material.

In assembling threaded iron pipe and fittings, the Contractor shall take care that the pipe is not scored in excess of 1/10th of the wall thickness by any means including but not limited to, spinning the pipe within tool jaws. Threads of fittings shall receive a liberal coating of pipe thread compound compatible with steel pipe immediately prior to assembly and the pipe shall then be securely threaded onto the fitting without over tightening and damaging the threads.

Galvanized iron pipe used as part of subsurface appurtenances shall be wrapped and coated with double lapped Protecto Tape or approved substitute. Iron pipe connected to dissimilar metals shall be insulated against corrosion by the use of a dielectric union.

Any damage to the pipe or fitting including but not limited to evidence of over tightening, misaligned threads, burring or excessive scarring of pipe and fitting surfaces, or any evidence of leakage shall be cause for rejection. If a leak is found to be caused by debris, the debris shall be cleared and the assembly visually inspected for damage before being charged. If the leak recurs

upon charging of the line, the fitting shall be removed and replaced whether or not the cause can be determined.

When the total continuous length of iron service piping is less than 3-feet, the entire length shall be removed and replaced. When the total length of iron service piping exceeds 3-feet, the damaged fitting shall be removed along with the preceding 6-inches (minimum) and replaced with the appropriate type of coupling, iron pipe service piping, and a replacement fitting.

(E) Measurement and Payment

Service line piping incidental to appurtenances, pumping facilities, and tanks shall be considered as incidental to and included in the contract unit or lump sum price paid for other items of work and no additional compensation will be allowed therefor.

3-B.04 Fittings

(A) Description

All fittings for transmission and distribution pipelines and piping assemblies shall be in accordance with this Section C-04, "Fittings" of these Standard Specifications. For the purpose of this Section C-04, "Fittings", shall include but not be limited to, all tees, crosses, bends, reducers, flanges, make-up spools, repair couplings, sleeve-type couplings, transition couplings, tapping tees, flange coupling adapters, thrust restraining follower glands and harnesses, and flexible expansion joints. All fittings shall be rated for a minimum working pressure of 250-psi or that working pressure provided for in the Contract Documents.

(B) Ductile Iron Fittings

(1) Description - Except as provided for in the Contract Documents, all fittings on transmission and distribution pipelines and piping assemblies shall be manufactured of ductile iron in accordance with the provisions of AWWA C110 and/or C153. The interior of the fitting shall be cement-mortar lined in accordance with the provisions of AWWA C104. Mortar thickness shall be 1/16-inch for fittings up to 12-inches in diameter and 3/32-inch for fittings larger than 12-inches in diameter. The exterior shall be coated with an asphaltic coating approximately 0.001 inches thick. The asphaltic material shall be continuous and smooth, free of holes, blisters, or thick areas. The material shall remain pliable at temperatures below freezing and not sticky to the touch if stored in direct sunlight for any length of time.

The body of the fitting shall be free of blows, sand pits, and abrasions deeper than 10-percent of the material thickness, cracks, and other defects that adversely affect the performance of the fitting under pressure in-situ or the corrosion potential of that fitting. Likewise, the coatings

shall be free of chips, holes, abrasions, and scratches that reduce the thickness of the coating below the tolerances specified herein.

Longitudinal contraction cracks in the cement-mortar lining less than the pipe diameter in length may be accepted if the Contractor can demonstrate that the crack will self-heal upon immersion in water. Minor abrasions and scratches in the asphaltic coating may be repaired by the use of a bitumastic coating, subject to the prior approval of the Engineer.

Evidence of such defects or damage shall be cause for rejection of the fitting and the Contractor shall replace such defective or damaged fittings at no cost to the Owner.

(C) Joints

(1) General - Joints on fittings used in subsurface installations of transmission and distribution pipelines shall be mechanical joint, restrained joint (Tyton® with Field-Lok®) or flanged type, as provided for in the Contract Documents, conforming to the requirements of AWWA C111 and these Standard Specifications. In piping assemblies, both subsurface and above grade, the joints shall be either mechanical joint or flange type conforming with the requirements of AWWA C110, C111, and C153 as provided for in the Contract Documents.

(2) Mechanical Joints - Each mechanical joint shall be supplied with a vulcanized butadiene rubber (SBR) gasket in accordance with the provisions of AWWA C111. The retainer or follower gland shall be replaced with a thrust restraining follower gland in accordance with the provisions of Section 3-05, "Thrust Restraint" of these Special Provisions. Mechanical joint bolts (tee bolts) shall be 3/4 inches in diameter and be furnished for each joint in accordance with AWWA C110, AWWA C111, and AWWA C153. Bolt material shall be high-strength, low-alloy steel.

(3) Flanged Joints - Each flanged joint shall be supplied with a ring type, 1/8-inch thick composite or neoprene rubber gasket conforming with the provisions of AWWA C110. Bolts and nuts shall be hex head in conformance with ASTM A307 and A563 in accordance with the provisions of AWWA C110. Bolts and nuts shall be fabricated of low carbon steel conforming with ASTM A307 galvanized after fabrication or stainless steel conforming with ASTM F593 and F594.

(4) Push-On (Tyton7) Joints - Push-On (Tyton®) joints shall only be used between straight lengths of ductile iron pipe. The joint shall be integrally cast into the bell of the pipe in accordance with the provisions of AWWA C151 and C111. The Tyton® gasket shall be replaced with a Field-Lok® gasket where provided for in Section 3-B.05, "Thrust Restraint" of these Standard Specifications and the Contract Documents.

(D) Construction

(1) Mechanical Joints - Mechanical joints shall be installed in accordance with the manufacturer's recommendations and these Standard Specifications. The fitting shall be thoroughly cleaned of all dirt, debris, or other deleterious material and inspected prior to incorporation into the work.

The pipe end shall be beveled with a grinding tool or rasp file to facilitate the assembly of the joint. The restraining follower gland shall be slipped over the end of the pipe followed by the gasket. The Contractor shall take care that the restraining follower gland and gasket are installed in the correct alignment and the gasket is not forced onto the pipe or otherwise damaged.

The pipe end shall then be inserted into the joint to the tolerance required by AWWA C110, C111, and C153. The pipe shall be aligned as straight as field conditions permit but in no case shall the pipe be deflected in excess of 3 degrees (5/8-inch per foot) or that maximum deflection recommended by the manufacturer, whichever is the lesser. The gasket shall then be inserted into the gasket seat taking care not to force or otherwise damage the gasket.

Tightening of the follower gland to drive the gasket into the seat will not be permitted. Once the gasket is fully and evenly seated in the gasket space, the follower gland shall be aligned with the mating face of the fitting and the bolts inserted and the nuts threaded onto the bolts.

All bolting shall be performed in accordance with the provisions of Section 3-B.06 “Bolting Procedures” of these Standard Specifications.

(2) Flanged Joints - Flanged joints shall be installed in accordance with the manufacturer's recommendation and these Special Provisions. The fitting shall be thoroughly cleaned of all dirt, debris, or other deleterious material and inspected prior to incorporation into the work.

The pipe and fitting shall be carefully aligned using slings, blocks, jacks, or other means necessary to establish and maintain the correct alignment. Under no circumstances shall the bolts be used to achieve the correct alignment. As the bolts are inserted through the flange the gasket shall be inserted between the mating faces of the fitting and pipe.

All bolting shall be performed in accordance with the provisions of Section 3-B.06 “Bolting Procedures” of these Standard Specifications.

(3) Push-On (Tyton®) Joints - Push-on (Tyton®) joints shall be installed in accordance with the manufacturer's recommendation and these Special Provisions. The bell end of the receiving

pipe shall be thoroughly cleaned of all dirt, debris, or other deleterious material and inspected prior to incorporation into the work.

The pipe end shall be beveled with a grinding tool or rasp file to facilitate the assembly of the joint. The end of the pipe and the bell of the receiving pipe shall be lubricated with a joint lubricant in accordance with the provisions of AWWA C111. The pipe end shall then be inserted into the joint to the tolerance required by AWWA C110, C111, and C153. The pipe shall be aligned as straight as field conditions permit but in no case shall the pipe be deflected in excess of 3 degrees (5/8-inch per foot) or that maximum deflection recommended by the manufacturer, whichever is the lesser.

(E) Bolted Couplings

(1) Description - For the purposes of this Section 3-B.06 "Bolting Procedures" of these Standard Specifications bolted couplings shall be limited to flange coupling adapters and make-up spools.

(F) Flange-Coupling Adapters and Make-Up Spools

Flange-Coupling Adapters shall have a thrust restraining capability when used with ductile iron or welded steel pipe. The restraint mechanism shall consist of multiple, individually activated gripping surfaces. The follower gland shall be manufactured of ductile iron conforming with ASTM A536. The follower gland shall be sized in accordance with AWWA C110 and C111 to be compatible with standard flanged joint fittings. Tee bolts shall be in accordance with said AWWA specifications.

The gripping surfaces shall activate by a wedging action. Each restraining device shall be equipped with a twist-off nut of the same size as the tee bolts. The head of the nut shall be capable of shearing when the applied torque exceeds the specified torque for the particular size fitting. The flange-coupling adapter shall be Megalug® Series 2100 Megaflange-Flange Adapter manufactured by EBAA IRON SALES, INC. or an approved substitute.

Make-Up Spools for transmission and distribution pipelines shall be short body ductile iron sleeves otherwise conforming with the requirements of Section 3-04.02, "Ductile Iron Fittings" of these Special Provisions. The mechanical joint follower gland shall be replaced with a ductile iron restraining follower gland in accordance with Section 3-B.05, "Thrust Restraint" of these Standard Specifications

3-B.05 Thrust Restraint

(A) Description

All pipelines and piping assemblies shall be restrained against the hydrostatic and hydrodynamic forces inherent within public potable water supply and distribution systems. Thrust restraint shall be accomplished by the use of mechanically restrained joints, restraint harness, or cast-in-place Portland cement concrete thrust blocks. Grooved, welded, and flanged fittings shall be considered as thrust restrained fittings.

(B) Mechanically Restrained Joints

All mechanical joint fittings and pipe shall have the follower gland replaced with a thrust restraining follower gland assembly. The restraint mechanism shall consist of multiple, individually activated gripping surfaces or a continuous, split-ring type of gripping surface. The restraining follower gland shall be manufactured of ductile iron conforming with ASTM A536. The follower gland shall be sized in accordance with AWWA C110, C111, and C153 to be compatible with standard mechanical joint fittings. Tee bolts shall be in accordance with said AWWA specifications. Only one type of restraining assembly will be permitted on the project.

Restraint mechanisms consisting of multiple gripping surfaces shall activate by a wedging action of the individual gripping surfaces. Each restraining device shall be equipped with a twist-off nut of the same size as the tee bolts. The head of the nut shall be capable of shearing when the applied torque exceeds the specified torque for the particular size fitting. The mechanical restraining follower gland shall be Megalug® Series 1100, Series 1100SD, Series 1100PV, or Series 2000PV as manufactured by EBAA IRON SALES, INC. or approved substitute.

Restraint mechanisms consisting of a single, split-ring type restrainer shall activate by a wedging action of the grip ring as a unit. This wedging action shall be initiated by the installation of a mechanical joint follower gland specifically designed for the split-ring restrainer and shall apply a uniform force throughout the length of the split-ring. The split-ring shall be manufactured of ductile iron conforming with ASTM A536. Split-ring type restrainers shall be GripRingJ as manufactured by Romac Industries, Inc. or approved substitute.

Each fitting shall be restrained in accordance with the recommendations of the publication "Thrust Restraint Design for Ductile Iron Pipe" as published by the Ductile Iron Pipe Association., AWWA Manual M23, and ASTM F1674, “PVC Pipe Restraint”.

As a minimum, the Contractor shall install 40-lf of restrained pipe on each side of a restrained fitting or joint. At the Contractor's option and subject to the approval of the Engineer, thrust restraint at tie-ins to existing pipelines may be restrained by the use of Portland cement concrete thrust blocks in accordance with Section 3-B.05, "Thrust Restraint” (C) Portland Cement Concrete Thrust Blocks of these Standard Specifications. This option shall only be in

lieu of removing and replacing 40-LF of asbestos cement pipe with restrained pipe on each side of the tie-in.

This restraint for ductile iron pipe shall be accomplished by replacing the standard push-on gasket with a restraining type gasket (FIELD LOK®) in accordance with Section 3-B.02, "Transmission and Distribution Pipelines" of these Standard Specifications.

(C) Portland Cement Concrete Thrust Blocks

Where provided for in the Contract Documents, the Contractor shall construct Portland cement concrete thrust blocks to restrain hydraulic forces. Thrust blocks shall be in accordance with Standard Plan 13A, "Std. Anchorage for Horizontal Elbows in Water Mains" and this Section 3-B.05, "Thrust Restraint" (C) Portland Cement Concrete Thrust Blocks of these Standard Specifications.

Normally, Portland cement concrete thrust blocks shall only be permitted to restrain fittings on existing pipelines. The Contractor shall not pressurize the main unit until the thrust block has achieved a minimum of 2/3 of the 28-day compressive strength or 7-days, whichever is the earliest. Where the main must be pressurized prior to that time, the Contractor shall provide temporary thrust restraint using timbers in a manner approved by the Engineer. Such temporary restraint shall not be removed from the excavation nor shall the temporary restraint interfere in any way with the permanent thrust block.

All concrete for thrust blocks shall be Class "B" concrete in accordance with Section 3-B.05, "Thrust Restraint" (C) Portland Cement Concrete Thrust Blocks of these Standard Specifications. The Contractor shall excavate the soil surrounding the thrust block with a minimum of unnecessary disturbance to the soil left in-place. If deemed necessary by the Engineer, the Contractor shall hand excavate the bearing surfaces to ensure full contact with undisturbed material.

Restraining rods and tie-rods shall be coated with a bitumastic type coating (Protecto Wrap 160/160H, Tapecoat Brush-Applied Coating, or approved substitute) prior to placement in the excavation. Such wrapping shall extend a minimum of 2-inches and a maximum of 4-inches into the concrete. The tie-rod diameter shall match the diameter of the bolts on the fitting restrained. Total embedment shall be a minimum of 18-inches. All bends shall have a minimum radius of 20 diameters. Heating shall not be used in bending bars and tie-rods. The radius shall be such that a minimum of 8-inches of straight stock is embedded in the concrete prior to commencing the bend. Evidence of heating, embrittlement, cracking, deformation, or other damage detrimental to the strength of the material shall be cause for rejection by the

Engineer and the Contractor shall remove and replace such deficient material prior to pouring the thrust block at his expense.

All surfaces of fittings and pipe and all bolts and threaded rods shall be thoroughly coated with a bitumastic type sealant in accordance with Section 3-B.06, "Bolting Procedures" of these Standard Specifications.

The flanges, bells, follower glands, and bolts of all fittings shall be protected from contact with concrete during pouring. As required by field conditions, the Contractor shall wrap the joint portion of fittings with a stiff material such as roofing felt or install forms to confine the concrete to the plane of the proposed thrust block. The goal of this requirement is to enable the readjustment or removal of all bolts and plugs and the removal of the fitting itself at a later date without necessitating the removal of the thrust block first.

(D) Measurement and Payment

Except as provided for in the Contract Documents, thrust restraint shall be considered as incidental to other items of work and all costs shall be included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

3-B.06 Bolting Procedures

(A) Description

All fittings, joints, assemblies, valves, and miscellaneous special fittings shall be installed in accordance with this Section 3-B.06, “Bolting Procedures” of these Standard Specifications. The required torque shall be that specified in these Special Provisions, the Contract Documents, the referenced specifications, and the manufacturer's recommendations.

(B) Procedure

The pipe and fitting (or fittings) shall be carefully aligned using slings, blocks, jacks, or other means necessary to establish and maintain the correct alignment. Under no circumstances shall the bolts be used to achieve the correct alignment. As the bolts are inserted through the flange the gasket shall be inserted between the mating faces of the fitting and pipe.

After taking up the free slack in the nuts, the Contractor shall tighten each bolt in opposing succession taking multiple passes to achieve the proper tension. Opposing succession is hereby defined as tightening the first nut then the nut diametrically opposed to the first and proceeding either clockwise or counterclockwise in this manner around the circumference of

the joint until the required torque is achieved. In no case shall the Contractor tighten the nuts in direct sequence or over tighten any nut with respect to its opposing mate.

During the tightening operation and again upon completion of the tightening operation, the space between the mating faces of the fitting and pipe shall be inspected for evidence of non-parallel assembly. The tolerance for parallel assembly shall be 1/16-inches for mechanical joint faces and 1/32-inches for flanged faces. Other fittings and faces shall be within the tolerance recommended by the manufacturer. If the space is non-parallel in excess of such tolerance, the joint shall be completely disassembled and the installation repeated. The gasket shall be inspected for damage prior to retightening the bolts. If the mating faces of the fitting and pipe cannot be brought into parallel alignment the joint shall be disassembled, the pipe removed, the gasket replaced, and the assembly repeated.

Upon completion of the bolting operation between elements of the fittings and joints, the Contractor shall tighten all thrust restraint gripping surfaces in the same manner of opposing succession. The thrust restraining follower gland shall be tightened to the recommended torque as recommended by the manufacturer. The twist-off nut shall be considered as a safety mechanism to prevent damage from excessive torsional forces. The shear capability shall not be used in lieu of proper tightening, including the use of limiting torque wrenches.

All bolts on the fittings or joint, including those of the thrust restraining devices, shall be subject to a torque test by the Engineer. If any bolts are found to be under- or over-torqued or in any way evidencing damage, the Engineer may direct their readjustment or replacement in accordance with the provisions of this Section 3-B.06, “Bolting Procedures” of these Standard Specifications.

Upon completion of the bolting operation, all buried fittings shall receive a liberal coating of bitumastic type material (Protecto Wrap 160/160H, Tapecoat Brush-Applied Coating, or approved substitute). This coating shall be thoroughly worked into the spaces between joint faces, under and around bolts and nuts, and on all surfaces that will be in soil contact. The coating shall be allowed to attain an initial set prior to commencing any backfill operations and in no case shall backfill operations commence less than 1-hour after coating is completed.

3-B.07 Casing and Duct Installations

(A) Description

Where provided for in the Contract Documents, the Contractor shall install the water main or service piping within a steel casing or other ducting. Such installations shall include but not be limited to, freeway crossings, railway crossings, stream crossings, installations adjacent to

structures, and service piping related to other facilities such as pumping and treatment plants. The water main or service piping shall be known as the carrier pipe for the purposes of this Section 3-B.07 "Casing and Duct Installations" of these Standard Specifications.

(B) Bore and Jack Installations

(1) General - Where provided for in the Contract Documents, the contractor shall install a casing by the boring and jacking method and insert the carrier pipe therein. The casing shall be welded steel pipe. Casing for jacking installation shall not be coated except as provided for in the Contract Documents.

(2) Pipe Thickness Design for Casings - The thickness of the pipe provided for in the Contract Documents shall be considered the minimum required thickness. The actual pipe wall thickness installed shall be that thickness necessary to withstand the jacking forces imposed by the jacking machine or that provided for in the Contract Documents, whichever is the greater. The Contractor shall bear full responsibility for the selection of the pipe wall thickness as provided for herein.

(3) Jacking Machines - The Contractor shall excavate jacking and receiving pits where shown in the Contract Documents. Such excavations shall be shored as necessary in accordance with the provisions of the State Industrial Safety Orders and the Safety Plan. The jacking pit shall be the minimum necessary to accommodate the jacking machinery. The jacking machine shall be of the hydraulically operated ram type with guide rails for the casing and boring tool. The jacking machine shall have a bearing plate of sufficient surface area to resist the forces applied, assuming a soil bearing pressure of 2,500 pounds per square foot or that value provided for in the Contract Documents. The receiving pit shall not be excavated any sooner than necessary to prevent delays in the jacking operation.

The Engineer will provide the first set of construction staking for the jacking and receiving pits and the alignment control of the boring operation. The Contractor shall provide the Engineer with all requirements for surveying unique to the machine and equipment used.

The jacking machine operator shall have the ability to monitor the jacking operation for displacements from the designed line and grade. The tolerance for alignment shall be one percent from the theoretical alignment. The Contractor may use welded wedges or deformed coupons along the length of the casing to guide the alignment.

(4) Survey Grid for Jacked Casings - Where provided for in the Contract Documents, the Contractor shall have a control grid of the surface over the centerline of the casing prepared by a surveyor or civil engineer registered in the State of California. The grid shall consist of points

located on 5-foot centers along and 5-feet each side of the proposed alignment and a set of points 10-feet on center along and on each side of the 5-foot grid to a distance of 25-feet offset to the proposed centerline. These points shall be so marked as to be recoverable throughout the life of the project. The horizontal and vertical location of each of these points shall be determined no more than 5 working days prior to commencing boring and jacking operations. Upon completion of 2 working days following completion of boring operations, the grid will be resurveyed and the 2 sets of data compared.

(5) Tolerance for Jacked Casings - The actual bored diameter of the excavation shall be not more than 0.1-feet larger than the outside diameter of the casing. The Contractor may be required to demonstrate conformance with this requirement. If so required, the Contractor shall stockpile all spoils in a safe manner adjacent to the excavation for the Engineer to measure. Except as provided for in the Contract Documents, a bulking factor of 150 percent shall be applied to determine the actual volume excavated. This volume will be compared with that volume calculated from the outside diameter of the casing. If the difference in volume is excessive, as defined herein, the Contractor shall make provisions for and inject a cementitious grout throughout the length of the annular space outside the casing. The quantities of grout shall be carefully measured during the injection process. The Contractor shall immediately stop injection upon reaching the volume difference calculated herein or upon evidence of any displacement of the surrounding soil structure.

Each point of the survey grid provided for in Section 3-D.07 "Casing and Duct Installation" of these Standard Specifications shall be considered as undisturbed if the difference in elevation between the surveys is less than 0.02-feet.

If, in the opinion of the Engineer or the owner of the right-of-way crossed, the displacement of the surface so surveyed is deemed excessive, the Contractor shall determine the cause thereof and provide remedial action to the satisfaction of such owner. Due to the nature of such work, the actual manner and extent of remediation can only be determined at the time of occurrence. Normally, this will include but not be limited to such work as injection grouting, pavement grinding, crack sealing, removal and replacement of damaged surface materials, and reconstruction of slopes adjacent to the roadway.

If the final alignment varies in excess of that tolerance provided for, the District may charge damages in the amounts provided for in the Contract Documents. In no case will the amount charged the Contractor be less than the actual costs incurred by the District including but not limited to, penalties, legal fees, engineering, inspection, right-of-way acquisition, and administration. If in the opinion of the Engineer, the installation is excessively out of tolerance

and poses any hazard to the public safety or encroaches upon and encumbers property to which the District has no legal access, the Contractor may be required to reconstruct the installation where directed by the Engineer. The original installation shall be abandoned in place after filling with a sand slurry and capping the ends. If the original installation poses a hazard to public safety, the Contractor may be required to remove the casing and restore the site to a safe condition. All costs associated with such remedial work shall be borne by the Contractor.

(6) Carrier Pipe Installation - Upon completion of the casing installation the contractor shall install the carrier pipe in the casing or duct in accordance with Section 3-D.07 "Casing and Duct Installation" of these Standard Specifications.

The Contractor shall attach heavy-duty insulators to the barrel of transmission and distribution pipelines in advance of inserting the pipe into the casing. The insulators shall consist of a full-circumference steel band (minimum 14 ga.) With a rust resisting coating. Except as provided for in the Contract Documents, bearing skids may be eliminated from the top half of the insulator band. All bolts shall be 5/16-inch diameter cadmium plated hex head bolt and nut. The insulator shall be lined with a PVC insulating liner. The bearing skids shall be heavy duty PVC material chamfered on both ends to facilitate passage through the pipe.

Pipe skid insulators shall be Calpico Model M Series or approved substitute.

An insulator shall be attached to the barrel of each length of pipe within 1-foot of each joint to ensure that each length of pipe is fully supported by the insulators. An additional insulator shall be installed at mid-span on PVC pipe. After the insulators are in place the Contractor shall push or pull the pipe through the casing at a rate that will prevent the pipe from riding up on the wall of the casing and overturning. The Contractor shall use locks or bars across the surface of the pipe end bearing the load of the installation. Insofar as practicable, the pipe shall extend past both ends of the casing at least 10-feet before the first exposed joint.

Where provided for in the Contract Documents the contractor shall seal the annular space between the casing and the carrier pipe with mechanical rubber seal to form a watertight seal capable of withstanding a 20-psi internal pressure. Such seals shall be Calpico Pipe Link®, Model CSL Linx or approved substitute. When an annular seal is provided for, the insulators shall be of the centering style.

After the carrier pipe is fully installed the Contractor shall install a pull-on end seal with a minimum of 2 stainless steel band clamps on each end of the casing. End seals shall be Calpico Model C or approved substitute.

The Contractor shall install carrier piping in non-metallic ducting by inserting the pipe through the duct. No insulators will be required unless provided for in the Contract Documents. The end of the duct, when fully buried shall be sealed with an end seal as provided for herein and all voids in the seal shall be sealed with a liberal injection of a silicone caulk.

(7) Measurement - Quantities of casing installation will be measured by the linear foot to the nearest 1-foot increment or portion thereof along the centerline of the pipeline as constructed. Except as provided for in the Contract Documents, all carrier pipelines, fittings, and thrust restraint systems installed within such casing installation will be paid for under the contract unit or lump sum price for pipelines or other items of work and no additional compensation will be allowed therefor.

(8) Payment - The contract unit price per linear foot for “Install Casing” or “Install Duct” shall include full compensation for furnishing all labor, tools, equipment, materials, and incidentals and for doing all work involved in installing casings and ducts including but not limited to excavation, boring, jacking, casing, welding, ducting, installing carrier pipe, insulators, seals, bedding, and backfill complete in place as shown in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-B.08 Valves

(A) Description

Valves shall be defined as all mechanisms used for controlling the flow of potable water or other fluid or gas from a transmission or distribution pipeline to the point of use as well as those mechanisms used to control the flow of water through piping assemblies associated with pumping equipment, treatment works, and storage tanks. Valves shall include but not be limited to, gate valves, butterfly valves, ball valves, blow-off valves, air and air/vacuum release valves, check valves, pressure reducing or sustaining valves, pump control valves, surge control valves, solenoid activated valves, pneumatically activated valves, reduced pressure valves, rate of flow control valves, and altitude valves.

(B) Gate Valves

(1) Description - Gate valves shall be used for all pipeline and piping assemblies smaller than 10-inches in diameter. Such gate valves shall be iron body, bronze mounted resilient seat type with non-rising stem, conforming with AWWA C509 and these construction documents. Except as provided for in the Contract Documents, the Contractor shall only use the product of one manufacturer throughout the life of the project.

(2) Pressure Rating - Except as provided for in the Contract Documents, all gate valves shall be rated for zero-leakage (drip-tight) closure at 200 psi water working pressure or higher. Additionally, each valve shall be hydrostatically tested at 400 psi for structural soundness. Testing for conformance to these specifications shall be in accordance with AWWA C509.

(3) As called for in the Contract Documents, valve ends shall be mechanical joint, flange, or combination flange by mechanical joint. Such joints shall be in accordance with Section 3-B.04, "Fittings" of these Standard Specifications. Gate valves 2-inch and smaller shall be threaded.

(4) Materials - All materials used in the manufacture of gate valves shall be in accordance with the mechanical schedule shown in Table 3-07 Mechanical Schedule - Resilient Wedge Gate Valves of these Standard Specifications.

(5) Coatings - The interior of the valve body, bonnet, and seal shall be fusion-bonded epoxy coated to a minimum thickness of 0.005-inches in accordance with AWWA C550. The exterior shall be either epoxy coated in accordance with AWWA C550 or coated with an asphaltic varnish.

(6) Each valve body shall be marked during the casting process with the name of the manufacturer, year of manufacture, maximum working pressure, and valve size. The operating nut wing and the hand wheel shall be stamped with an arrow and the word OPEN to indicate the direction of opening.

(7) Design and Operation - All gate valves shall be non-rising stem, counter-clockwise opening. The valve shall be capable of operation in any position other than horizontal with full rated pressure in either direction.

TABLE 3-07

Mechanical Schedule
Resilient Wedge Gate Valves

Description	Material	Materials Standard
Bonnet bolts and nuts	Steel	ANSI B18.2(plated)
Test plug	Iron	
Retainer nut for wrench nut	Steel	ANSI B18.2 (plated)
Stuffing box gasket	Composition or Rubber	ASTM D1170 or D2000
Wrench nut	Cast Iron	ASTM A126, Class B
Stuffing box bolt and nut	Steel	ANSI B18.2 (plated)
Stem	Bronze	ASTM B138
Hand wheel	Cast Iron	ASTM A126, Class B
Stuffing box and stem O-ring	Rubber	ASTM D2000
Stuffing box	Cast Iron	ASTM A126, Class B
Disc	Cast Iron	ASTM A126, Class B
Seat Ring	Rubber	ASTM D2000
Retaining screw	Stainless Steel	Type 304
Bonnet	Cast Iron	ASTM A126, Class B
Bonnet gasket	Composition or Rubber	ASTM D1170 or D2000
Body	Cast Iron	ASTM A126, Class B

Thrust collars shall be a machined portion of the basic stock from which the stem is machined. A thrust bearing shall be incorporated into the stuffing box assembly. This thrust bearing shall be Type 304 stainless steel, Nylon 101 conforming with Federal Specification No. L-P-401A, or other low friction, non-corrosive material to optimize operating torques. The valves shall be furnished with 2 O-ring stem seals in the stuffing box above the thrust bearing and one below the thrust bearing. Each O-ring seal shall be set in a recessed groove machined into the stem shaft. The groove shall not be less than the root diameter of the stem threads.

The stuffing box and bonnet gaskets shall be either a full face flat composition type or an O-ring type set in a machined groove on both mating surfaces. The groove shall be so sized that the O-ring is compressed to fill the groove when the stuffing box and bonnet bolts and nuts are torqued to the manufacturer's recommendation. The disc shall be either fully encapsulated in Buna rubber conforming with ASTM D2000 or furnished with a field replaceable seat ring of

steel reinforced rubber secured by self-locking stainless steel screws. The disc shall be guided by integral lugs and guides in a tongue and groove manner throughout the range of travel.

The valve shall be so designed as to be serviceable without removal from the installation. The stuffing box shall be removable while the valve is under pressure in either the open or closed position. The bonnet and all internal components shall be removable with the valve in-situ.

(8) Warranty - Each gate valve shall be furnished with a manufacturer's 10-year limited warranty against defects in materials and workmanship. Such warranty shall transfer to the District upon final acceptance of the improvements.

(9) Representative Models - Gate valves shall be Mueller Super-Seal, Kennedy Ken-Seal TM II, M & H Style 3607 or Style 2500, Waterous "Series 500", or approved substitute.

(10) Construction and Installation - Each gate valve shall be installed in the locations and orientation provided for in the Contract Documents. Jointing to pipelines, fittings, and other valves shall be in accordance with the provisions of Sections 3-B.04, "Fittings" of these Standard Specifications.

Direct buried valves larger than 2-inch shall be supported by a block directly under the valve body. Such blocks shall be either redwood or pressure treated timber at least a nominal 4-inches in each dimension and 12-inches long. At the Contractor's option and subject to the Engineer's approval, other blocking materials, such as pier blocks, may be used. The valve shall be fully coated in accordance with Section 3-B.06, "Bolting Procedures" of these Standard Specifications. A valve box shall be installed over each valve in accordance with 5-05, "Concrete Structures" of these Standard Specifications.

Valves included in piping assemblies above grade or underground within vaults shall be supported by the use of pipe supports. Pipe supports shall be installed on a concrete pad of at least 4-inch thickness and 18-inches square. Pipe supports shall be Grinnell Figure 264, Standon Pipe Support Model S-89, or approved substitute.

(11) Testing and Acceptance - All gate valves shall be inspected by the Engineer prior to installation. Upon installation, each valve shall be operated under no pressure prior to charging the line to verify free travel without interference. Upon charging the pipeline, each valve shall be included in the hydrostatic test as provided for in Section 3-B.02 "Transmission and Distribution Pipelines", (E) Hydrostatic Testing of these Standard Specifications. Upon satisfactory completion of all work, each gate valve shall be operated under load to verify acceptable operation in accordance with the provisions of this Section 3-B.02 "Transmission and Distribution Pipelines", (E) Hydrostatic Testing of these Standard Specifications. The

Contractor shall bear full responsibility for the inspection, evaluation, removal, and replacement of defective gate valves as provided for in these Special Provisions.

(12) Measurement and Payment

Unit Basis - When gate valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing gate valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for gate valves is not included in the Contract Documents, all costs for such gate valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such gate valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(C) Butterfly Valves

(1) Description - Butterfly valves shall be used for all pipeline and piping assemblies' 10-inches in diameter and larger. Such butterfly valves shall be iron body, rubber-seated geared type with traveling nut type stem, conforming with AWWA C504 and these Special Provisions. Except as provided for in the Contract Documents, the Contractor shall only use the product of one manufacturer throughout the life of the project.

(2) Pressure Rating - Except as provided for in the Contract Documents, all butterfly valves shall be rated for zero-leakage (drip-tight) closure at 150 psi steady-state working pressure, 150 psi differential pressure, and a maximum velocity of 16 fps. Testing for conformance to these specifications shall be in accordance with AWWA C504.

(3) Ends - As called for in the Contract Documents, valve ends shall be mechanical joint, flange, combination flange by mechanical joint, or wafer type. Such joints shall be in accordance with Section 3-B.02, "Transmission and Distribution Pipelines" (B) Ductile Iron Pipe, of these Standard Specifications. The body may be either short body or long body style. The Contractor shall provide verification from the manufacturer that the length of the body is sufficient for the disc to rotate fully when used with the pipe provided for in the Contract Documents.

(4) Materials - All materials used in the manufacture of butterfly valves shall be in accordance with the mechanical schedule provided in Table 3-08 Mechanical Schedule - Rubber-Seated Butterfly Valves of these Standard Specifications.

TABLE 3-08
Mechanical Schedule
Rubber-seated Butterfly Valves

Description	Material	Material Standard
Operator cover bolts and nuts	Steel	ANSI B18.2 (plated)
Retainer nut for wrench nut	Steel	ANSI B18.2 (plated)
Operator cover gasket	Composition or rubber	ASTM D1170 or D2000
Wrench nut	Cast iron	ASTM A126, Class B
Operator to body bolts and nuts	Steel	ANSI B18.2 (plated)
Stem	Stainless steel	Type 304
Hand wheel	Cast iron	ASTM A126, Class B
Shaft seal	Rubber O-ring	ASTM D2000
Operator enclosure	Cast iron	ASTM A126, Class B
Disc	Cast iron	ASTM A126, Class B
Seat ring	Rubber	ASTM D2000
Retaining screw	Stainless steel	Type 304
Body	Cast iron	ASTM A126, Class B

(5) Coatings - The interior of the valve body, bonnet, and seal shall be fusion-bonded epoxy coated to a minimum thickness of 0.005-inches in accordance with AWWA C550. The exterior shall be either epoxy coated in accordance with AWWA C550 or coated with an asphaltic varnish in accordance with AWWA C110, Section 10-9.1, "Outside Coating".

(6) Markings - Each valve body shall be marked during the casting process with the name of the manufacturer, year of manufacture, maximum working pressure, and valve size. The operating nut wing and the hand wheel shall be stamped with an arrow and the work OPEN to indicate the direction of opening.

(7) Design and Operation - All butterfly valves shall be traveling nut type designed to withstand 300 foot-pounds of input torque at full open or full closed positions without damage to the valve or operator and counter-clockwise opening. The valve shall be capable of operation in any position other than horizontal with full rated pressure in either direction. The valve

operator housing shall be fully gasketed, grease packed, designed for submersion in water to 10 psi (23.1-feet) and direct burial. The valve shall close with 20 to 40 turns, dependent upon size and manufacturer.

The operator body to valve body gaskets shall be either a full face flat composition type or an O-ring type set in a machined groove on both mating surfaces. The groove shall be so sized that the O-ring is compressed to fill the groove when the operator body bolts and nuts are torqued to the manufacturer's recommendation.

The disc may be furnished with a field replaceable seat ring of steel reinforced rubber secured by self-locking stainless steel screws. If so supplied, the disc shall seat against a machined seat within the valve body. If the disc of the valve furnished is not provided with a seat ring, a rubber body seat shall be set into a groove in the valve body. The rubber seat shall be so secured as to remain tight and drip free throughout the range of travel at full rated pressure.

The valve shall be so designed as to be serviceable without removal from the installation. The operator housing shall be removable while the valve is under pressure in either the open or closed position. The stem, disc, and all internal components shall be removable with the valve in-situ.

(8) Pneumatic Actuator - Where provided for in the Contract Documents, butterfly valves shall be equipped with pneumatic operators for automatic or combination manual/automatic control of valve operations. The actuator shall be capable of moving the valve from any position to fully open or fully closed upon application of air pressure. The actuator shall be speed controlled to match the minimum closing times required for the application to prevent excessive surge pressures.

(9) Warranty - Each butterfly valve shall be furnished with a manufacturer's 10-year limited warranty against defects in materials and workmanship. Such warranty shall transfer to the District upon final acceptance of the improvements.

(10) Representative Models - Butterfly valves shall be Mueller® or approved substitute.

(11) Construction and Installation - Each butterfly valve shall be installed in the locations and orientation provided for in the Contract documents. Jointing to pipelines, fittings, and other valves shall be in accordance with the provisions of Section 3-B.04, “Fittings” (C) Joints and Section 3-B.04, “Fittings” (F) Flanged-Coupling Adapters and Make-Up Spools of these Standard Specifications

Direct buried valves shall be supported by a block directly under the valve body. Such blocks shall be either redwood or pressure treated timber at least a nominal 4-inches in each dimension and 12-inches long. At the Contractor's option and subject to the Engineer's approval, other blocking materials, such as pier blocks, may be used. The valve shall be fully coated in accordance with Section 3-B.06, "Bolting Procedures" of these Standard Specifications. A valve box shall be installed over each valve in accordance with 3.D.15, "Concrete Structures" of these Standard Specifications.

Valves included in piping assemblies above grade or underground within vaults shall be supported by the use of pipe supports. Pipe supports shall be installed on a concrete pad of at least 4-inch thickness and 18-inches square. Pipe supports shall be Grinnell Figure 264, Standon Pipe Support Model S-89, or approved substitute.

(12) Testing and Acceptance - All butterfly valves shall be inspected by the Engineer prior to installation. Upon installation, each valve shall be operated under no pressure prior to charging the line to verify free travel without interference. Upon charging the pipeline, each valve shall be included in the hydrostatic test as provided for in Section 3-B.02, "Transmission and Distribution Pipelines", (E) Hydrostatic Testing of these Standard Specifications. Upon satisfactory completion of all work, each butterfly valve shall be operated under load to verify acceptable operation in accordance with the provisions of this Section 3-B.08, "Valves" (C) Butterfly Valves of these Standard Specifications. The Contractor shall bear full responsibility for the inspection, evaluation, removal, and replacement of defective butterfly valves as provided for in these Standard Specifications.

(13) Measurement and Payment

Unit Basis - When butterfly valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in installing butterfly valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for butterfly valves is not included in the Contract Documents, all costs for such butterfly valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such butterfly valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(D) Control Valves

(1) Description - Control valves shall be those valves called for in the Contract Documents whose purpose is to provide operational control and protection to piping systems, assemblies, storage and pumping facilities. Such control valves shall be as described herein. Operating pressure rating shall be Class 150 or as called for in the Contract Documents.

(2) Basic Valve

Description - The valve shall be hydraulically operated and diaphragm-actuated. The body and cover shall be fabricated of material in accordance with the mechanical schedule provided in Table 3-09 Mechanical Schedule - Control Valves of these Standard Specifications

Coatings - The interior of the valve body, bonnet, and seal shall be fusion-bonded epoxy coated to a minimum thickness of 0.005-inches in accordance with AWWA C550. The exterior shall be either epoxy coated in accordance with AWWA C550 or coated with an asphaltic varnish in accordance with AWWA C110, Section 10-9.1, "Outside Coating".

Markings - Each valve body shall have the manufacturer's name and the valve size cast on the exterior or the body. Additionally, each valve, pilot valve, and solenoid shall be provided with a plate that enumerates the manufacturer's name, date of manufacture, size, and type of valve, pressure rating, inlet and outlet, serial numbers, voltage ratings, and any additional information relevant to the particular valve. Alternatively, one plate may be used that provides this information on all valve components. This plate shall be permanently affixed to the valve with screws or rivets.

Design and Operation - The diaphragm assembly shall consist of a valve stem and a nylon fabric bonded with synthetic rubber. The valve stem shall be the only moving part in the assembly and the diaphragm shall not be used as a seating surface. The valve stem shall be guided by a bearing in the valve cover and an integral bearing in the valve seat.

TABLE 3-09
Mechanical Schedule
Control Valves

Description	Material	Material Standard
Body and cover	Ductile iron	ASTM A536
Cover gasket	Buna N rubber	ASTM D2000
Bolts	Steel	ANSI B18.2 (plated)

Diaphragm	Nylon bonded w/synthetic rubber	ASTM D2000
Seat ring	Rubber	ASTM D2000
Nozzle plugs	Malleable iron	ASTM A865
Retaining screw	Stainless steel	Type 304

It shall contain a resilient, synthetic rubber disc of a rectangular cross-section, contained on three and one-half sides by a disc retainer forming a tight seal against a single removable seat insert.

All external pipe and tubing required for pump operation shall be furnished with a polyurethane foam type pipe insulation to protect the valve components from freezing. Where called for in the Contract Documents, such pipe and tubing shall be equipped with in-line filters to remove particulate material from the control system.

All nozzles into the valve body shall be equipped with Flow Clean Strainers (Cla-Val Company Model X46 or approved substitute).

Packing glands or stuffing boxes will not be permitted. Except for solenoid actuated valves, no pistons, linkages, external pressure source, or other mechanical devices shall be used for pump operation or control.

All serviceable components of the valve shall be accessible with the valve in-situ. The valve body and cover shall be so designed as to permit conversion of the valve from one function to another without removing the valve from the line or requiring any modification to the valve body or cover, such as drilling and tapping.

Pressure Rating - Except as provided for in the Contract Documents, all control valves shall be rated for full operation at 150 psi steady-state working pressure and a maximum velocity of 20-fps.

Ends and Body Type - Valve ends shall be flange type in accordance with Section 3-B.04, "Fittings" (B) Ductile Iron Fittings of these Standard Specifications.

(3) Check Valves - All check valves shall be so designed as to open fully to permit flow when the inlet pressure is greater than the outlet pressure. When the outlet pressure is higher than the inlet pressure, the valve shall close drip-tight in response to the difference in pressure between the valve chamber and the diaphragm chamber. The valve shall be equipped with auxiliary

controls which will permit the adjustment of the opening and closing speeds. These speeds shall be set in accordance with the manufacturers' recommendations for the installation and operating conditions.

Check valves shall be Cla-Val Company Model 81-02 or 681-02, or approved substitute.

(4) Pressure Relief, Pressure Sustaining, and Back Pressure Valves - Pressure relief, pressure sustaining, and back pressure valves shall be pilot controlled valves that maintain the inlet pressure at a steady, preset pressure regardless of the outlet demand.

The pilot control system shall consist of a direct-acting, adjustable, spring-loaded, normally open, diaphragm valve. This valve shall be designed to permit flow when controlled pressure exceeds the spring setting. The pilot control system shall operate such that as excess pressure in the pilot valve is dissipated the main valve shall close gradually to a drip-tight seating.

When used as a pressure relief valve, the valve shall be installed to protect piping systems from high surge pressures due to pump operations. The valve shall relieve such surges by shunting excess pressure surges to a zone of lower pressure. The routing of the relief valve will be shown in the Contract Documents.

When used as a pressure sustaining valve, the valve shall be installed in line with the piping between zones of higher and lower pressure to maintain the preset upstream pressure during periods of high demand in the lower zone. As the demand increases, the valve shall close gradually to prevent robbing from the upper zone.

When used as a back-pressure relief valve, the valve shall be installed off-line at the discharge of a pump to shunt pressure fluctuations to the suction side of the pump and maintain a constant discharge pressure. In all configurations, the valve shall operate automatically without additional field adjustment.

Pressure relief, pressure sustaining, and back pressure valves shall be Cla-Val Company Model 50-01 or 650-01, or approved substitute.

(5) Pressure Reducing/Pressure Sustaining Valves - Pressure reducing/pressure sustaining valves shall be pilot controlled valves that maintain the outlet pressure at a steady, preset pressure regardless of the inlet pressure or flow rate. The pressure sustaining function shall prevent "robbing" of the higher zone when the lower zone pressure falls below a certain pre-set point.

The pilot control system shall consist of a direct-acting, adjustable, spring-loaded, normally open, diaphragm valve. This valve shall be designed to permit flow when controlled pressure is less than the spring setting and shall include a fixed orifice.

Pressure reducing valves shall be Cla-Val Company Model 92-01G or 692-01G, or approved substitute.

(6) Surge Anticipator Valve - A surge anticipator valve shall be installed to protect all pump stations where the calculated water hammer will increase the pressure in the system in excess of the design working pressure rating of that system or where called for in the Contract Documents. The time of closure to prevent the formation of such water hammer shall be as follows:

$$Tc = (0.027 \times L \times V)/\Delta p$$

Where:

	Tc	= Time of closure (seconds)
	L	= Length of pipeline (feet)
	V	= Velocity of pipeline flow (fps)
	Δp	= Change in pressure from full flow to no flow (psi)

The increase in pressure due to this surge shall be assumed to equal a value in psi of 60 times the pipeline velocity at normal flow.

Such surge anticipator valves shall be equipped with multiple pilot valves that will open the valve rapidly in response to high pressure or low pressure wave in the pipeline system. On a low pressure wave, the main valve shall open to a preset limit as controlled by a hydraulic limiter. Upon dissipation of the high pressure wave, the valve shall close slowly to drip-tight.

The surge anticipator valve shall be installed in such a manner as to shunt the high pressure wave out of the system to an area of lower pressure, preferably atmospheric. The routing of this discharge shall be called for in the Contract Documents.

Surge anticipator valves shall be Cla-Val Company Model 52-03 or 652-03, or approved substitute.

(7) Pump Control Valves - Pump control valves shall be installed on the discharge head of all pumps to regulate the rate of energy transfer from the pump to the receiving system. The valve shall also include an integral check capability to prevent a flow reversal. The valve shall be controlled by means of an externally mounted, four-way, solenoid pilot valve. The valve shall utilize line pressure for operation without external sources. A limit switch shall be

installed that is adjustable throughout the entire range of valve travel. The control system shall be protected by self-cleaning strainers.

The pump control valve shall open slowly upon receiving a signal from the Motor Control Center that pump startup has been initiated. Upon receiving a signal terminating pump operation, the valve shall slowly close drip-tight sealing the valve against flow reversal by the use of the check feature. This rate of opening and closing shall be field adjustable. The rate of both opening and closing shall be determined from the operating conditions and shall permit sufficient time for the dissipation of surge pressures and water hammer.

Pump control valves shall be Cla-Val Company Model 60-11 or 660-11, or approved substitute.

(8) Deep Well Pump Control Valves - Deep well pump control valves shall be installed on the discharge head of all well pumps to regulate the rate of energy transfer from the pump to the receiving system. The valve shall also include a flushing capability to prevent the introduction of sand and standing water in the well to the receiving system.

The valve shall be controlled by means of an externally mounted, four-way, solenoid pilot valve. The valve shall utilize line pressure for operation without external sources. A micro switch shall be installed to control the valve. The control system shall be protected by self-cleaning strainers.

The deep well pump control valve shall close slowly upon receiving a signal from the Motor Control Center that pump startup has been initiated. Upon receiving a signal terminating pump operation, the valve shall slowly open. This rate of opening and closing shall be field adjustable. The rate of both opening and closing shall be determined from the operating conditions and shall permit sufficient time for the dissipation of surge pressures and the flushing of the pump column.

The deep well pump control valve shall be installed in such a manner as to shunt the initial water column out of the system to an area of lower pressure, preferably atmospheric. The amount of time for the valve to close shall be determined such that the volume of the pump column is completely flushed. Additional time may be required to flush sand drawn into the well casing during pump startup. This additional time will be determined in the field at the time of installation. The routing of this discharge shall be as called for in the Contract Documents.

Pump control valves shall be Cla-Val Company Model 61-02 or 661-02, or approved substitute.

(9) Combination Valves - Multiple functions may be included in one valve, subject to the Engineer’s approval. When permitted, multi-purpose valves shall be assembled in strict

accordance with the manufacturer's recommendations. No field modifications to create multiple functions will be permitted without direct supervision by the manufacturer's representative.

(10) Warranty - Each control valve shall be furnished with a manufacturer's 3-year limited warranty against defects in materials and workmanship. Such warranty shall transfer to the District upon final acceptance of the improvements.

(11) Construction and Installation - Each control valve shall be installed in the locations and orientation provided for in the Contract Documents. Jointing to pipelines, fittings and other valves shall be in accordance with the provisions of Section 3-B.04 "Fittings" (F) Flange-Coupling Adapters and Make-Up Spools of these Standard Specifications.

Control valves located in unheated structures or exposed to the weather shall have the chamber tubing wrapped in foam insulation a minimum of 1/2-inches thick and securely taped to the tubing.

Control valves shall be supported by the use of pipe supports. Pipe supports shall be Grinnell Figure 264, Standon Pipe Support Model S-89, or approved substitute. Pipe supports shall be installed on a concrete pad of at least 4-inch thickness and 18-inches square.

(12) Testing and Acceptance - All control valves shall be inspected by the Engineer prior to installation. Upon installation, each valve shall be set to the operating settings recommended for the particular application. Following setting, each control valve shall be operated under load to verify acceptable operation in accordance with the provisions of this Section 3-B.08, "Valves" of these Standard Specifications. The Contractor shall bear full responsibility for the inspection, evaluation, removal, and replacement of defective control valves as provided for in these Standard Specifications.

(13) Measurement and Payment

Unit Basis - When control valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing gate valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for gate valves is not included in the Contract Documents, all costs for such gate valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such gate valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(E) Air Release Valves

(1) Description - Air release valves shall be installed on the surface plate of each pump suction barrel. The valve shall be capable of venting air trapped in the barrel to the atmosphere as the barrel is filled with water. The inlet of the valve shall be 2-inch in diameter. The orifice shall be 1/16-inch in diameter. The outlet of the valve shall be assembled using galvanized iron service piping to create a downward oriented return. The outlet of the piping shall be screened with stainless steel mesh secured with a stainless steel band clamp.

Air release valves shall be Cla-Val Model 34AR-116.3 or approved substitute.

(2) Measurement and Payment

Unit Basis - When air release valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing air release valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, venting, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for air release valves is not included in the Contract Documents, all costs for such air release valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such air release valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(F) Air/Vacuum Release Valves

(1) Description - Air/Vacuum release valves shall be installed at high points within the distribution system. The valve shall be capable of venting air trapped in the pipeline to the atmosphere as the pipeline is filled with water. It shall also be capable of introducing air into the pipeline as the pipeline drains preventing the creation of a vacuum within the pipeline. The inlet of the valve shall be 2-inch in diameter. The orifice shall be sized for the specific

installation. The outlet of the valve shall be assembled using galvanized iron service piping to create a downward oriented return. The outlet of the piping shall be screened with stainless steel mesh secured with a stainless steel band clamp.

Air release valves shall be Cla-Val Model 36-CAV or approved substitute.

(2) Measurement and Payment

Unit Basis - When air/vacuum release valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing air/vacuum release valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, venting, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for air/vacuum release valves is not included in the Contract Documents, all costs for such air/vacuum release valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such air/vacuum release valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(G) Duckbill Check Valve

(1) General - Where provided for in the Contract Documents, the Contractor shall install a duckbill style check valve to control a reversal of flow in situations that would otherwise be problematic. Such situations include but are not limited to, corrosive environments, tank internal valves, diffuser systems and storm outfall lines.

(2) Materials - The duckbill check valve shall consist of a flexible check sleeve with or without a valve body. The check sleeve shall be fabricated of pure gum rubber, Neoprene, Hypalon, Chlorobutyl, Polyurethane, Buna-N, Viton, or EPDM as provided for in the Contract Documents.

Where provided for in the Contract Documents, the valve body shall be cast iron conforming with the provisions of ASTM A126. The valve body shall be provided with a minimum of one clean out plug.

(3) Construction - Duckbill check valves shall be specifically designed for the application called for. The manufacturer shall review the project specific parameters to ensure that the

performance characteristics of the duckbill sleeve are compatible with the system pressures of the project.

Where a valve body is provided for in the Contract Documents, the clean-out plug shall be removed and replaced with a short nipple and ball valve for draining the valve.

(4) Measurement and Payment

Unit Basis - When duckbill check valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing duckbill check valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for duckbill check valves is not included in the Contract Documents, all costs for such duckbill check valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such gate valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

(H) Ball Valves

(1) Description - Ball valves shall be used as isolation valves only for small diameter service piping incidental to such items as but not limited to, cross-connection control assemblies, pressure monitoring systems, and air/vacuum release valves. Such ball valves shall be stainless steel two-or three-piece body conforming with these Standard Specifications. Except as provided for in the Contract Documents, the Contractor shall only use the product of one manufacturer throughout the life of the project.

(2) Pressure Rating - Except as provided for in the Contract Documents, all ball valves shall be rated for zero-leakage (drip-tight) closure at 150-psi steady-state working pressure, 150-psi differential pressure, and a maximum velocity of 16 fps.

(3) Ends - Valve ends shall be threaded.

(4) Markings - Each valve body shall be marked during the casting process with the name of the manufacturer, year of manufacture, maximum working pressure, and valve size. The operating

handle shall be stamped or marked with an arrow and the word OPEN to indicate the direction of opening.

(5) Design and Operation - All ball valves shall be full port type. The valve shall be capable of operation in any position other than horizontal with full rated pressure in either direction. The valve itself shall be a machined stainless steel ball seated against a machined seat with seal. The seal shall be NSF approved for use with potable water at the pressure-rating of the valve.

(6) Representative Models - Ball valves shall be Worcester Series 44, Milwaukee Valve 20SSOR, BA-360, 22SSOR or approved substitute.

(7) Construction and Installation - Each ball valve shall be installed in the locations and orientation provided for in the Contract documents.

(8) Testing and Acceptance - All ball valves shall be inspected by the Engineer prior to installation. Upon installation, each valve shall be operated under no pressure prior to charging the line to verify free travel without interference. Upon satisfactory completion of all work, each ball valve shall be operated under load to verify acceptable operation in accordance with the provisions of Section 3-B.08, "Valves" of these Standard Specifications. The Contractor shall bear full responsibility for the inspection, evaluation, removal, and replacement of defective ball valves as provided for in these Special Provisions.

(9) Measurement and Payment

Unit Basis - When duckbill check valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing duckbill check valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for duckbill check valves is not included in the Contract Documents, all costs for such duckbill check valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such gate valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

3-B.09 Fire Hydrants

(A) Description

Fire hydrants shall be installed where called for in the Contract Documents. All such fire hydrants shall be of the wet barrel design and shall be manufactured in accordance with the provisions of AWWA C503. Each hydrant shall be equipped with one steamer and either one or two 2-1/2 inch hose ports. The number of 2-1/2 inch ports shall be as called for in the Contract Documents. The size of the steamer port shall be 4-1/2 inch or as provided for in the Contract Documents. Each port shall be threaded to National Standard Hose thread. The cap shall be equipped with a pentagonal nut of the same size as the operating nut and shall be chained to the hydrant barrel. The chain shall be so attached to the cap as to prevent its removal while permitting free rotation of the cap. Operating pressure rating for fire hydrants shall be 150 psi or as called for in the Contract Documents.

Each hydrant shall be equipped with a cast or ductile iron base shoe as manufactured by Clow.

Where provided for in the Contract Documents, the hydrant shall be equipped with a riser check valve assembly to prevent excessive discharge in the event of a break off of the hydrant. Such check valve assembly shall be capable of providing uninterrupted flow under normal operation and a slow closing capability following hydrant break off. The hydrant check valve shall be as manufactured by Little Squirt manufacturing or approved substitute.

(B) Coatings

All hydrants shall be painted with a minimum of one coat of OSHA yellow paint. Paint shall be Rust-Oleum 2143, DuPont 23663D, Aervoe 3-02, or Krylon 1813 or that color required by the Scotts Valley Fire Protection District.

(C) Markings

Each hydrant body shall have the manufacturer's name and the valve size cast on the exterior of the body. Additionally, the size of the steamer port shall be cast on the body of the hydrant and/or the steamer port cap.

(D) Design and Operation

All serviceable components of the hydrant shall be accessible with the hydrant in-situ. The hydrant shall open counterclockwise with a 1-1/4 inch pentagonal operating nut. The riser shall be equipped with a traffic breakaway spool and shear bolts. Each port shall operate independently. The discharge nozzles shall be in accordance with NFPA 1963, AStandard for Screw Threads and Gaskets for Fire Hose Connections@. Nozzles shall be threaded to such a length as to provide a minimum of 4 to 5 threads. The hydrant shoe shall be of the mechanical joint type with the retaining or follower gland replaced with a thrust restraining follower gland

in accordance with Section 3-B.05, "Thrust Restraint" of these Standard Specifications. The hydrant shoe shall permit full flow with a minimum of losses.

Shear or breakaway bolts shall be fabricated of full thread bolts with a machined hole bored in the center of the shaft. The bolt shall be capable of withstanding a torque of 70 ft-lbs and shear between 90 and 105 ft-lbs torque. Breakaway spools shall be a standard riser with a machined groove in the barrel that will shear under vehicle impact. The groove shall be a machined 45E V-groove of sufficient depth to reduce the barrel wall thickness to one-half the nominal thickness when measured from the interior wall.

Fire hydrant isolation valves shall be standard flange by mechanical joint resilient seat gate valves in accordance with Section 3-B.08, "Valves" (B) Gate Valves of these Standard Specifications. The retaining follower gland shall be replaced with a thrust restraining follower gland in accordance with Section 3-B.05, "Thrust Restraint" of these Standard Specifications. Such valves shall be installed at the main line fitting and supplied with a standard valve box in accordance with 5-05," Concrete Structures" of these Standard Specifications.

The top flange of the base shoe or riser shall be of the 6-hole pattern using 3/4-inch diameter shear bolts. Gaskets shall be of the ring type in accordance with Section 3-B.04, "Fittings" Flange-Coupling Adapters and Make-Up Spools of these Standard Specifications. The lower joint shall be mechanical joint in accordance with Section 3-B.04, "Fittings" of these Standard Specifications.

(E) Representative Models

Fire hydrants shall conformance with the District Standard Detail No. 10 – "Fire Hydrant Installation".

(F) Construction and Installation

Each fire hydrant shall be installed in such a manner as to permit a minimum clear distance from any obstruction to the center of the hydrant of 3-feet. The hydrant shall be set a minimum of 18-inches from the back of curb or edge of traveled way to the nearest point on a port cap. The horizontal location shall be as called for in the Contract Documents except that the Engineer reserves the right to adjust the location up to 20-feet in any direction in response to conditions found in the field. Such conditions shall include but not be limited to, the location of other utilities, driveways, private improvements such as landscaping and earth retaining structures, and the location of pipe joints. Such adjustment if required will be made in full cooperation with the Contractor during the layout of the pipeline and shall be considered as

included in the contract unit or lump sum price for the fire hydrant and no additional compensation will be allowed therefor.

Insofar as practicable, fire hydrants shall be located at the projection of property lines within the public Right-of-Way and on the uphill side of the roadway. Where the proper location of the fire hydrant requires excavating into the adjacent slope and it is impracticable to maintain a slope of two horizontal to one (2:1) vertical or flatter, the Contractor shall construct a low retaining wall around the hydrant at the clearances provided for herein. Such retaining walls shall be constructed of precast modular concrete units with geotechnical fabric (Keystone with Tensar, or approved substitute). Unless otherwise provided for in the Contract Documents, the cost of such retaining structures shall be considered as included in the contract unit price for other items of work and no additional compensation will be allowed therefor.

Where called for in the Contract Documents, fire hydrants shall be protected by the installation of traffic barriers. Such barriers shall be constructed of 4-inch nominal diameter galvanized iron pipe 3-feet high set a minimum of 3-feet into the ground with a fence post cap. The post hole and the pipe shall be filled with Class “B” concrete. The posts shall be installed in locations that provide the offsets called for herein and 18-inches clearance to the nearest point on the hydrant. The posts shall be so situated as to protect the hydrant from any direction traffic may be expected. Each post shall be painted to match the fire hydrant.

All hydrants shall be set in a pad of Class “B” concrete not less than 36-inches square and 6-inches thick. In sidewalk areas, the sidewalk shall be thickened and widened as necessary to conform with these requirements. The hydrant shall be set such that the top flange of the first buried spool below the breakaway spool is no less than 1-/1-2 inches and no more than 2-inches above the pad. Bolts shall be inserted from the top down with the nuts on the underside of the flange. In pouring concrete for the pad, the bolts shall be protected from any concrete and shall not be permitted to extend closer than 1/8-inch to the surface of the pad. All bolt ends shall be painted with a coat of bitumastic type material (Protecto Wrap 160/160H, Tapecoat Brush-Applied Coating, or approved substitute).

The breakaway bolts shall be installed with the nut down and the hole sealed with either a bitumastic compound or silicon caulk. Break off spools having only one groove eccentrically located shall be installed with the groove at the low end of the spool.

Upon completion of the installation of the fire hydrant, the Contractor shall assist the Engineer in performing a flow test of the hydrant. Such assistance shall include but not be limited to hoses, nozzles, and directing the flow to a safe discharge point. The Engineer shall take all measurements related to the measurement of flow.

Hydrostatic testing and disinfection shall be accomplished in accordance with the provisions of Section 3-B.02, "Transmission and Distribution Pipelines", (E) Pipeline Construction, Fabrication, and Installation (6) Hydrostatic testing and Section 3-B.02, "Transmission and Distribution Pipelines"(E) Pipeline Construction, Fabrication, and Installation (7) Flushing and Disinfecting of these Standard Specifications.

(G) Measurement and Payment

The contract unit price per each for fire hydrant shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in installing the fire hydrant including but not limited to, excavation, bedding, providing the hydrant, connection to the main pipeline, isolation valve, thrust restraint, hydrant pad, painting, breakaway bolts and spools, backfill, retaining wall, traffic barriers, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-B.10 Wharf Head Fire Hydrant

(A) General

Where provided for on the Project Plans, the Contractor shall install a wharf head fire hydrant for the purposes of obtaining water from the distribution system. Said wharf head hydrants shall not normally be considered acceptable for fire suppression purposes.

(B) Materials

The wharf head fire hydrant shall be a bronze plug valve style unit designed to operate at service pressures of 150-psi minimum. The valve shall be bronze body and equipped with a tapered valve seat, operating nut, brass hose cap and attendant chain. The body of the valve shall be equipped with a 4-inch diameter inlet threaded FIPT and a 22-inch diameter hose port threaded National Hose Thread.

(C) Representative Model

The wharf head fire hydrant shall be Model J-344HP as manufactured by the James Jones Company or approved substitute.

(D) Construction

The Contractor shall make connection to the water distribution main in the manner shown in Standard Plan No. 9 – "Standard 4-inch or Large Fire Service Installation" of the District's

Standard Plans. The service lateral and riser shall be 4-inch diameter distribution pipeline in accordance with Section 3-B.02, "Transmission and Distribution Pipelines" of these Standard Specifications.

The riser shall be 4-inch diameter ductile iron pipe to point 6-inches above final grade. The riser above grade shall be 4-inch GIP (FL x Thrd) in accordance with Section 3-03.05, "Iron Service Piping" of these Standard Specifications. The riser shall transition to 4-inch diameter GIP by the use of a flange coupling adaptor in accordance with Section 3-B.04, "Fittings" (F) Flange-Coupling Adapters and Make-Up Spools of these Standard Specifications and a threaded flange on the GIP. Final elevation above grade shall be a minimum of 30-inches and a maximum of 36-inches.

All exposed threads shall be cleaned of all deleterious material and machine oil and liberally coated with a zinc rich cold galvanizing compound (Rust-Oleum® Model V2185 or approved substitute).

(E) Measurement and Payment

The contract unit price per each for Wharf Head Fire Hydrant shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in installing the Wharf Head Fire Hydrant including but not limited to, excavation, bedding, providing the hydrant, connection to the main pipeline, isolation valve, thrust restraint, hydrant pad, painting, breakaway bolts and spools, backfill, retaining wall, traffic barriers, and pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-B.11 Pipe Assembly Enclosures

(A) Description

Where provided for on the Project Plans and for all above grade installations including but not limited to, cross-connection control devices, fire services, and flow control valves, the Contractor shall install a protective enclosure around the pipe assembly. Said pipe assembly enclosure shall be fabricated with a steel frame and expanded metal body and be lockable.

Each pipe assembly enclosure shall be designed to conform to the loading requirements of the American Society of Sanitary Engineers Standard No. 1060 for a 100-psf load.

(B) Materials

(1) Frame - The pipe assembly enclosure frame shall be fabricated of Sch. 40 steel pipe or Type 304 stainless steel tubing rolled to form the dimensions of the enclosure. The base shall be fabricated of A36 mild steel or Type 304 stainless steel structural angle shape stock. A locking lug shall be supplied either on one end or, in the case of two or more sections, at the center of the enclosure opposite the hinges. Two hinges shall be fabricated of the same material as the frame and located at the end of the enclosure opposite the locking lug.

(2) Enclosure - The enclosure shall be fabricated of diamond pattern flat rolled expanded metal of the dimensions of the enclosure. Expanded metal shall be mild steel or Type 304 stainless steel.

(3) Assembly - The enclosure shall be fabricated in the shop by machine welding of each component in accordance with the manufacturer's recommendations. Upon completion of fabrication, all mild steel pipe assembly enclosures shall be coated with a heat applied powder coat finish in Forest Green color unless other colors are called for in the Contract Documents.

(4) Insulation - Each enclosed installation shall be equipped with an insulating blanket of sufficient dimension to fully cover the piping assembly without interfering with the operation of the enclosure itself. Insulating blankets shall be of a Forest Green color and be provided with at least one pair of locking grommets. The blanket shall be fabricated of a polymeric resin coated fabric. Insulation shall be R-13 compressed fiberglass.

(C) Representative Models

Pipe assembly enclosures for piping assemblies shall be GuardShack® or Coast GuardShack® as manufactured by Backflow Prevention Device Enclosures (BPDI) of Phoenix, Arizona or approved substitute. Insulating blankets shall be Weatherguard® or FrostGuard® or approved substitute.

(D) Construction

The pipe assembly enclosure shall be constructed after all piping work is completed. The Contractor shall construct a Portland cement concrete slab around the piping installation to support the enclosure. The slab shall be a minimum of 4-inches in thickness and the outside dimensions shall be a minimum of 6-inches beyond the outside dimension of the enclosure. The slab shall be reinforced at mid-depth with #4 reinforcing steel (Grade 40) laid at 12-inches on center each way. The enclosure shall be attached to the slab with tamperproof stainless steel bolts in accordance with the manufacturer's recommendations. All pipe penetrations shall be sleeved with a PVC pipe sleeve (Sch. 40 or Class 125) one size larger than the pipe.

A padlock will be provided by the Owner.

(E) Measurement and Payment

Unit Basis - When pipe assembly enclosures are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing pipe assembly enclosures including but not limited to, excavation, bedding, Portland cement concrete slab, providing and attaching the enclosure, and insulating blanket, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for pipe assembly enclosures is not included in the Contract Documents, all costs for such pipe assembly enclosures as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such pipe assembly enclosures shall be included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

END OF DOCUMENT

3-C RECYCLED WATER SYSTEM

3-C.01 General Requirements

(A) Operating Pressure Requirements

Whenever practicable, all areas within the Recycled water distribution system shall be designed to provide a static head at least 20-feet (9 psi) less than adjacent potable water distribution system elements; providing however that the minimum static head shall be 70-feet (30 psi) and that the maximum static head be not more than 185-feet (80 psi).

(B) Recycled Water Distribution System Layout

All pipe lines within the Recycled water distribution system shall be constructed at the locations provided for on the approved Project Plans. Except as expressly permitted by the Engineer, all new pipelines shall be installed in the public right-of-way. In the absence of public right-of-way within the project limits, pipelines shall be installed in private rights-of-way. The actual location of the pipelines shall be approved by the Engineer prior to issuing the plans for construction. All pipelines and appurtenances shall have the proper easements to enable full access by the District for future maintenance operations.

The Recycled water transmission system is essentially a linear (non-looped) system with supply originating at the District's Recycled Water Treatment Plant located near Lundy Lane and Whispering Pines Drive. The two primary transmission mains extend from the treatment plant northeasterly in Scotts Valley Drive and Glenwood Drive, and northwesterly generally paralleling Mount Hermon Road. A terminal reservoir is located to the west of the Scotts Valley High School campus off of Glenwood Drive.

The District has three (3) locations within the District boundaries for construction water to be conveyed to construction water truck to collect water for construction purposes.

(C) Minimum Pipe Size

The minimum pipe size within the distribution system shall be 3-inch inside diameter.

(D) Valve Type and Spacing

All valves smaller than 10-inch diameter shall be resilient wedge type gate valves. All valves 10-inch and larger shall be butterfly type. Valves shall be spaced at intervals not exceeding 500-feet in all distribution systems. Where a continuous run of pipe does not exceed 600-feet, an intermediate valve may not be required. Valves on continuous runs of pipe shall be located at the projection of property lines and at intervals that divide the total length as evenly as possible.

Valves shall be located on each branch of a three-way and four-way intersection, at each blow-off assembly and where otherwise directed by the Engineer. Valves shall be installed on the fitting at the main pipeline in each instance. Valves shall also be located at each end of pipelines crossing private property through easements, casings, major stream or channel crossings, at the projected property lines of hospitals, schools, and major industrial users.

(E) Air and Vacuum Valves

Combination air and vacuum release valves shall be installed at each high point in the pipeline where air can be trapped during filling of the pipelines. All combination air and vacuum release valves shall be installed in accordance with District's Standard Detail No. 24 "Air Valve Installation".

(F) Blow-Off Valves

Blow-off valves shall be installed at each low point in the pipeline to facilitate flushing of the pipeline. Blow-off valves shall also be installed at the terminus of all temporary and permanent dead ends. All blow-off valves shall be installed in accordance with District's Standard Detail No. 23 "Blow Off Installation".

(G) Minimum Trench Dimensions

All Recycled water pipelines shall be designed for a minimum pipe coverage based on the values found in Table 4-01 Minimum Trench Dimensions of these Standard Specifications.

All pipelines shall be designed to be constructed at the minimum depth whenever possible. Any deviation from the minimum depth shall be done as gradually as possible with the minimum of fittings and approved by the Engineer in advance.

TABLE 4-01
Minimum Trench Dimensions

Pipe Diameter	Trench Width	Depth of Cover
3-inch 4-inch 6-inch	18-inches	36-inches
8-inch	20-inches	42-inches
14-inches and larger	Diameter 18-inches	48-inches or As Directed

(H) Connections

All service connections shall be made in accordance with these Standard Specifications and Standard Plans and the direction of the Engineer. Multiple connections will not be allowed. The District will furnish and install the meter.

California Administrative Code. All services for the purpose of supplying Recycled water shall be subject to this review.

The property owner shall be fully responsible for the installation of cross-connection control devices on any potable water connections serving the property as provided in Section 3-B.01, "General Requirements" (K) Cross-Connection Control of these Standard Specifications. Such owner shall maintain the assembly in accordance with the District's Backflow Preventions and Cross-Connection Policy, Rules and Regulations for Recycled Water Customers, the California Health and Safety Code, the California Water Code, Titles 22 and 17 of the California Code of Regulations, and other applicable ordinances, policies and procedures adopted by State and local jurisdictions.

3-C.02 Recycled Water Transmission and Distribution Pipelines

(A) Description

All pipelines constructed for the purpose of conveying Recycled water from a source, storage facility, pumping facility, or treatment facility to the point of use shall be defined as transmission and distribution pipelines. This definition shall also include but not be limited to, piping assemblies at such facilities and services 3-inch and larger to the meter. Unless specifically indicated otherwise on the Project Drawings or allowed by prior written permission of the District, all transmission and distribution pipelines shall be constructed using polyvinyl chloride (PVC) pipe.

Services smaller than 3-inch, fittings, valves, and appurtenances shall be installed and constructed in accordance with other sections of these Standard Specifications and the Contract Documents.

Except as specifically shown of the Project Plans or otherwise indicated in this Division 4, "Recycled Water System", all Recycled water facilities shall conform to the requirements of Division 3, "Potable Water System".

(B) Poly Vinyl Chloride (PVC) Pipe

(1) General - All polyvinyl chloride (PVC) pipe shall be cast-iron equivalent outside diameter with push-on bell type joints. Each joint shall be equipped with one elastomeric gasket. Each full length of pipe (20-feet) shall be provided with one bell type joint. Where provided for in the Contract Documents, PVC pipe shall be equipped Certa-Lok restrained joints as manufactured by CertainTeed Corporation. Each joint shall be equipped with one elastomeric gasket and the grooved restraint system of the C900/RJ Restrained Joint PVC System as manufactured by CertainTeed Corporation.

Pipe wall thickness by pressure class and dimension ratio shall be as found in Table 4-02 PVC Pipe Pressure Class of these Standard Specifications.

TABLE 4-02
PVC Pipe Pressure Class

Pressure Class	Dimension Ratio (DR)
100	Not Permitted
150	18
200	14

(2) Pipelines 12-inch Diameter and Smaller - Except as provided for in the Contract Documents, all transmission and distribution water mains 12-inches in diameter and smaller shall be constructed of polyvinyl chloride (PVC) pipe in accordance with the requirements of AWWA C900.

(3) 14-inch Diameter and Larger - Except as provided for in the Contract Documents, all transmission and distribution water mains 14-inches in diameter and larger shall be constructed of polyvinyl chloride (PVC) pipe in accordance with the requirements of AWWA C905.

(4) Pipe Color - All pipe materials shall be manufactured with an ultraviolet protecting pigment. Pipe materials for Recycled water systems shall be pigmented in purple including bell couplings.

(C) Ductile Iron Piping

The use of Ductile Iron pipe shall be limited to above ground assemblies and pump suction barrels as provided in Section 3-C.02 "Recycled Water Transmission and Distribution Pipelines" (C) Ductile Iron Piping of these Standard Specifications.

(D) Pipeline Construction, Fabrication, and Installation

The Contractor shall bear full responsibility for safety related to his trenching operations in accordance with Section 5-A "General Conditions" Public Safety and Convenience. All pipeline construction, fabrication, and installation shall conform to the requirements of Section 3-C.02, "Recycled Water Transmission and Distribution Pipelines" (D) Pipeline Construction, Fabrication, and Installation of these Standard Specifications.

(E) Locator Wire

A wire to be used for future subsurface location shall be installed concurrent with pipe laying operations as provided in Section 3-C.02, "Recycled Water Transmission and Distribution Pipelines" (E) Locator Wire of these Standard Specifications.

(F) Hydrostatic Testing

Upon completion of pipeline construction, the Contractor shall conduct hydrostatic testing in conformance with the provisions of Section 3-C.02, "Recycled Water Transmission and Distribution Pipelines" (F) Hydrostatic Testing of these Standard Specifications.

(G) Flushing

Flushing and disinfection of Recycled water distribution pipelines shall conform in all respects to the procedures and requirements set forth in Section 3-C.02, "Recycled Water Transmission and Distribution Pipelines" (G) Flushing of these Standard Specifications.

(H) Measurement

Quantities of Recycled water distribution pipeline will be measured to the nearest 1 linear foot increment or portion thereof along the centerline of the pipeline as constructed. Except as provided for in the Contract Documents, all fittings and thrust restraint systems installed as part of such pipeline shall be considered as incidental to the construction of such pipelines and no additional compensation will be allowed therefor.

Except as provided for in the Contract Documents, quantities of pipeline constructed as part of pipeline assemblies including but not limited to, that piping for wells, booster stations, and tanks shall be considered as incidental to the construction of such piping assemblies and no additional compensation will be allowed therefor.

(I) Payment

The contract unit price paid per linear foot for Polyvinyl Chloride (PVC) pipe or the contract lump sum price paid for piping assemblies shall include full compensation for furnishing all labor, tools, equipment, materials, and incidentals and for doing all work involved in construction of the pipeline complete in place, including but not limited to, excavation, bedding, backfill, pavement repair, handling and transportation, thrust restraint, fittings, corrosion protection, disinfection, flushing, and hydrostatic testing as specified in these Standard Specifications and as provided for in the Contract Documents and no additional compensation will be allowed therefor.

3-C.03 Service Pipe Materials

(A) Description

Service pipe materials shall be defined as all pipe and tubing necessary to convey Recycled water from a transmission or distribution pipeline to the point of use. Service pipe materials shall also include all pipe and tubing included as a portion of or integral to appurtenances, pumps, and tanks and all fittings necessary for the construction or installation of service pipe materials. All service pipe materials, fabrication, and installation shall be in accordance with Section 3-C.03, “Service Pipe Materials” of these Standard Specifications.

Except as provided elsewhere herein or in the Contract Documents, all pipeline and services larger than 3-inch in diameter shall be provided, constructed or installed as provided for in Section 3-C.02, "Recycled Water Transmission and Distribution Pipelines" of these Standard Specifications.

3-C.04 Fittings

(A) Description

All fittings for Recycled water distribution pipelines and piping assemblies shall be in accordance with Section 3-C.04, "Fittings" of these Standard Specifications.

(B) Joints

Joints on fittings used in subsurface installations of transmission and distribution pipelines shall be mechanical joint, restrained joint (Tyton® with Field-Lok®) as provided for in the Contract

Documents, conforming to the requirements of AWWA C111 and Section 3-C.04, "Fittings" (B) Joints of these Standard Specifications.

(C) Construction

Assembly and installation of fitting shall in accordance with the manufacturer's recommendations and Section 3-C.04, "Fittings" (C) Construction of these Standard Specifications.

3-C.05 Thrust Restraint

(A) Pipelines

All pipelines and piping assemblies shall be restrained against the hydrostatic and hydrodynamic forces inherent within pressure water supply and distribution systems. Thrust restraint shall be accomplished by the use of mechanically restrained joints, restraint harness, or cast-in-place Portland cement concrete thrust blocks.

(B) Mechanically Restrained Joints

All mechanical joint fittings and pipe shall conform to the requirements of Section 3-C.05, "Thrust Restraint" (B) Mechanically Restrained Joints of these Standard Specifications.

(C) Portland Cement Concrete Thrust Blocks

Where provided for in the Contract Documents, the Contractor shall construct Portland cement concrete thrust blocks to restrain hydraulic forces. Thrust blocks shall be in accordance with Standard Plan 19, "Thrust Block Installation" and Section 3-C.05, "Thrust Restraint" of these Standard Specifications.

(D) Measurement and Payment

Except as provided for in the Contract Documents, thrust restraint shall be considered as incidental to other items of work and all costs shall be included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

3-C.06 Bolting Procedures

(A) Description

All fittings, joints, assemblies, valves, and miscellaneous special fittings shall be installed in accordance with procedures and requirements of Section 3-B.06, "Bolting Procedures" of these Standard Specifications.

3-C.07 Casing and Duct Installations

(A) Description

Where provided for in the Contract Documents, the Contractor shall install the water main or service piping within a steel casing or other ducting. Such installations shall include but not be limited to, freeway crossings, railway crossings, stream crossings, installations adjacent to structures, and service piping related to other facilities such as pumping and treatment plants. The Recycled water pipeline or service piping shall be known as the carrier pipe for the purposes of this Section 3-B.02, "Recycled Water Transmission and Distribution Pipelines" of these Standard Specifications.

All casing and duct installations shall conform to the procedures, requirements, and specifications contained in Section 3-B.07, "Casing and Duct Installations" of these Standard Specifications.

(B) Measurement

Quantities of casing installation will be measured by the linear foot to the nearest 1-foot increment or portion thereof along the centerline of the pipeline casing as constructed. Except as provided for in the Contract Documents, all pipelines, fittings, and thrust restraint systems installed as part of such casing installation will be paid for under the contract unit or lump sum price for pipelines or other items of work and no additional compensation will be allowed therefor.

(C) Payment

The contract unit price per linear foot for "Install Casing" or "Install Duct" shall include full compensation for furnishing all labor, tools, equipment, materials, and incidentals and for doing all work involved in installing casings and ducts including but not limited to excavation, boring, jacking, casing, welding, ducting, installing carrier pipe, insulators, seals, bedding, and backfill complete in place as shown in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-C.08 Valves

(A) Description

Valves shall be as specified in 3-B.08, "Valves" of these Standard Specifications.

(B) Measurement and Payment

(Unit Basis - When valves are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials,

equipment, and tools and for doing all work in installing gate valves including but not limited to, excavation, bedding, supports, providing the valve, connection to the pipeline or fitting, valve box, backfill, an pavement repair, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for valves is not included in the Contract Documents, all costs for such gate valves as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such gate valves shall be included in the contract unit or lump sum prices for other items of work and no additional compensation allowed therefor.

3-C.09 Pipe Assembly Enclosures

(A) General

Where provided for on the Project Plans and for all above grade installations including but not limited to, cross-connection control devices and flow control valves, the Contractor shall install a protective enclosure around the pipe assembly. Said pipe assembly enclosure shall be in accordance with the requirements of 3-C.09, “Pipe Assembly Enclosures” of these Standard Specifications.

(B) Measurement and Payment

Unit Basis - When pipe assembly enclosures are provided for in the Contract Documents to be paid for as a unit, the contract unit price per each shall include full compensation for all labor, materials, equipment, and tools and for doing all work in installing pipe assembly enclosures including but not limited to, excavation, bedding, Portland cement concrete slab, providing and attaching the enclosure, and insulating blanket, complete in place as provided for in the Contract Documents, as provided for in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Incidental Basis - When a pay item for pipe assembly enclosures is not included in the Contract Documents, all costs for such pipe assembly enclosures as are provided for in the Contract Documents shall be considered as incidental to other items of work and all costs associated with such pipe assembly enclosures shall be included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

END OF DOCUMENT

3-D SITE WORK

3-D.01 Bedding, Backfill, and Aggregate Bases

(A) Description

Bedding shall be that material placed to a minimum depth of 4-inches below and 12-inches above all pipe, fittings, valves, and structures. Backfill shall be that material used to fill trenches and excavated areas above the depth of the bedding. Aggregate base shall be that material placed immediately below all paved surfaces and may be used as the final paving surface where provided for in the Contract Documents. All bedding, backfill and aggregate base shall be in accordance with these Standard Specifications, the Contract Documents, and the requirements of agencies having jurisdiction over the work.

(B) Sand Bedding

Except as provided for in the Contract Documents, bedding material shall be clean, washed, granular material derived from decomposed or crushed rock. Such material shall be free of organic material, mica, clay, silt, oils, and other deleterious material. Sand bedding shall have a maximum particle size of 1/4-inch with a gradation that allows 90 to 100 percent to pass a No. 4 sieve and 80 to 95 percent to pass a No. 8 sieve and not more than 5 percent to pass a No. 200 sieve.

3-D.02 Backfill

(A) General

Except as provided for in the Contract Documents, the minimum backfill required within the District shall be as follows:

Longitudinal trenches	Sand
Transverse trenches	1-sack Sand/Cement Slurry (including but not limited to main crossings and service lines)
Structure excavations	2-sack Sand/Cement Slurry (including but not limited to, valves, meters, and vaults)
<u>Unimproved areas not subject to vehicle travel</u>	
All excavations	Native Material (min. Sand Equivalent of 20)
<u>Unimproved areas subject to vehicle travel</u>	
All excavations	Sand

At the Contractor's option and subject to the prior approval of the Engineer, the Contractor may use backfill materials of a higher grade than that shown herein. Except as provided for in the Contract Documents, no additional compensation will be allowed for the use of materials of a higher grade than these minimum requirements.

3-D.03 Sand Backfill

(A) Sand Backfill

Sand backfill shall be a clean, washed, granular material conforming with the requirements of Section 3-D.03, “Sand Backfill” of these Standard Specifications.

(B) Crushed Aggregate Backfill

Crushed aggregate backfill shall be a crushed gravel or rock material free from organic material, mica, clay, silt, oils, and other deleterious material. For trench backfill, the maximum particle size shall be 3-inches and the gradation shall otherwise conform with the following:

Minimum Sand Equivalent 20

Sieve Sizes	Percentage Passing
3-inch	100
No. 4	35-100
No. 30	20-100

At the Contractor's option and subject to the approval of the Engineer, the Contractor may substitute aggregate base material otherwise conforming with Section 3-D.04, “Aggregate Bases" of these Standard Specifications.

(C) Permeable Backfill

Permeable backfill shall be a poorly graded gravel or crushed rock meeting the following minimum gradation:

Class 1, Type B

Sieve Sizes	Percentage Passing
2-inch	100
1-1/2 inch	95-100
3/4-inch	50-100
1/2-inch	---
3/8-inch	15-55
No. 4	0-25

No 8 0-5

No. 200 0-3

Durability Index ..... ≥40

Sand Equivalent ..... ≥75

The Contractor shall submit gradation curves and laboratory analysis for any permeable material required by these Standard Specifications and the Contract Documents as well as any permeable material proposed to be used that doesn't otherwise meet these requirements.

(D) Sand/Cement Slurry Backfill

Sand/cement slurry backfill shall consist of a fluid, workable mixture of aggregate, cement, and water. Aggregate for sand/cement slurry shall be a clean, washed fine aggregate conforming with the provisions of Section 3-D.03, "Sand Backfill" of these Standard Specifications. Alternatively, fine aggregate may be clean mortar sand conforming with the provisions of ASTM C404.Cement shall be Type IP or Type II Modified in accordance with Section 3-B.05, "Portland Cement" of these Standard Specifications. Water shall be clean, potable water free of organic contaminants, oils, salts, or other deleterious materials.

(E) Controlled Density Fill (CDF)

Where provided for in the Contract Documents, trench backfill shall consist of Controlled Density Fill. CDF shall be an aggregate and water slurry with additives of Portland cement and pozzolan in accordance with the following mix design:

Design Strength ..... 50-150 psi

Portland cement (Type II (ASTM C150)) ..... 40 lbs/CY

Pozzolan (International Class F (ASTM C 618) ..... 202 lbs/CY

Total material (3.00 sacks/CY) ..... 282 lbs/CY

Water/cement ratio ..... N/A

Coarse Aggregate ..... None

Fine Aggregate ..... San Benito Sand

Entrained Air ..... 4.0-percent, dosage = 2ox/cwt. (Daravair)

(Dosage may vary to attain desired air)

Chemical Admixture.....None

Proportions (Per Cubic Yard)

Ingredient	Volume (ft)	Weight (lbs)
Cement	0.41	80
Pozzolan	1.40	202
Water	7.34	4581
Air	1.08	0.0874
Fine Aggregate	16.77	2,731
Totals	27.00	3,471

3-D.04 Aggregate Bases

Aggregate base and subbase material shall be crushed rock or gravel free from organic material, oils, and other deleterious substances.

Aggregate base material for use under paved surfaces shall be Class 2 conforming with the following gradation:

Minimum Sand Equivalent.....25

Minimum Resistance (R-value).....78

Minimum Durability Index.....35

Z Percentage Passing

Sieve Sizes	1 ½” Max	¾” Max
2-inch	100	
1 2-inch	90-100	
1-inch		100
3/4-inch	50-85	90-100
No. 4	25-45	35-60
No. 3-0	10-25	10-30
No. 200	2-9	2-9

3-D.05 Installation and Construction

(A) General

All bedding, backfill, and aggregate base material shall be delivered to the work areas in such a manner as to protect them from the introduction of organic material, oils and salts, native soils, cement, and concrete and other deleterious materials. The Contractor shall bear full responsibility for the transportation of materials including but not limited to, weight limits, vehicle dimensions, vehicle condition, and load covers.

Upon arrival at the work area, materials shall be incorporated into the work as soon as practicable. Materials not immediately incorporated into the work shall be stored in a suitable area where the material shall be protected from the introduction of any deleterious materials. The storage area shall be protected from traffic at all times except as required for the delivery of materials or work related to their incorporation into the work.

The Contractor shall provide such measures as may be required by the field conditions to prevent such conditions as, but not limited to, excessive dust, ponding of water, rerouted runoff that causes erosion, unsafe conditions, and any other condition that poses a hazard to the public or the quality and sufficiency of the material.

(B) Moisture Conditioning

The Contractor shall bring the bedding, backfill, and aggregate base material to the optimum moisture content as determined from laboratory analysis of the samples provided for in Section 6-D, "Submittals" of these Standard Specifications.

Adjustments to the moisture content shall be a means selected by the Contractor that will ensure full and even distribution of moisture throughout the material. Such means shall include but not be limited to, windrowing, irrigating, misting, spreading, and sprinkling. Except as provided for in the Contract Documents, jetting and ponding will not be permitted. Jetting is hereby defined as the injection of large volumes of water directly into the material with a nozzle under pressure. Ponding is hereby defined as flooding the work area with water to facilitate moisture content and compaction.

(C) Bedding

Bedding shall be placed in the trench in such a manner as to prevent the introduction of deleterious materials. The trench shall be cleared of all loose native soils, debris, trash, and water and the sand bedding spread in a smooth layer to the required depth. The bedding shall

then be compacted to 90-percent relative density by the use of vibratory plate compaction equipment. The Contractor may use alternative equipment to achieve compaction subject to the prior approval of the Engineer. Such approval shall require the Contractor to demonstrate to the Engineer's satisfaction that the proposed method will achieve the required compaction without jeopardizing the integrity of the rest of the improvements being constructed.

After installing the pipe or structure, the Contractor shall place bedding material on both sides of the pipe to the spring line. The bedding shall be thoroughly worked under the haunches of the pipe and hand tamped or compacted with a piston type compaction tool to achieve a 90-percent relative density. Care shall be taken to prevent displacing the pipe by placing more material on one side than the other. Care shall be taken to prevent dropping heavy loads of material directly on the pipe.

Before proceeding with the next lift of bedding, the material along the pipe shall be thoroughly tamped to achieve 90-per cent relative compaction, taking care to prevent damage or displacement of the pipe. The material shall be compacted using a piston type compaction tool and hand tamping. Extra water may be used, above that necessary for optimum moisture content, to facilitate full bearing contact and compaction. Jetting and ponding will not be permitted.

Upon completion of placing and compacting bedding to the top of the pipe, sand bedding at the optimum moisture content shall be placed in one lift to a depth of 12-inches and spread uniformly throughout the trench. The bedding shall then be compacted by vibratory plate compaction equipment to a relative density of 90-percent. The Contractor may use alternative equipment to achieve compaction subject to the prior approval of the Engineer. Such approval shall require the Contractor to demonstrate to the Engineer's satisfaction that the proposed method will achieve the required compaction without jeopardizing the integrity of the rest of the improvements being constructed.

(D) Sand and Crushed Aggregate Backfill

After sand bedding has been brought to a depth of 12-inches over the pipe or the structure placed or constructed on the bedding, sand or crushed aggregate shall be placed in lifts not to exceed 8-inches in depth at the optimum moisture content and compacted by vibratory plate compaction equipment to a relative density of 95-percent. The Contractor may use alternative equipment to achieve compaction subject to the prior approval of the Engineer. Such approval shall require the Contractor to demonstrate to the Engineer's satisfaction that the proposed method will achieve the required compaction without jeopardizing the integrity of the rest of the improvements being constructed. Each lift shall be adequately compacted prior to placing

the next lift of backfill. Backfill shall be brought to a minimum depth of 6-inches below the final paving surface.

(E) Native Backfill

Native backfill shall be constructed in the same manner as provided for in Section 3-D.03 "Sand Backfill", (B) Crushed Aggregate Backfill of these Standard Specifications. Except as provided for in the Contract Documents, native backfill shall be compacted to 95-percent relative density and continued to a depth of 6-inches above the surrounding ground surface. Provision shall be made to prevent adverse runoff conditions from developing as a result of the final surface plane of the trench. The Contractor shall install such erosion control measures as water bars and berms as are necessary to prevent erosion of the backfill surface.

The surface shall then be seeded with a mix conforming with Santa Cruz County Erosion Control Mix or restore any landscaping to an equal or better condition than found prior to commencing work.

(F) Sand/Cement Slurry Backfill and CDF

Where called for in the Contract Documents or when approved by the Engineer, sand/cement slurry backfill may be placed to the full depth of the trench without first constructing a sand bedding. In such cases, the pipe or structure shall be supported on blocks as provided for elsewhere in these Standard Specifications or the Contract Documents.

The trench shall be cleared of all debris, loose soils, trash, and other deleterious material immediately prior to placing the sand/cement slurry backfill.

The Contractor shall place an anchor of sand/cement slurry over the pipe at intervals not to exceed 10-feet to prevent floating the pipe. Sand/cement slurry shall then be placed in such a manner as to ensure full contact with the pipe or structure and complete filling of all void spaces under the pipe or structure. The sand/cement slurry shall be shoveled and rodded or vibrated until there is evidence that the void is filled. After placing either sand bedding or sand/cement slurry bedding, as provided for in the Contract Documents or approved by the Engineer, the Contractor shall place the sand/cement slurry backfill in the trench or excavation.

The trench or excavation shall be filled to the surface less the thickness of the final paving surface in one continuous operation. The sand/cement slurry shall be shoveled and rodded to ensure full contact with the walls of the trench or excavation. At the Contractor's option and subject to the approval of the Engineer, the sand/cement slurry may be brought to the surface and then excavated later to permit placement of the final paving surface.

Upon completion of backfilling operations, the Contractor shall place steel plates over the trench or excavation for a minimum period of 24-hours or that time provided for in the Contract Documents. The plates shall be fabricated of steel conforming with ASTM A36 and a minimum of 1-inch thick and capable of supporting an H20 traffic load. The plates shall extend a minimum of 2-feet on each side of the trench or excavation. The plates shall be so placed as to prevent rocking or displacement due to traffic and the edges shall be sealed with cold-mix asphalt paving material. The cold mix shall be so placed as to provide a smooth transition on to and off of the plates.

The Contractor shall protect the sand/cement slurry surface from damage due to traffic, construction operations, and weather until such time as the final paving may be constructed. Paving operations shall not commence prior to 7-days following placement of sand/cement slurry or CDF to permit shrinkage to achieve equilibrium in the final trench backfill.

(G) Aggregate Base

Upon completion of backfilling operation, the Contractor shall construct an aggregate base to a minimum depth of 8-inches below the underside of the final paving surface or that depth called for in the Contract Documents. In no case shall the depth of aggregate base be less than that of the existing pavement section. The Contractor shall protect the aggregate base surface from damage due to traffic, construction operations, and weather until such time as the final paving may be constructed.

3-D.06 Paving

(A) Description

The Contractor shall pave or repave all road surface within public rights-of-way, private rights-of-ways, driveways, drainage courses, and other surfaces as provided for in the Contract Documents. Except as provided for in the Contract Documents, all paving materials shall be constructed of asphalt concrete or an asphaltic emulsion, with or without aggregate.

3-D.07 Asphalt Concrete Pavement

(A) General

Asphalt concrete pavement shall be in accordance with the provisions of Section 3-D.07, “Asphalt Concrete Pavement" of these Standard Specifications. Except as provided for in the Contract Documents, a Certificate of Compliance in accordance with Section 6-B Information and Procedures Instructions "Certificates of Compliance" of these Standard Specifications shall be submitted in lieu of the testing and reporting requirements of the CALTRANS Standard Specifications.

(B) Aggregate

Except as provided for in the Contract Documents, all asphalt concrete used in the construction of asphalt concrete pavements shall be Type "B" meeting the gradation requirements for 2-inch maximum, medium of Section 3-D.04, "Aggregate Bases" of these Standard Specifications.

(C) Asphalt Binder

Asphalt binder for asphalt concrete shall be a steam refined asphalt, Grade AR4000, conforming with the requirements of Section 92, "Asphalts" of the CALTRANS Standard Specifications. The percentage of asphalt binder in asphalt concrete pavement shall be between 5-1/2 percent and 6 percent by weight.

3-D.08 Cold-Mix Asphalt Concrete

(A) General

Cold-mix asphalt concrete used in temporary paving applications shall be a plant mixed product conforming with the requirements of this Section 3-D.08, "Cold-Mix Asphalt Concrete" of these Standard Specifications. Cold-mix may be supplied directly from the batch plant or stockpiled on the job-site.

(B) Aggregate

Aggregate shall meet the following gradation requirements:

Sieve Size	Percentage Passing
1/2-inch	100
3/8-inch	95-100
No. 4	58-72
No. 8	34-48
No. 3-01	8-32
No 50	13-23
No. 200	2-9

(C) Asphalt Binder

Asphalt binder for cold-mix shall be Type SC-800 in accordance with the requirements of Section 93, "Liquid Asphalts" of the State Specifications. The percentage of asphalt binder shall be between 4.8 and 7.5 percent.

3-D.09 Paint Binder and Prime Coat

(A) General

Paint binder (tack coat) shall be applied to the vertical surface of all structures to which new asphalt concrete will abut. Additionally, where the Contract Documents provide for the placement of new asphalt concrete over existing pavement surfaces, a tack coat shall be applied to the surface of the old pavement. Where called for in the Contract Documents, the surface of aggregate base shall receive a prime coat of liquid asphalt immediately prior to commencing paving operations.

(B) Paint Binder (Tack Coat)

Paint binder shall be Type RS-1 asphaltic emulsion conforming with the provisions of Section 3-D.07, "Asphaltic Concrete Pavement" of these Standard Specifications.

3-D.10 Miscellaneous Areas

(A) General

Miscellaneous areas shall be those areas or structures called for in the Contract Documents to be surfaced or constructed of asphalt concrete. Such areas shall include but not be limited to, drainage ditches, equipment pads, walkways, and asphalt dike.

(B) Materials

The gradation of aggregate for surfacing of miscellaneous areas shall be in accordance with Section 3-D.07, "Asphalt Concrete Pavement" of these Standard Specifications. The percentage of asphalt binder shall be increased by 1-percent by weight over that percentage for asphalt concrete placed in roadways.

(C) Asphalt Dikes

Asphalt dikes shall be constructed to the line and grade provided for in the Contract Documents. Asphalt dikes whose continuous length exceeds 5-LF shall be constructed by the use of an extrusion machine.

3-D.11 Construction

(A) General

Upon completion of all pipe construction, including but not limited to trench backfill and aggregate base, the contractor shall construct the final asphalt concrete surface. Such asphalt

concrete surface shall be of the same depth, or greater, as the existing surface material. In no case shall the new asphalt concrete be less than 2-inches in depth.

(B) Structures

All structures located within the limits of paving including but not limited to, valve boxes, manholes, monument boxes, and other adjustable structures shall be brought to the grade of the final paving plane prior to placing the final lift of asphalt concrete. Where the distance between the edge of the new pavement and the existing edge of pavement, existing curb or gutter lip, or asphalt dike is less than 2-LF, the existing pavement shall be removed and replaced to the edge of pavement, existing curb or gutter lip or asphalt dike.

Failure to bring all structures to the final plane of the pavement surface prior to placing the final lift of asphalt concrete may be cause for rejection of the paving and the Contractor shall then be directed to bring the structures to the proper plane and place an additional 1-inch lift of asphalt concrete, after proper preparation, all at no expense to the District.

(C) Preparation

All temporary paving material, loose aggregate base, and other deleterious material shall be removed from the trench line. as directed by the Engineer, a final pass shall be made with compaction equipment to ensure full compaction of the underlying surface. The surface of the aggregate base or sand cement slurry backfill and all abutting surfaces shall be prepared by spraying with a paint binder at a rate of 0.25 gallons per square yard. The Contractor shall prevent over spray onto adjacent pavement surfaces and other surfaces not scheduled to be paved. Paint binder shall not be tracked out of the trench line by vehicles or equipment.

(D) Placement

Hot asphalt concrete shall be placed in the area to be paved and compacted by the use of rollers or vibratory plate type compaction equipment. The use of vibratory plate compaction equipment shall be limited to projects whose area totals less than 100-SF and those areas on other projects where insufficient space is available for the operation of vibratory rollers. All spreading and compacting operations shall be in accordance with the provisions of Section 3-D.07, "Asphalt Concrete Pavement" of these Standard Specifications except that tolerances will be measured by the use of a straight edge of sufficient length to span the full width of the trench plus 2-feet on each side of the trench line.

If the total depth of asphalt paving exceeds 2-1/2 inches, the asphalt shall be laid in a minimum of 2 lifts with the maximum lift equaling 2-1/2 inches. the minimum thickness of any lift of asphalt shall be equal to twice the maximum size aggregate in the asphalt concrete mix. Each

lift shall be fully compacted and finished prior to placing the next lift except that the grade tolerances shall apply for the final lift only.

All new asphalt concrete surfaces shall be abutted to adjoining surfaces along a neat saw cut line. In no case shall new asphalt be feathered over existing surface material, placed against damaged surfaces, or over or against any material not adequately prepared as defined herein. The final surface of the asphalt concrete shall be no more than 1/8-inches above the adjacent existing surface nor shall the final surface be below the level of the adjacent surface. In areas of paving other than trench repairs, the plane of the surface shall not vary more than 1/8-inches above or below the average plane of the surface when measured with an 8-foot straight edge.

Skin patching shall not be considered an acceptable method of achieving the tolerances herein. Skin patching is hereby defined as a mix of asphaltic concrete whose maximum aggregate size is less than or equal to the No. 4 sieve used to fill depressions in the pavement plane.

The final lift of asphalt concrete shall be placed in one continuous operation as the final order of work for the project. Where trenches do not form an unbroken line throughout the project, asphalt concrete shall be placed in one continuous operation for each continuous trench.

All paving not conforming with the provisions of these Standard specifications, the Contract Documents, or any public agency having jurisdiction over the work shall be immediately removed and replaced in accordance with the provisions of these Standard Specifications, the Contract Documents, and the directions of such agencies having jurisdiction over the work.

3-D.12 Measurement

(A) Trench Repairs

Except as provided for in the Contract Documents, the costs associated with all asphalt concrete and other asphaltic products as part of trench repair or reconstruction shall be considered as included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

(B) Miscellaneous Areas

Except as provided for in the Contract Documents, the costs of all asphalt concrete and other asphaltic products used in the construction of miscellaneous areas shall be considered as included in the contract unit or lump sum prices for the construction of such miscellaneous areas and no additional compensation will be allowed therefor.

(C) Measurement by Area

Where provided for in the Contract Documents, asphalt concrete will be paid for by the square foot. The total area shall be calculated to the minimum neat line dimension of the improvements as provided for in the Contract Documents or as approved by the Engineer. Measurements of square footage of asphalt concrete surfaces shall be measured to the nearest 1 square foot.

(D) Measurement by Weight

Where provided for in the Contract Documents, asphalt concrete will be paid for by the ton. The tonnage to be paid for shall be calculated to the minimum neat line dimensions of the surface being paved, to the depth provided for in the Contract Documents or agreed to by the Engineer and Contractor. The tonnage of asphalt concrete per inch of compacted thickness shall be as provided for in Table 5-01 Asphalt Spread Rate1 of these Standard Specifications.

(E) Payment

Where provided to be paid as a separate pay item, the contract unit price per ton or per square foot for asphalt concrete shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in constructing asphalt concrete pavement including but not limited to, saw cutting and removing existing pavement, preparation of the underlying surface, tack coat, prime coat, hauling, traffic control, spreading, and compacting complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-D.13 Fog Seal

(A) Description

Where provided for in the Contract Documents, the Contractor shall apply a fog seal that covers the repaved trench section and the adjacent street pavement. The Engineer shall determine the limits of the fog seal application. Such fog seal shall be constructed in accordance with the provisions of 37-1, "Seal Coats" of the CALTRANS Standard Specifications. The exact proportion of water to asphaltic emulsion shall be determined by the Contractor up to a maximum of one part water to one part asphaltic emulsion.

(B) Measurement

TABLE 5-01
Asphalt Concrete Spread Rate[1]

Depth (inches)	Square Yards per Ton	Tons per Square Yard
1	17.64	0.057
12	11.76	0.085
2	8.82	0.113
22	7.35	0.142
3	5.88	0.170
4	4.41	0.227
5	3.53	0.284
6	2.94	0.340

[1] Assumes a unit weight of150 lb/ft3 for asphalt concrete

(C) Trench Repairs

Except as provided for in the Contract Documents, the costs associated with fog seal application as part of trench repair or reconstruction shall be considered as included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

(D) Miscellaneous Areas

Except as provided for in the Contract Documents, the costs of fog seal application used in the construction of miscellaneous areas shall be considered as included in the contract unit or lump sum prices for the construction of such miscellaneous areas and no additional compensation will be allowed therefor.

(E) Measurement by Area

Where provided for in the Contract Documents, fog seal application will be paid for by the square yard. The total area shall be calculated to the minimum neat line dimension of the improvements as provided for in the Contract Documents or as approved by the Engineer. Measurements of square yardage of fog seal shall be measured to the nearest 0.1 square yard.

(F) Payment

Where provided to be paid as a separate pay item, the contract unit price per square yard for fog seal shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in applying fog seal including but not limited to, preparation of the underlying surface, hauling, traffic control and applying fog seal complete in place as provided

for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-D.14 Seal Coat

(A) Description

Where provided for in the Contract Documents, the Contractor shall construct a seal coat of asphaltic emulsion and screenings that covers the repaved trench section and the adjacent street pavement. The Engineer shall determine the limits of the seal coat application. Such seal coat shall be constructed in accordance with the provisions of Section 37-1, "Seal Coats" of the CALTRANS Standard Specifications for a coarse seal coat. A Certificate of Compliance shall be submitted for all materials used in constructing the coarse seal coat.

(B) Measurement

(1) Trench Repairs - Except as provided for in the Contract Documents, the costs associated with constructing a coarse seal coat as part of trench repair or reconstruction shall be considered as included in the contract unit or lump sum prices for other items of work and no additional compensation will be allowed therefor.

(2) Miscellaneous Areas - Except as provided for in the Contract Documents, the costs associated with constructing a coarse seal coat used in the construction of miscellaneous areas shall be considered as included in the contract unit or lump sum prices for the construction of such miscellaneous areas and no additional compensation will be allowed therefor.

(3) Measurement by Area - Where provided for in the Contract Documents; the construction of a coarse seal coat will be paid for by the square yard. The total area shall be calculated to the minimum neat line dimension of the improvements as provided for in the Contract Documents or as approved by the Engineer. Measurements of square yardage of double seal coat shall be measured to the nearest 0.1 square yard.

(4) Payment - Where provided to be paid as a separate pay item, the contract unit price per square yard for coarse seal coat shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in constructing a coarse seal coat including but not limited to, preparation of the underlying surface, hauling, sweeping, and traffic control necessary to construct the coarse seal coat complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

3-D.15 Concrete Structures

(A) Description

Minor concrete structures shall include but not be limited to, all precast concrete structures, cast-in-place concrete for thrust blocks, valve and hydrant pads, walks, curbs, and driveways, and pipe supporting structures.

Major concrete structures shall include but not be limited to retaining walls, sound/screen walls, floor slabs, pump buildings, pump pedestals, and other structures intended to support significant structural loads, vibrations, or where the failure of such structures could result in a significant risk to life, property, or equipment. Such structures shall be designed by a registered Civil or Structural Engineer licensed by the State of California.

The Contractor shall submit copies of mix designs, structural details, structural calculations and testing, Certificates of Compliance and other data and documents in accordance with the provisions of Section 6-D, "Submittals" of these Standard Specifications and the Contract Documents.

(B) Materials

(1) Portland Cement - Except as provided for elsewhere in the Contract Documents, Portland cement used in concrete structures shall be Type IP (MS) Modified or Type II Modified cement conforming with the requirements of ASTM C595, ASTM C150, and Section 90-2, "Materials" of the CALTRANS Standard Specifications.

(2) Aggregate - Except as provided for in the Contract Documents, aggregate shall conform with the provisions of Section 90-2, "Materials" of the CALTRANS Standard Specifications.

(3) Reinforcement - Except as provided for in the Contract Documents, all reinforcement shall conform with the requirements of Section 52, "Reinforcement" of the CALTRANS Standard Specifications.

(C) Classes of Concrete

All Portland cement concrete shall be one of the following classes, as provided for elsewhere in these Special Provisions and the Contract Documents:

Class "A": 564 pounds of cement per cubic yard (minimum)

Class "B": 470 pounds of cement per cub yard (minimum)

Generally, all major concrete structures shall be constructed of Class "A" concrete. All minor structures exposed to traffic loads including but not limited to, drainage inlets, manholes and bases, curb and gutter, and driveway approaches shall be constructed of Class "A" concrete.

Minor structures not exposed to traffic loads may be constructed of Class "B" concrete. Such minor structures shall include but are not limited to, pipe and valve supports, sidewalks, hydrant pads, sanitary seals, post bases, thrust blocks, and channel linings.

3-D.16 Minor Concrete Structures

(A) Precast Concrete Structures - Precast concrete structures shall include but not be limited to, valve boxes, meter boxes, vaults, drainage inlets, and manholes. Precast structures shall be manufactured by experienced manufacturers having a minimum of 5-years' experience in the manufacture of precast concrete structures of the type called for in the Contract Documents Precast structures shall be as follows:

Meter Boxes .....Old Castle Concrete Products Model B-9

Valve Boxes .....Old Castle Concrete Products Model G5

Valve Vaults.....Old Castle Concrete Products "R" Series

Manholes .....Hanson Concrete Products

Drainage Inlets .....Old Castle Products V64 or U-Series

Lids and covers shall be as follows:

Meter Boxes	Non-Traffic: Old Castle Products Model B9D Traffic: Old Castle Products Model B9C
Valve Boxes	Old Castle Products Model G5C
Manhole Frame and Cover	Phoenix Iron Works Model P-1090
Drainage Inlets	Phoenix Iron Works Model P-63-01 or P-63-02 Old Castle Products RHD Series

All valve vaults larger than 2-feet square shall be equipped with torsion-assisted lids. All lids within the traveled way shall be designed for an AASHTO H20 traffic load. Each such lid shall be equipped with a bolt down system or other approved security system to prevent unauthorized entry.

The citing of specific models herein is solely for the purpose of demonstrating the type, style, function, method of operation, and level of performance desired for precast concrete products by the District. The Contractor shall provide the appropriate model of structure provided for in

the Contract Documents with regard to size, depth, traffic loads, opening size, lids and covers, and wall penetrations and other special provisions dictated by the service condition. All drainage inlets shall be supplied with welded and riveted reticuline type grates (Phoenix Iron Works Model P-63-01 or P-63-02, Christy V1-71C Cast Iron, or approved substitute.) All grates shall be designed for an AASHTO H20 traffic load except those in non-traffic areas. The dimensions of the grate shall be as provided for in the Contract Documents.

Insofar as practicable, all precast concrete structures shall be provided with precast openings for the installation of pipe through the wall. Where provided for in the Contract Documents, such wall openings shall be sized to permit sealing the annular space with a mechanical seal (Calpico Pipe Lynx, Thunderline Link-Seal, or approved substitute).

Where provided for in the Contract Documents, drainage inlets and manholes shall be provided with panels cast in the walls for removal to insert the drainage pipe.

3-D.17 Construction and Installation

(A) Description

The Contractor and the supplier shall provide all equipment, tools, materials, and labor, including but not limited to, trucks, transporters, drivers, operators, cranes, slings, hooks, and other facilities and tools as are necessary to transport plastic concrete or precast structures to the site of work and install it as called for in the Contract Documents. Such equipment, tools, materials, and labor shall be sufficient to move the structure to the point of installation and to install such structure safely and efficiently.

(B) Bedding and Backfill

Except for meter boxes or valve boxes, all precast structures shall be bedded on a minimum of 6-inches of clean sand or aggregate base rock compacted to 95-percent relative compaction. The excavation, including that for valve boxes, shall then be backfilled with a sand-cement slurry mix in accordance with Section 3-D.01, "Bedding, Backfill, and Aggregate Bases" of these Standard Specifications. In non-traffic areas such as under slabs, sand bedding may be substituted for the sand/cement slurry backfill with the prior approval of the Engineer.

(C) Cast-In-Place Bases

Where precast concrete structures are to be installed over cast-in-place bases, the excavation shall be made and a minimum of 6-inches of clean sand or aggregate base compacted to 95-percent shall be installed prior to pouring concrete. The base shall be cast to the dimensions and of the class of concrete called for in the Contract Documents. The base shall have a keyway cast to conform with the dimensions of the precast structure. The precast structure shall not

be installed prior to the base achieving a curing level that will support the structure without deformation or damage. Indentation of the base surface will not be considered deformation. If the base visibly deforms or is otherwise damaged when loaded with the structure, the structure shall be removed and the base repaired or removed, at the Engineer's direction. Prior to placing the structure on the base, the Contractor shall install a self-sealing joint compound such as Ram-Nek to the interface. Each succeeding riser of the structure shall also be placed on such a sealing compound.

(D) Grouting

Where provided for in the Contract Documents, the Contractor shall grout the annular space between the pipe wall and the structure opening. Grout may also be required to provide a smooth finished surface. Such grout shall consist of equal amounts of Portland cement and mason's sand. White glue suitable for use as a concrete adhesive may be substituted for all or part of the water used in mixing the grout. Grout shall be of a stiff enough consistency to conform to the shape of the space or surface being grouted while still being workable. The surface being grouted shall be thoroughly cleaned of all deleterious material and wetted to the point where no water is readily absorbed but with no standing water on the surface. A thin layer of white glue may be applied to the surface immediately prior to commencing the grouting.

Grout shall be laid on smoothly with a steel trowel in thin lifts. Where the weight of the grout pulls the grout away from the structure wall, the grout shall be removed and a thinner lift applied. The final lift of grout shall conform to or provide a smooth transition to the surfaces being grouted. Grout shall extend to the full depth of annular spaces. Grout shall be kept moist for a minimum of 24-hours to facilitate proper curing. Quick curing cements may be used upon prior approval by the Engineer.

(E) Cast-In-Place Concrete Structures

Cast-in-place concrete structures shall include but not be limited to drainage inlets, valve vaults, curb or curb and gutter, sidewalk, channel linings, and other minor structures as provided for in the Contract Documents.

(F) Surface Finishes

All concrete structures shall receive the following surface finishes:

1. Buried surfaces .....Ordinary surface finish
2. Exposed vertical surfaces.....Class 1 surface finish

3. Sidewalks.....Fine broom finish
4. Face of curbs .....Fine broom finish
5. Gutter lines .....Steel trowel finish
6. Channel linings.....Steel trowel or fine broom finish
7. Manhole and inlet shelves.....Medium broom finish
8. Floor Slabs.....Fine broom finish

Finishes required above are hereby defined as follows:

Ordinary surface finish: That finish resulting from direct contact with form materials without any additional treatment.

Class 1 surface finish: That finish resulting from direct contact with form materials that has additionally been treated to remove blemishes including but not limited to, form marks, pockets, depressions, honeycombs bulges and other unsightly surface defects. Such additional treatment shall include but not be limited to, grinding, sacking, troweling, packing, and grout patching. The method of treatment shall be at the Contractor's discretion. The Engineer shall be the sole judge of the final condition of the finish.

Fine broom finish: That finish resulting from lightly brooming the concrete surface with a fine horsehair broom perpendicular to the long axis of the surface. The surface shall first be floated and troweled to a smooth surface and edges and joints finished. When the concrete has taken its initial set and no additional paste worked to the surface, the surface shall be broomed. Care shall be taken to prevent filling any joints or breaking the radius of finished edges. All such defects shall be promptly retooled. All broom marks shall be continuous across the entire width of the surface. Deficiencies in the brooming shall be corrected by brooming the entire width of that area in one pass.

Medium broom finish: This finish shall be constructed in the same manner as that for a fine broom finish except that a stiffer broom shall be used. In no case shall the Contractor accomplish this finish by working an

excess of paste to the surface to increase the relief of the finish surface.

Steel trowel finish: This finish shall be constructed in the same manner as that for the broom finishes except that the final surface shall be accomplished by use of a steel trowel of sufficient length to create a smooth surface across the full width of the concrete being finished. In no case shall the Contractor accomplish this finish by working an excess of paste to the surface to increase the polish of the finish surface.

3-D.18 Preparation and Forms

In preparing the area of work to receive cast-in-place concrete structures, the Contractor shall excavate the area to sound native material, removing all deleterious material found. The excavation shall be of sufficient depth to accommodate the structure plus the bedding or leveling course.

All existing concrete and asphalt surfaces to which the proposed concrete structure shall be joined or abutted shall be saw cut to a minimum of one-half the depth of the existing material. The existing surface shall be cleaned and wetted prior to placing new concrete. Where called for in the Contract Documents, dowels shall be inserted into existing concrete and grouted in place.

Where the Contract Documents provide for new concrete to bond to existing concrete, the existing concrete shall be prepared in accordance with the provisions for grouting in 3-D.17 "Construction and Installation", (D) Grouting of these Standard Specifications. A thin coat of white glue or other approved bonding adhesive shall be applied to the existing surface immediately prior to placing new concrete.

Forms shall be constructed of either sound structural grades of lumber and plywood or steel, as required by the structure to be constructed. The forms shall be securely staked and braced to maintain the lines and grades called for in the Contract Documents when filled with plastic concrete. When major structures are provided for in the Contract Documents, all forms and false work shall be in accordance with such provisions. All forms shall be coated with a form releasing agent before placing concrete. Care shall be taken to prevent release agent from coating any materials embedded in the concrete except as called for in the Contract Documents.

All reinforcing steel shall be securely tied in the configuration called for in the Contract Documents and placed to grade in the forms using epoxy coated chairs or other supports. If

appropriate, the steel may be suspended from the top of the forms for such structures as light pole bases.

All anchor bolts, conduit, pipe, and ductwork shall be secured within the forms in the final configuration such that the placement of concrete does not disturb the position of such devices.

All forms and embedment including but not limited to, reinforcing steel, bedding and leveling courses, pipe, anchor bolts, and ductwork shall be inspected and approved by the Engineer prior to placing concrete. Failure to obtain this approval prior to placing concrete may be cause for rejection of the structure by the Engineer and all costs associated with such rejection, including but not limited to, removal and replacement or remedial work shall be borne by the Contractor and no additional compensation will be allowed therefor.

Immediately prior to placing concrete, all surfaces within the forms shall be thoroughly wetted. The bedding or base course shall be saturated up to the point that standing water appears.

3-D.19 Jointing and Tooling

The Contractor shall construct expansion joints between adjacent concrete structures as called for in the Contract Documents or as required by agencies having jurisdiction over the work.

Expansion joints shall be constructed using 2-inch preformed, impregnated fiber filler material conforming with the provisions of ASTM D1751. The filler shall extend the full depth of the concrete and in one continuous piece across the full width of the structure.

Contraction joints shall be constructed by driving a steel trowel or similar tool to at least half the depth of the concrete in curbs and sidewalks.

On larger cast-in-place slabs, the contraction joints shall be constructed in accordance with the provisions of Section 40-1.08B, Weakened Plane Joints of the CALTRANS Standard Specifications. Alternatively, weakened plane joints may be created by the Soff-Cut method wherein the contraction joint is sawn within 4-hours of finishing the concrete.

All joints shall be finished by use of a grooving tool or radius trowel with a 2-inch radius.

(A) Placement

All concrete shall be placed in a continuous operation to the limits that can be properly finished in the normal workday. As required by the structure being constructed, the Contractor shall use such methods and devices as are necessary to prevent segregation of aggregates within the mix. Such methods and devices shall include but not be limited to, pumping, chutes, and buggies.

Concrete shall be placed from the lowest point in the forms to the highest and struck off flush to the top of the forms preparatory to finishing. As required by the structure being constructed, concrete shall be tamped, rodded, or vibrated within the forms to ensure full face contact with the forms and all embedments with no pockets of aggregate being formed. Care shall be taken to prevent any displacement of the forms and embedments while agitating the plastic concrete. Concrete vibrators shall not be permitted to contact reinforcing steel or other embedments.

Where work will recommence at a later date, the interface shall be defined by a form as provided for herein. Dowels shall be installed where provided for in the Contract Documents. No concrete shall be placed until sufficient trained personnel are available to place and finish the concrete properly. Failure to provide sufficient personnel to accomplish the work shall be cause to delay the placement and the Contractor shall bear all costs associated with such delay.

Concrete shall be delivered with a sufficient water/cement ratio to permit a slump of 2-inches to 4-inches at the design strength specified in the Contract Documents. The addition of water to cool the mix or otherwise influence the curing rate shall be cause for rejection of all such altered concrete.

Concrete shall be freshly mixed and placed prior to the commencement of the curing reaction. Concrete that has experienced in excess of 250 revolutions in a transit mix truck, has not been discharged within 1-2 hours of batching out, or that has attained a temperature in excess of 90 degrees Fahrenheit shall be rejected. The load ticket accompanying the load shall show the date and time of batching out, initial revolution counter reading, and the project name. Any concrete placed exceeding these conditions shall be removed and disposed of in accordance with Section 3-708, Disposal of Material Outside the Highway Right-of-Way of the CALTRANS Standard Specifications. The Contractor shall bear all costs associated with the rejection of such defective concrete including but not limited to, standby time, disposal of defective concrete not yet incorporated in the work, removal of such defective concrete from the site of work, and replacement of such defective concrete.

The Contractor shall cure the concrete by use of a curing compound conforming with the provisions of ASTM C309. The selection of the compound shall be the Contractors. Alternatively, the Contractor may choose to use a wet curing method wherein the surface of the concrete is kept continuously wet for a minimum period of 72-hours. This may be accomplished by the use of sand blankets, burlap sacking, carpeting, and polyethylene sheeting at the Contractor's discretion and subject to the Engineer's prior approval.

The Contractor shall protect the finish of the concrete from all damage during curing including but not limited to vandalism, shrinkage cracks due to improper curing, footprints and wheel

tracks, and marks from the wet curing method, if used. All vehicular traffic shall be kept off the fresh concrete for a minimum period of 7-days and vehicles in excess of 3-tons GVW for a period of 28-days. The Contractor shall not commence structural work that will load the concrete for a minimum period of 7-days or until the concrete has attained 2/3 of the 28-day compressive strength, whichever is earliest.

(B) Precast Sound/Screening Wall

Precast sound/screen walls shall consist of cast-in-drilled hole piers, structural steel columns, reinforced concrete pilasters, and precast, reinforced concrete panels. Precast sound/screening walls shall be as manufactured by Sierra Precast, Inc. or approved substitute. Concrete for precast sound/screening walls shall be Class "A" in accordance with 3-B.05 "Thrust Restraint", (C) Portland Cement Concrete Thrust Blocks of these Standard Specifications. The exterior finish shall be ship lap or as provided for in the Contract Documents. The interior shall be fine broom finished or approved substitute.

3-D.20 Placement

(A) Description

Cast -in-place floor slabs shall be constructed to the dimensions and of the materials provided for in the Contract Documents. All subsurface construction shall be completed and the work approved by the Engineer prior to commencing the concrete pour. Approval of the Engineer shall only be for the completeness of the work and its general conformance with the intent of the Contract Documents. The Contractor shall retain full responsibility for the condition and performance of such substructures until the completion of the project in accordance with the provisions of the Contract Documents. All concrete shall be Class "A" in accordance with 3-B.05 "Thrust Restraint", (C) Portland Cement Concrete Thrust Blocks of these Standard Specifications.

(B) Construction

Where a precast sound/screening wall is provided for in the Contract Documents, the precast sound/screening wall shall be erected prior to casting the floor slab. The wall shall be set to provide a 4-inch overlap between the top of the slab and the bottom of the wall.

The excavation shall be carried to a depth to permit the placement of a minimum of 4-inches of 3/4-inch to 1 ½ inch drain rock against the native subgrade which has been excavated to sound competent material. Over the drain rock, a 10-mil polyethylene sheet shall be placed to act as a vapor barrier. The sheeting shall extend to at least the bottom of the sound/screening wall where provided for in the Contract Documents.

A 2-inch leveling course of sand shall then be placed over the sheeting.

Where a precast sound/screening wall is provided for in the Contract Documents, immediately prior to placing the plastic concrete, the Contractor shall place a water seal of Volclay tape against the interface of the precast wall and the floor slab. The floor slab shall be cast to the lines and grades provided for in the Contract Documents. The surface shall be graded to drain as provided for in the Contract Documents. The finish shall be a fine broom finish.

3-D.21 Chain Link Fencing

(A) Description

Where provided for in the Contract Documents, the Contractor shall construct a chain-link fence at the locations and of the dimensions provided for. Such fencing shall be in accordance with these specifications, and in general conformance with Section 80, Fences of the CALTRANS Standard Specifications.

(B) Materials

(1) Posts and Rails - All posts and rails shall be fabricated from Schedule 40 galvanized iron pipe conforming with the provisions of Section 3-B03, "Service Pipe Materials" of these Standard Specifications. Each gate post and each line post not having a barbed wire support shall be equipped with a standard fence post cap.

(2) Fabric - Chain link fence fabric shall be steel wire helically wound and interwoven in such a manner as to result in a continuous mesh with no knots or ties except in forming the selvage of the fabric. The base material of the wire shall be galvanized No. 9 AWG. Where provided for in the Contract Documents, the fabric shall be furnished with redwood slats interwoven in the fabric in a vertical direction.

(3) Gate Hinges and Latches - Each gate shall be equipped with a minimum of 2 heavy-duty pintle type hinges. One leaf of the gate shall be equipped with a gate fork type of latch manufactured of heavy-duty galvanized malleable iron and equipped with a padlock hole. The inactive leaf shall be equipped with a heavy-duty cane-type assembly that seats in a galvanized steel pipe set minimum 12-inches in the underlying material. This pipe shall be surrounded by a collar of Class B Portland cement concrete at least 6-inches thick and 12 -inches in diameter.

(4) Barbed Wire - Barbed wire atop fences shall be a minimum of No. 14 AWG galvanized. Barbed wire supports shall be so designed as to be securely fastened to the post top and support the wire in position and angle provided for in the standard plan and the Contract Documents. The supports shall be capable of withstanding a 250-pound load applied at the end without deflection.

(C) Construction

(1) General - All chain link fencing shall be constructed within 6-inches and on the District side of all property lines except as provided for in the Contract Documents. Except as provided for in the Contract Documents, fences shall provide a minimum of 18-inches clearance to all structures.

(2) Fence Posts - Fence posts shall be set in neatly drilled holes and backfilled with Class B Portland cement concrete. Holes shall be a minimum of 6-inches greater diameter than the post. Fence posts set in retaining walls shall be constructed by the use of a 4-inch diameter PVC pipe sleeve in the wall. The annular space between the post and the pipe wall shall be filled with a Cementous grout. Concrete and grout shall be struck off such that there is a minimum of 1/4-inch fall across the finish surface. No construction of fence elements shall commence until the concrete or grout has been allowed to cure a minimum of 3-days.

(3) Truss Rods and Brace Rails - At each corner post, a 3/8-inch diameter truss rod with tightener shall be installed between the corner post and the first line post in each direction. A 1¼ inch OD, brace rail shall be installed across each intersection panel. Crossed truss rods shall be installed across the two panels on either side of the gates and across the gate panels. A 1¼ inch O.D. brace rail shall be installed across each adjacent panel. The bottom rail shall be located 2-inches above the final grade of the site at the line of the fence.

(4) Gates - Gates shall be constructed of the same materials used in the overall fence. Corners and brace rails shall be assembled using manufactured fittings or by shop welding. Any welding shall be galvanized after fabrication by either the hot-dip process or the hot-stick application of metallic zinc. Manway gates shall not be required to have truss rods. The latch shall be secured to the gate frame by either tack welding or pinning such that it cannot be dislodged from the original position.

(5) Fabric - Fabric shall be secured to the top and bottom rails and any brace rails at 24-inch intervals using No. 9 AWG galvanized tie wire. Fabric shall also be secured to all posts with No. 9 AWG tie wire at 24-inch intervals. At each corner or gate, the fabric shall be secured to the posts using a 1/4-inch by 3/4-inch galvanized steel tension bar. The tension bar shall be secured to the post by the use of 1-inch by 11 gauge galvanized steel strap at 12-inches on center vertically. All fabric shall be installed on the outside of all posts and rails with respect to the District property.

Fabric shall be stretched taut using any tensioning device or method that will accomplish the tensioning without distorting the fabric. The Contractor shall be responsible for the method selected.

(6) Measurement and Payment - The contract unit price per linear foot for 6-foot Chain Link Fence shall include full compensation for all labor, materials, equipment, and tools and for doing all work required in constructing a chain link fence including but not limited to, clearing and leveling of the underlying surface, installing fence posts, fabric, gates, and hardware necessary to construct the chain link fence complete in place as provided for in the Contract Documents, as provided for in these Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefor.

END OF DOCUMENT

SECTION 4 AWARD DOCUMENTS

TABLE OF CONTENTS

4-A NOTICE OF INTENT TO AWARD 1
4-B AGREEMENT 3
4-C OFF ROAD DIESEL -- CERTIFICATE OF REPORTED COMPLIANCE.....10
4-D PERFORMANCE BOND 14
4-E PAYMENT BOND 16
4-F MAINTENANCE BOND 18
4-G CONTRACTOR'S INSURANCE CERTIFICATES AND ENDORSEMENTS..... 20
4-H WARRANTY AND GUARANTY 21
4-I CONTRACTOR'S W-9 FORM 23
4-J NOTICE TO PROCEED 24

4-A NOTICE OF INTENT TO AWARD

DATED:	Date
TO:	Contractor
ADDRESS:	Street, City, State, Zip
CONTRACT WITH:	Scotts Valley Water District
PROJECT NAME:	Project

The Contract Sum of your contract is sum in words Dollars ($xxxx).

You must comply with the following conditions precedent by 5.00 p.m. of the 10th Day following the date of this Notice of Award.

Deliver to Owner one (1) fully executed counterpart of the Contract (4-B) executed by you.

Deliver to Owner one (1) original Certificate of Reported Compliance with the California Air Resources Control Board outlined in Off Road Diesel- Certificate of Reported Compliance (4-C)

Deliver to Owner one (1) original of the Performance Bond (4-D), executed by you and your surety.

Deliver to Owner one (1) original of the Labor and Material Payment Bond (4-E), executed by you and your surety.

Deliver to Owner one (1) original of the Maintenance Bond (4-F), executed by you and your surety.

Deliver to Owner one (1) original set of the insurance certificates with endorsements required under the Supplementary Conditions - Insurance.

Deliver to Owner one (1) original of the Guaranty, executed by you.

Failure to comply with these conditions within the time specified will entitle Owner to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid security forfeited.

After you comply with the conditions in this Notice of Award, Owner will return to you one fully signed counterpart of the Agreement.

Before you may start any work at the site, you must attend a preconstruction conference. The

preconstruction conference may be arranged through Scotts Valley Water District staff. Questions regarding bonds and insurance may be directed to the General Manager of Scotts Valley Water District. All other inquiries regarding the Project should be directed to Name of SVWD Employee with Scotts Valley Water District.
Upon commencement of the Work, you and each of your Subcontractors shall certify and provide Owner copies of payroll records on forms provided by the Division of Labor Standards Enforcement, in accordance with California Labor Code §1776.

OWNER
Scotts Valley Water District

By: _____
General Manager

END OF DOCUMENT

4-B AGREEMENT

This agreement, dated this [date] day of [Month], [201__], by and between [Name of Contractor] whose place of business is located at [Address of Contractor] ("Contractor"), and the Scotts Valley Water District ("Owner"), acting under and by virtue of the authority vested in Owner by the laws of the State of California.

WHEREAS, Owner, on the [date] day of [Month, Year**]** awarded to Contractor the following Contract:

[PROJECT NAME]

at

[PROJECT STREET ADDRESS]

Scotts Valley, CA 95066

Now, therefore, in consideration of the mutual covenants hereinafter set forth, Contractor and Owner agree as follows:

SCOPE OF WORK OF THE CONTRACT

Work of the Contract
Contractor shall complete all Work specified in the Contract Documents, in accordance with the Specifications, Drawings, and all other terms and conditions of the Contract Documents (Work).

Price for Completion of the Work
Owner shall pay Contractor the following Contract Sum (Contract Sum) for completion of Work in accordance with Contract Documents as set forth in Contractor's Bid, attached hereto.

The Contract Sum includes all allowances (if any). [ATTACHMENT]

COMMENCEMENT AND COMPLETION OF WORK

Contractor shall commence Work on the date established in the Notice to Proceed (Commencement Date).

Owner reserves the right to modify or alter the Commencement Date.

COMPLETION OF WORK

Contractor shall achieve Substantial Completion of the entire Work within [___] Days from the Commencement Date.

Contractor shall achieve Final Completion of the entire Work [___] Days from the Commencement Date.

PROJECT REPRESENTATIVES

Owner's Project Manager

Owner has designated [_____or other] as its Project Manager to act as Owner's Representative in all matters relating to the Contract Documents.

Project Manager shall have final authority over all matters pertaining to the Contract Documents and shall have sole authority to modify the Contract Documents on behalf of Owner, to accept work, and to make decisions or actions binding on Owner, and shall have sole signature authority on behalf of Owner.

Owner may assign all or part of the Project Manager's rights, responsibilities, and duties to a Construction Manager, or other Owner Representative.

Contractor's Project Manager

Contractor has designated [_____ or other] as its Project Manager to act as Contractor's Representative in all matters relating to the Contract Documents.

Architect/Engineer

[Identify Architect/Engineer] furnished the Plans and Specifications and shall have the rights assigned to Architect/Engineer in the Contract Documents.

Architect/Engineer has designated [_____] as its project manager, to act as its representative for receiving and making communications authorized under the Contract Documents.

LIQUIDATED DAMAGES FOR DELAY IN COMPLETION OF WORK

As liquidated damages for delay Contractor shall pay Owner _____ dollars _____ ($_____.00) _____ for each Day that expires after the time specified herein for Contractor to achieve Substantial Completion of the entire Work, until achieved.

Liquidated Damage Amounts

As liquidated damages for delay Contractor shall pay Owner _____ dollars ($_____.00) _____ for each Day that expires after the time specified herein for Contractor to achieve Substantial Completion of the entire Work, until achieved.

Measures of liquidated damages shall apply cumulatively.

Limitations and stipulations regarding liquidated damages are set forth in Document 2-F.

Contract Documents

Contract Documents consist of the following documents, including all changes, Addenda, and Modifications thereto:

SECTION 1 BID DOCUMENTS
1-A Notice Inviting Bids
1-B Instruction to Bidders
1-C Bid Form
1-D Bid Bond
1-E Subcontractors List
1-F Non-Collusion Affidavit
1-G Statement of Qualifications
1-H Bidder Certifications
1-I Iran Contracting Art Certification

SECTION 2 PROJECT SPECIFIC PLANS AND SPECIFICATIONS
2-A Description of Work
2-B Reports and Information on Existing Conditions
2-C CEQA Conditions and Mitigation Measures
2-D Project Specific Specifications
2-E Addenda
2.F Special Conditions and Liquidated Damages

SECTION 3 DISTRICT STAND SPECIFICATIONS
3-A General Technical Requirements
3-B Potable Water System
3-C Recycled Water System
3-D Site Work

SECTION 4 AWARD DOCUMENTS
4-A Notice of Intent to Award
4-B Agreement
4-C Certificate of Reported Compliance for Off Road Diesel Vehicles

4-D Performance Bond
4-E Payment Bond
4-F Maintenance Bond
4-G Contractor's Insurance Certificates and Endorsements (additional insured and waiver of subrogation)
4-H Warranty and Guaranty
4-I Contractor's W-9 Form
4-J Notice to Proceed

SECTION 5 GENERAL CONDITIONS
5-A General Conditions
5-B Prevailing Wages & Labor Compliance
5-C Insurance and Indemnification

SECTION 6 CONTRACT ADMINISTRATION
6-A Pre-Award Substitution
6-B Information and Procedures Instructions
6-C Modification Procedures
6-D Submittals
6-E Measurement and Payment
6-F Project Meetings
6-G Progress Meeting
6-H Testing and Inspection
6-I Contract Close-Out
6-J Dispute Resolution Procedures

SECTION 7 PROJECT FORMS
7-A Pre-Bid Request for Substitution
7-B Proposal Request
7-C Submittal Transmittal
7-D Change Order Request
7-E Field Order
7-F Change order
7-G Escrow Agreement for Security Deposits In lieu of Retention

There are no Contract Documents other than those listed above. The Contract Documents may only be amended, modified or supplemented as provided in the Contract Documents.

MISCELLANEOUS

It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of Owner or acting as an employee, agent, or representative of Owner, liable on this

Agreement or any of the Contract Documents, or upon any warranty of authority, or otherwise, and it is further understood and agreed that liability of Owner is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.

Pursuant to Labor Code Section 1771.1(a), Contractor represents that it and all of its Subcontractors are currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Contractor covenants that any additional or substitute Subcontractors will be similarly registered and qualified.

In entering into a public works contract or a subcontract to supply goods, services or materials pursuant to a public works contract, Contractor or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under

Section 4 of the Clayton Act (15 U.S.C. §15) or under the Cartwright Act (Chapter 2 (commencing with 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time Owner tenders final payment to Contractor, without further acknowledgment by the parties.

Notice of prevailing wage requirements. Notice is hereby given that pursuant to labor code 1771, prevailing wages are required to be paid for any work which is a “public work” as defined in labor code section 1720(a). The work of this contract is a public work.

Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents and on file at Owner’s Office, and shall be made available to any interested party on request. Pursuant to California Labor Code 1860 and 1861, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees. Contractor represents that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor shall comply with such provisions before commencing the performance of the Work of the Contract Documents.

This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Santa Cruz, State of California, and governed in all respects by California law (excluding choice of law rules). The exclusive venue for all disputes or litigation hereunder shall be in the Superior Court for the County of Santa Cruz, State of California.

IN WITNESS WHEREOF the parties have executed this Agreement in quadruplicate the day and year first above written.

CONTRACTOR: [CONTRACTOR'S NAME]

By: _____ (Signature)

_____ (Print Name)

_____ (Title)

By: _____ (Signature)

_____ (Print Name)

_____ (Title)

OWNER: [NAME OF OWNER]

By: _____ (Signature)

_____ (Print Name)

_____ (Title)

END OF DOCUMENT

4-C OFF ROAD DIESEL -- CERTIFICATE OF REPORTED COMPLIANCE

13 CCR § 2449. NOTICE OF

REQUIREMENTS FOR IN-USE OFF-ROAD DIESEL-FUELED FLEETS

Regulations Re: In Use Off-Road Diesel Fueled Fleets

Introduction

Amendments to the California Code of Regulations, Title 13, Chapter 9, Article 4.8 Section 2449, were approved by the California Air Resources Board (CARB) in 2022 (2022 amendments) to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation or regulation) incorporate new contracting requirements. CARB added the contracting requirements to establish a proactive check at the onset of a project or at contract renewal to encourage fleets to comply with the regulation. Contracting requirements also safeguard against the unfair monetary advantage of noncompliance and thus help level the playing field for all fleets.

Throughout the duration of the contract, Contractor and its subcontractors shall comply with all applicable CARB regulations, including but not limited to Off-Road Regulations.

Contracting Requirements [*Section 2449(i)*]

The following contracting obligations start January 1, 2024, for both prime contractors and public works awarding bodies.

(1) For a project involving the use of vehicles subject to this regulation, the prime contractor must obtain copies of the valid Certificates of Reported Compliance, as described in Off Road Regulation section 2449(n), for the fleet *selected for the contract and their listed subcontractors*, if applicable.

All Certificates of Reported Compliance must be submitted with the contractor's insurance and bonds, and no later than award ("CRC Deadline").

(2) The County will not enter into a contract with a fleet for which it does not have a valid Certificate of Reported Compliance for the fleet and its listed subcontractors,

(3) The Certificates of Reported Compliance received by the prime contractor or the District, as applicable, for a project must be retained for three years after that project's completion. Upon request by CARB, these records must be provided to CARB within five business days of the request.

Additional Prime Contractor Obligations [*Section 2449(i)]*

Beginning January 1, 2024, prime contractors are also subject to the requirements described in section 2449(j)(1) -- (2) below, in addition to the contracting requirements in section 2449(i).

(1) Between March 1 and June 1 of each year, a prime contractor must collect new valid Certificates of Reported Compliance for the current compliance year, as defined in section 2449(n), from all fleets that have an ongoing contract with the prime contractor as of March 1 of that year. Prime contractors must not write contracts to evade this requirement.

(2) Prime contractors shall only allow fleets with valid Certificates of Reported Compliance on the prime contractor's job sites.

(3) If the prime contractor discovers that any fleet intending to operate vehicles subject to this regulation for the prime contractor does not have a valid Certificate of Reported Compliance, as defined in section 2449(n), or if the prime contractor observes any noncompliant vehicles subject to the regulation on the prime contractor's job site, then the prime contractor must report the following information to CARB at https://calepacomplaints.secure.force.com/complaints/Complaint,or email dieselcomplaints@arb.ca.gov , for each fleet without a valid Certificate of Reported Compliance or each noncompliant vehicle, as applicable, within five business days of such discovery:

(A) The date on which the prime contractor discovered the fleet's lack of a valid Certificate of Reported Compliance or observed the noncompliant vehicle;

(B) The fleet's Responsible Party name;

(C) The fleet's business address;

(D) The fleet's business email, if known;

(E) The fleet's business phone number, if known;

(F) The DOORS fleet ID number of the fleet, if known;

(G) The location of the job site on which the fleet or the noncompliant vehicle is operating or had operated, if applicable; and

(H) A statement specifying whether the fleet or vehicle is continuing to operate at the job site, if applicable.

(4) Upon request by CARB, the prime contractor must immediately disclose to CARB the name and contact information of each responsible party for all vehicles subject to this regulation operating at the job site or for the prime contractor.

(5) The prime contractor shall prominently display signage for any project where vehicles subject to this regulation will operate for 8 calendar days or more. The signage must be posted by the eighth calendar day from which the first vehicle operates. The signage will be in lettering larger than size 14-point type and displayed in a conspicuous place where notices to employees are customarily posted at the job site or where there is employee foot traffic. If one of the above locations is also viewable by the public, it should be posted at that location. An exemption to this posting requirement is permitted if the operational time of a project is 7 calendar days or less. The signage must include the language required by regulation. See signage form below.

CALIFORNIA
AIR RESOURCES BOARD

In-Use Off-Road Diesel-Fueled Fleets Regulation

Who does the In-Use Off-Road Regulation Apply to?

The In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) applies to all self-propelled off-road diesel vehicles 25 horsepower or greater and most two-engine vehicles (except on-road two-engine sweepers) owned or operated in California. This includes vehicles that are rented or leased (rental or leased fleets).

In-Use Off-Road Regulation Requirements

Idling Limit

Vehicles cannot idle longer than five minutes.
There are exceptions for vehicles that need to idle to perform work.

Labeling

Vehicles must be labeled with a CARB assigned equipment identification number (EIN). The EIN shall be white on a red background, unless the vehicle is part of a captive attainment area fleet, in which case the EIN shall be white on a green background. The EIN shall be located in clear view on both sides of the outside of the vehicle.

How to Report Observed Noncompliance

If you have information regarding possible violations of the In-use Off-road Diesel Regulation, fill out a complaint form at *calepacomplaints.secure.force.com/complaints/Complaint*, or email *dieselcomplaints@arb.ca.gov* the following information:

1. The name of the party that is responsible for the vehicle that was observed to be noncompliant;
2. The Business's name;
3. The job site location (including address, city, and Zip, or coordinates);
4. The following information for the vehicle you observed to be noncompliant:
   a. EIN, if observed;
   b. A description of the vehicle type if the EIN is unknown; and
   c. Photos of the vehicle, where possible; and
5. A description of the noncompliance you observed.

For more information on the Off-Road Regulation, including Fact Sheets, Frequently Asked Questions (FAQs), and DOORS User Guides, please visit the Off-Road Zone at *arb.ca.gov/offroadzone*.

4-D PERFORMANCE BOND

Whereas, the Scotts Valley Water District ("District") and (“Contractor”) have entered into a Construction Contract dated Date whereby Contractor has agreed to construct certain improvements for the project known as Project Name ; and

WHEREAS, Contractor desires to construct, install and complete the Work as described in the Contract; and

WHEREAS, Contractor is required under the terms of the Contract to furnish and maintain a bond for the faithful performance of the Work described in the Contract.

NOW THEREFORE, we, Contractor and a California admitted surety (“Surety”), are held and firmly bound unto the District, and for the benefit of any and all persons who may suffer damages by breach of the conditions hereof, in the penal sum of WRITE OUT DOLLAR AMOUNT dollars, $ (100% of the Contract Amount) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors and administrators, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the terms, covenants, conditions, and provisions of the Contract, which is incorporated herein and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, as to installation and completion of said public improvements and in all respects according to their true intent and meaning, and shall indemnify and save harmless District, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by District in successfully enforcing such obligations, all to be taxed as costs and included in any judgment rendered.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or

addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, the Contractor and Surety have duly executed this instrument on the date and year set forth below.

CONTRACTOR	SURETY
Signed: _____	Signed: _____
Name: _____	Name: _____
Title: _____	Title: _____

Note: Surety signature must be notarized

END OF DOCUMENT

4-E PAYMENT BOND

WHEREAS, the Scotts Valley Water District ("District") and (“Contractor”) have entered into a Construction Contract dated, (“Contract”) whereby Contractor has agreed to construct certain improvements for the project known as (Project Name) ; and

WHEREAS, Contractor desires to construct, install and complete the Work as described in the Contract; and

WHEREAS, under the terms of said Contract, Contractor is required, before entering upon the performance of the work, to file a good and sufficient payment bond with the District to secure the claims to which reference is made in Civil Code Section 9550 et seq.

NOW THEREFORE, we, Contractor and a California admitted surety (“Surety”), are held and firmly bound unto the District, and all contractors, subcontractors, laborers, material, men and other persons employed in the performance of the aforesaid Contract and referred to in the aforesaid Civil Code in the sum of WRITE OUT DOLLAR AMOUNT dollars, $ (100% of the Contract Sum), lawful money of the United States, for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, that said Surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by the District in successfully enforcing such obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Civil Code Section 9550 et seq, so as to give a right of action to them or their assigns in any suit brought upon this bond. Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise, it shall be and remain in full force and effect.

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

IN WITNESS WHEREOF, the Contractor and Surety have duly executed this instrument on the date and year set forth below.

CONTRACTOR	SURETY
Signed: _____	Signed: _____
Name: _____	Name: _____
Title: _____	Title: _____

Note: Surety signature must be notarized

END OF DOCUMENT

4-F MAINTENANCE BOND

WHEREAS, the Scotts Valley Water District ("District") and (“Contractor”) have entered into a Construction Contract dated, (“Contract”) whereby Contractor has agreed to construct certain improvements for the project known as (Project Name) ; and

WHEREAS, the Contractor is required under the terms of the Contract to furnish a Maintenance Bond for the correction of any defects due to defective materials or workmanship in the work performed under the Contract.

NOW THEREFORE, we, Contractor and a California admitted surety (“Surety”), are held and firmly bound unto the District, and for the benefit of any and all persons who may suffer damages by breach of the conditions hereof, in the penal sum of WRITE OUT DOLLAR AMOUNT dollars, $ lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors and administrators, jointly and severally, firmly by these presents.

The conditions of this obligation are such that if, during the maintenance period of two (2) years from the date of acceptance by the District of the work required to be performed under the Contract, the Contractor, upon receiving written notice of a need for repairs which are directly attributable to defective materials or workmanship, shall diligently take the necessary steps to correct said defects within ten (10) days from the date of said notice, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

If any action shall be brought by the District upon this bond, a reasonable attorneys' fee, to be fixed by the Court, shall be and become a part of the District’s judgment in any such action.

IN WITNESS WHEREOF, the Contractor and Surety have duly executed this instrument on the date and year set forth below.

CONTRACTOR	SURETY
Signed: _____	Signed: _____
Name: _____	Name: _____
Title: _____	Title: _____

Note: Surety signature must be notarized

END OF DOCUMENT

4-G CONTRACTOR'S INSURANCE CERTIFICATES AND ENDORSEMENTS

[Contractor to Provide]

Insurance Certificates and Endorsements shall comply with the requirements in

Section 5 Insurance and Indemnification

END OF DOCUMENT

4-H WARRANTY AND GUARANTY

TO: The Scotts Valley Water District ("Owner"), in connection with the construction of the: _____

project located at: _____ California ("Project"), the undersigned Contractor guarantees all construction performed on this Project and also guarantees all labor, materials, equipment incorporated therein.

Contractor hereby grants to Owner for a period of two (2) years following the date of Final Acceptance of the Work completed, or such longer period specified in the Contract Documents, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all labor, materials and equipment provided by Contractor and its Subcontractors of all tiers in connection with the Work.

Neither final payment nor use nor occupancy of the Work performed by the Contractor shall constitute an acceptance of Work not done in accordance with this Guaranty or relieve Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Contractor shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within two (2) years, or longer if specified, from the date of Final Acceptance of the Work completed.

If within two (2) years after the date of Final Acceptance of the Work completed, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by Owner and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses, and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, Owner shall have all rights and remedies granted by law.

Inspection of the Work shall not relieve Contractor of any of its obligations under the Contract Documents. Even though equipment, materials, or Work required to be provided under the

Contract Documents have been inspected, accepted, and estimated for payment, Contractor shall, at its own expense, replace or repair any such equipment, material, or Work found to be Defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guaranty period.

The foregoing Guaranty is in addition to any other warranties of Contractor contained in the Contract Documents, and not in lieu of, any and all other liability imposed on Contractor under the Contract Documents and at law with respect to Contractor's duties, obligations, and performance under the Contract Documents. In the event of any conflict or inconsistency between the terms of this Guaranty and any warranty or obligation of the Contractor under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Contractor.

Dated: _____

Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Street Address: _____

END OF DOCUMENT

4-I CONTRACTOR'S W-9 FORM

[Contractor's W-9 form is attached]

END OF DOCUMENT

4-J NOTICE TO PROCEED

Date: _____, 201___
To: _____ (Contractor)
Address: _____

CONTRACT FOR: SCOTTS VALLEY WATER DISTRICT

You are notified that the Contract Time under the above Contract will commence to run on _____, 201____ On that date, you are to start performing your obligations with respect to Work at the project site described in the Contract Documents. In accordance with the Agreement, the dates of Substantial Completion and Final Completion for the entire Work are _____, 201____ and _____, 201___, respectfully.

Before you may start any Work at the Site, you must:

1. Submit certified Safety Program and related Submit copies of applicable permits
2. Submit encroachment permit
3. Business Permit with the City of Scotts Valley
4. [Other]

OWNER

By: _____

Its: _____

END OF DOCUMENT

SECTION 5 GENERAL CONDITIONS

TABLE OF CONTENTS

5-A GENERAL CONDITIONS 1
5-B PREVAILING WAGES AND LABOR COMPLIANCE 27
5-C INSURANCE AND INDEMNIFICATION 33

5-A GENERAL CONDITIONS

1. NOTICE TO PROCEED

The Contractor shall not commence Work on the Project until the Owner issues a Notice to Proceed with the Work. The Contractor shall complete the Work within the time set forth in the Construction Contract, time being of the essence, subject to the delay provisions set forth in this Contract.

2. CONTRACT ADMINISTRATION

The Owner Representative will provide administration of the Contract as hereinafter described. Hereinafter, the term Owner Representative is the General Manager of the Owner and any and all representatives working under the direction of the Owner Representative.

The Owner Representative has the authority to act on behalf of the Owner on change orders, field orders, progress payments, Contract decisions, the acceptability of the Contractor's work, or early possession.

The Owner Representative has the authority to accept or reject requests for progress payments which have been submitted by the Contractor and recommended by the Owner Representative.

The Owner Representative has the authority to make the final determination of the acceptability of the Work. The Owner's Representative also has the authority to accept or reject recommendations regarding correction of defective work.

The Owner Representative will observe the progress, quality, and quantity of the Work to determine, in general, if the Work is proceeding in accordance with the provisions of the Contract Documents. The Owner Representative shall not be responsible for construction means, methods, appliances techniques, sequences, or procedures, or for safety precautions and programs in connection with the work.

In accordance with the provisions detailed elsewhere in these General Conditions, the Owner's Representative will make decisions relative to all matters of interpretation or execution of the Contract Documents.

3. CONSTRUCTION SCHEDULE

The Owner Representative has the authority to review and recommend acceptance of the progress schedule submitted by the Contractor at the start of the Work and subsequent significant revisions for conformance to the specified sequence of work and logic.

The Owner Representative, with the assistance of the Design Consultant, will conduct inspections to determine the dates of substantial completion of the Work and final completion of the Work, and will receive and forward to the Owner, for the Owner's review, written warranties, and related documents required by the Contract and assembled by the Contractor.

4. OWNER'S RIGHT TO USE OR OCCUPY

The Owner reserves the right, prior to Substantial Completion, to occupy, or use, any completed part or parts of the Work, providing these areas have been approved for occupancy by the Owner. Subject to applicable laws, the exercise of this right shall in no way constitute an acceptance of such parts, or any part of the Work, nor shall it in anyway affect the dates and times when progress payments shall become due from the Owner to the Contractor or in any way prejudice the Owner's rights in the Contract, or any bonds guaranteeing the same. The Contract shall be deemed completed only when all the Work contracted has been duly and properly performed and accepted by the Owner.

Prior to such occupancy or use, the Owner and Contractor shall agree in writing regarding the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents.

In exercising the right to occupy or use completed parts of the Work prior to the Substantial Completion thereof, the Owner shall not make any use which will materially increase the cost to the Contractor, without increasing the Contract Amount, nor materially delay the completion of the Contract, without extending the time for completion.

5. OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of the Contract, and fails within five (5) days after receipt of written notice from the Owner to commence and continue correction of such neglect or deficiency with diligence and promptness, the Owner may, and without prejudice to any other remedy, make good such default, neglect or failure.

The Owner also reserves the right to perform any portion of the work due to an emergency threatening the safety of the Work, public, Owner, and any property or equipment.

In either case, a Change Order shall be issued unilaterally deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies and/or for performing such work, including compensation for the Design Consultant's, the Owner Representative's,

and Owner's additional services made necessary by such default, neglect, failure or emergency.

6. OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

The Owner reserves the right to perform work related to the Project with the Owner's own forces and to award separate contracts in connection with the Project or other work on the Project site. If the Contractor claims that delay, damage, or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided elsewhere in the Contract Documents.

When separate contracts are awarded for different portions of the Project or other work on the Project site, the term "Contractor" in the Contract Documents in each case shall mean the contractor who executes each separate Contract.

7. RESPONSIBILITY OF THE OWNER

The Owner shall not be held responsible for the care or protection of any material or parts of the work under this Contract prior to final acceptance.

8. STATUS OF CONTRACTOR AND SUBCONTRACTORS

It is stipulated and agreed that the Contractor shall be an independent contractor in the performance of this Contract and shall have complete charge of persons engaged in the performance of the Work. The Contractor shall perform the Work in accordance with its own means, methods, and appliances subject to compliance with the requirements of the Contract.

Subcontractors will not have or be recognized as having a direct relationship with the Owner. The persons engaged in the work, including employees of subcontractors and suppliers, will be considered employees of the Contractor and their work shall be subject to the provisions of the Contract. References in the Contract Documents to actions required of subcontractors, manufacturers, suppliers, or any person other than the Contractor, the Owner or the Owner Representative shall be interpreted as requiring that the Contractor shall require such subcontractor, manufacturer, supplier or person to perform the specified action.

The Contractor shall not employ any subcontractors that are not properly licensed in accordance with State law. Prior to commencement of any work by a subcontractor, the Contractor shall submit verification to the Owner Representative that the subcontractor is properly licensed for the work it will perform.

Contractor shall be fully responsible to Owner for the performance, acts, and omissions of its subcontractors, and of persons directly or indirectly employed by them. Each subcontract shall

expressly incorporate by reference the terms of this Contract, including the following provisions:

Each subcontractor shall carry insurance as required by the Contract Documents, and provide evidence of such insurance, as provided herein.

Each subcontractor shall be obligated to defend, indemnify, and hold the Owner harmless from all claims arising from the subcontractor's portion of the Work in the same manner as Contractor.

Each subcontract shall acknowledge the Owner's right to suspend or terminate the Contract and waive any right to anticipate profits in the event of such termination.

9. USE AND PROTECTION OF OWNER'S SITE AND ADJACENT PROPERTY

Subject to the approval of the Owner, the Contractor may use portions of the Owner's site for storage of construction equipment, materials and field offices. The Owner will not accept any responsibility for damage to or loss of the Contractor's equipment or materials stored on any Project related site caused by vandalism, nature, or otherwise, suffered by the Contractor. Protection of all construction equipment, stores, and supplies shall be the sole responsibility of the Contractor. Where additional workspace is desired by the Contractor or where the Owner cannot provide the space to the Contractor, it shall be the Contractor's sole responsibility and expense to obtain such a space for its use.

All workers or representatives of the Contractor, subcontractors or suppliers are admitted to the Site only for the proper execution of the Work in accordance with the Contract Documents. Furthermore, no persons may occupy property owned by the Owner outside the limit of the Work without the express written permission of the Owner Representative.

The Contractor shall enforce any instructions from the Owner Representative regarding combustible materials, placement of signs, danger signals, barricades, radios, noise, dust, and smoking. Upon completion of the Work, the Contractor shall remove all temporary barricades, signs and related materials.

The Contractor shall determine safe loading capacities and shall not overload any structure, building, pipe or other existing facility beyond its safe capacity during construction. In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin and protect as may be necessary all foundations and other parts of all existing structures, facilities and improvements on the Site or adjacent to the Site which are in any way affected by the Contractor's excavations or other operations connected with the Work. Prior to commencing

any work which in any way affects adjoining or adjacent land or buildings thereon, or public utilities, the Contractor shall notify the Owner Representative to discuss responsibilities for properly notifying the owners/occupants of adjacent land and the protective measures taken by the Contractor. Upon request of the Owner Representative, the Contractor shall meet with the recipient of any notice or attend local public meetings as proper public outreach on local impacts caused by the completion of the Work.

The Contractor shall take all necessary precautions to protect existing facilities against the effects of all weather and environmental elements and Contractor shall be strictly liable for failure to protect any facility.

All existing improvements and facilities shall be protected from any damage resulting from the operations, equipment or workers of the Contractor.

The Contractor shall take all steps necessary to protect all structures, buildings, land and other facilities from fires and sparks originating from the Work. The Contractor shall comply with all laws and regulations regarding fire protection and shall comply with all instructions given by the fire department with jurisdiction.

Any damage to existing conditions, or to any other improvement or property above or below the ground surface, whether public or private, arising from the Contractor's operations or performance of the Work shall be repaired within forty-eight (48) hours by the Contractor without expense to the Owner, unless disruption of the Owner's operations or creation of a safety hazard has occurred, in which case damage will be repaired immediately. The forty-eight (48) hour non-emergency repair response time may be extended only if agreed to in writing by the Owner and/or private property owner. Any delays to the project completion times caused by such repairs shall be considered non-compensable and no further extension of the Contract Time will be granted therefor. Should the Contractor fail to timely repair damage caused by its operations or performance in accordance with this section, the Owner may take steps to protect property and life, in its sole discretion, and deduct the entire cost of such work from amounts due or that may become due to the Contractor. No prior notice to the Contractor shall be necessary for the Owner to take such action.

10. COMPLIANCE WITH LAWS

<u>Public Works Contract</u>

The Owner is a public agency and is subject to the provisions of law relating to public contracts. It is agreed that all provisions of law applicable to public contracts are a part of these Contract Documents to the same extent as though set forth herein.

Compliance with Laws

The Contractor, shall at its own cost and expense, observe and keep itself and its subcontractors fully informed of all existing and future legislated State and Federal Laws and City and County ordinances and regulations which in any manner affect those engaged or employed in the Work, or the materials and equipment used in the Work, or which in any way affect the conduct of the Work, and all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications, or in any other part of this Contract, in relation to any such law, ordinance, regulation, order or decree, the Contractor shall immediately report the same to the Owner Representative in writing. The Contractor shall at all times observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect, indemnify, defend and hold harmless the Owner, the Owner Representative, the Design Consultant, and all of their officers, officials, employees, agents, volunteers, and servants against any claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor itself, its employees, subcontractors, suppliers or others acting on the Contractor's behalf.

Prevailing Wages, Labor Compliance, Apprenticeship

All Contractors and Subcontractors providing workers or performing work on the Project shall comply with California Labor Code Sections 1771.1, 1771.7 and all other applicable labor requirements in Section 5-B Prevailing Wages and Labor Compliance.

Workers' Compensation Insurance

The Contractor and all subcontractors are required to comply with the requirements of California Labor Code Section 3700 concerning Workers Compensation Insurance in accordance with the Workers' Compensation Insurance and Safety Act and all other applicable requirements in Section 5-C Workers' Compensation Insurance.

11. SAFETY

The Contractor shall be solely and completely responsible for conditions of the job site, including the safety of all persons and property during the performance of the Work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), the California Occupational Safety and Health Act (CalOSHA), and all other applicable Federal, State, County, and local laws, ordinances, codes, including but not limited to the requirements set forth below, and any regulations that may be detailed in other parts of these Contract Documents. In the event of conflicting requirements, the most stringent requirement as it pertains to the Contractor's

safety responsibility shall be followed by the Contractor. The Contractor shall indemnify, defend and hold Owner and Owner Representative, Design Consultant and their respective officers, officials, employees, agents, and volunteers or other authorized representatives harmless to the full extent permitted by law concerning liability related to the Contractor's safety obligations.

The Contractor shall maintain a Drug-Free workplace policy within the Project site for the safety of its employees, the Owner's, Owner Representative's, and Design Consultant's employees and the public. The Drug-Free workplace policy shall be posted on the Construction site. The Contractor shall notify the Owner Representative of any criminal drug statute violation occurring on the site not later than five (5) days after the Contractor becomes aware of such violation.

The Contractor's compliance with requirements for safety and/or the Owner Representative's review of the Contractor's Safety Program shall not relieve or decrease the liability of the Contractor for safety. The Owner Representative's review of the Contractor's Safety Program is only to determine if the above-listed elements are included in the program.

12. SAFETY STANDARDS

Asbestos-Related Work - All work involving asbestos-containing material must be performed in accordance with California Labor Code, Sections 6501.5 through 6510, inclusive, and California Administrative Code, Title 8, Section 5208 and all other pertinent laws, rules, regulations, codes, ordinances, decrees and orders.

13. PUBLIC SAFETY AND CONVENIENCE

In accordance with the provisions of Section 6500 of the Labor Code, the Contractor shall conduct his work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Work and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Owner's Representative and the proper governmental authority. Fire hydrants on or adjacent to the Work shall be accessible to firefighting equipment. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks, private and public driveways and proper functioning of gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural watercourses. To the maximum extent permitted by law, Contractor shall indemnify, hold harmless and defend Owner from any and all liability, including attorneys' fees and costs of litigation, arising from any failure to comply with this section by Contractor or its privities.

14. COMPLIANCE WITH ENVIRONMENTAL LAWS

During construction, the Contractor shall comply with all pertinent requirements of Federal, State, and local environmental laws and regulations, including, but not limited to, the Federal Clean Air Act, State and local air pollution and noise ordinances, and construction site erosion control regulations, if applicable.

15. PROVISIONS FOR HANDLING EMERGENCIES

It is possible that emergencies may arise during the progress of the Work, which may require special treatment or make advisable extra shifts of labor forces to continue the Work for twenty-four (24) hours per day. These emergencies may be caused by damage or possible damage to nearby existing structures or property by reason of the work under construction, or by storm, accidents, or leakage. The Contractor shall be prepared in case of such emergencies to make all necessary repairs and shall promptly execute such work when required by the Owner Representative. The determinations made by the Owner Representative for handling emergencies shall be final and conclusive upon the parties. Upon start of the Work, Contractor shall provide means for immediate emergency notification of Contractor's designated representative and designated emergency alternates.

16. COOPERATION WITH OTHER CONTRACTORS

This Section shall serve as notice to the Contractor that the Owner may let other contracts for other work at or near the site of this work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs. Should construction be underway by other forces or by other contractors within or adjacent to the limits of the work or in the vicinity of the work to be done under this Contract, the Contractor shall so conduct its operations as to interfere to the least possible extent with the work of such other forces or contractors. Any difference or conflicts which may arise between the Contractor and any other forces or contractors, creating delays or hindrance to each other, shall be adjusted as determined by the Owner's Representative.

17. CONTROL OF WORK AND MATERIAL

The means, methods, and appliances adopted by the Contractor shall be planned and executed to produce the highest-grade quality of work and will enable the Contractor to complete the Work in the time agreed upon. The Owner and the Owner Representative shall not supervise, direct, or have control over, or be responsible for, Contractor's means, methods and appliances of construction or for the safety precautions and programs incident thereto, or for any failure

of Contractor to comply with laws and regulations applicable to the furnishing or performance of Work. However, if at any time the means, methods and appliances appear inadequate or of inferior quality, the Owner Representative may order the Contractor to improve their character or efficiency, and the Contractor shall conform to such order; failure of the Owner Representative to order such improvement of methods of efficiency will not relieve the Contractor from its obligation to perform satisfactory work and to finish the Work in the time agreed upon.

18. CHARACTER OF WORKERS

None but competent superintendents, forepersons and workers shall be employed on the Work. The Contractor shall remove from the Work any person who commits trespass, possesses firearms or other weaponry, is under the influence or is in the possession of alcohol or other illegal drugs/controlled substance, or is, in the opinion of the Contractor or Owner Representative, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. Such discharge shall not be the basis of any claim for compensation or damages against the Owner, its officers, officials, employees, agents, and volunteers, the Design Consultant, the Owner Representative, and their partners, officers, employees, agents or any of its officers or representatives.

19. SUPPLY OF SUFFICIENT WORKERS

The Contractor shall at all time employ qualified workers sufficient to prosecute the Work at a rate and in a sequence and manner necessary to complete the Work within the Contract Time(s). This obligation shall remain in full force and effect notwithstanding disputes or claims of any type.

20. MATERIALS AND WORKMANSHIP

Unless otherwise indicated in these Specifications, or favorably reviewed by the Design Consultant, materials and equipment for the construction work shall be the best grade in quality of a manufacturer regularly engaged in the production of such materials and equipment or materials and equipment of comparable character. All materials must be of the specified quality and equal to approved samples, if samples have been submitted. All work shall be done and completed in the best workmanlike manner, obtainable in the local market. All permanent materials and equipment shall be new unless otherwise specified.

All defective work or materials shall be promptly removed from the premises by the Contractor, whether in place or not, and shall be replaced or renewed in such manner as the Owner Representative may direct. All materials and workmanship of whatever description shall be

subjected to the inspection of and rejection by, the Owner Representative if not in conformance with the Contract Documents. The decision of the Owner Representative is final and conclusive upon the parties.

Any defective material or workmanship, or any unsatisfactory or imperfect work which may be discovered before the final acceptance of the work or within one (1) year thereafter, shall be corrected immediately upon the receipt of notice from the Owner Representative, without extra charge, notwithstanding that it may have been overlooked in previous inspections and estimates. Failure to inspect work shall not relieve the Contractor from any obligation to perform sound and reliable work as herein described.

21. UTILITY LOCATION

It shall be the Contractor's responsibility to determine the exact location and depth of all utilities, including service connections. The Contractor shall not be entitled to additional compensation or time extensions for work necessary to avoid interferences nor for repair to damaged utilities if the Contractor does not expose all such existing utilities as required by this section. Temporary or permanent relocation or alteration of utilities desired by the Contractor for its own convenience shall be the Contractor's responsibility and it shall make arrangements and bear all costs for such work. Contractor shall strictly comply with all laws and regulations regarding the protection of underground infrastructure, including providing all notices within the required timelines. See Government Code Section 4215 - 4216.24, incorporated herein by this reference. Any operator or excavator who violates this article is subject to civil penalties as outlined in Government Code Section 4216.6.

22. PROGRESS OF THE WORK

Time is of the essence in the performance of this Contract. The Contractor shall prosecute the work so that the various portions of the project shall be complete and ready for use within the time specified in the Contract Documents. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for completion of the work described herein is a reasonable time taking into consideration the general climatic and economic conditions and other factors prevailing in the locality and the nature of the work. The Contractor is hereby advised that the Contractor's bid is to be based on the entire Contract Time and the Contractor shall include its field and home office overhead costs in the bid for the entire Contract Time.

23. NOTICE OF DELAYS

When the Contractor foresees a delay in the prosecution of the Work and, in any event,

immediately upon the occurrence of a delay, the Contractor shall notify the Owner Representative in writing of the probability of the occurrence of the delay, and its cause. The Contractor shall provide this notice no later than two (2) calendar days after the occurrence of such delay, including weather delays as specified herein. The Contractor shall take immediate steps to prevent, if possible the occurrence or continuance of the delay. The Contractor agrees that no claim shall be made for delays which the Owner Representative is not notified of within the time specified herein. Contractor further agrees that Contractor shall not be permitted any additional time for completion of the Work or any additional compensation as a result of delay unless Contractor notifies the Owner Representative of the delay within the time specified herein.

Non-Excusable Delays

Non-excusable delays in the prosecution of the Work shall include delays which could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers. The Contractor shall receive no compensation or time extension for such delay.

Excusable Delays

Excusable delays in the prosecution or completion of the Work shall include delays which result from causes beyond the control of the Contractor and Owner and which could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers. The Contractor shall receive no compensation for such delay.

Abnormal Delays

Delays caused by fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes, and shortages of materials shall be considered as excusable delays insofar as they prevent the Contractor from proceeding with the Work for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule.

Weather Delays

Should inclement weather conditions or the conditions resulting from weather prevent the Contractor from proceeding with seventy-five (75%) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule it shall be a weather delay day. The Contractor may be granted a time extension for such delay.

Material Shortages

Upon the submission of satisfactory proof to the Owner Representative by the Contractor, shortages of material may be acceptable as grounds for granting a time extension. In order that such proof may be satisfactory and acceptable to the Owner Representative, it must be demonstrated by the Contractor that the Contractor has made every effort to obtain such materials from all known sources within reasonable reach of the proposed Work. Only the physical shortage of material, caused by unusual circumstances, will be considered under these provisions as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the satisfaction of the Owner Representative that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and usual practices in obtaining such quantities. A time extension for a shortage of material will not be considered for material ordered or delivered late or whose availability is affected by virtue of the mishandling of procurement. The above provisions apply equally to equipment to be installed in the work.

24. TIME EXTENSIONS

Non-Excusable Delays

The Owner, at its sole option, may grant an extension of time for milestone or completion dates for non-excusable delays if the Owner deems it is in its best interest. If the Owner grants an extension of time for non-excusable delays, the Contractor agrees to pay the Owner's actual costs, arising from the delay, including charges for engineering, inspection, and administration incurred during the extension, as determined by Owner.

Excusable or Compensable Delays

If the Contractor is delayed in the performance of its work due to Excusable or Compensable Delays, then milestone and Contract completion dates may be extended by the Owner for such time that, in the Owner Representative's determination, the Contractor's completion dates will be delayed, provided that the Contractor strictly fulfills the following: The Contractor shall provide timely notification and submit in writing a request for an extension of time to the Owner Representative stating at a minimum the probable cause of the delay and the number of days being requested. The Owner may require a time impact analysis. If requested by the Owner Representative, the Contractor shall promptly provide sufficient information to the Owner Representative to assess the cause or effect of the alleged delay, or to determine if other concurrent delays affected the Work.

Weather Delays

The Contractor may be granted a non-compensable time extension for weather caused delays which meet the criteria above. Should the Contractor fail to fulfill any of the foregoing, which are conditions precedent to the right to receive a time extension, the Contractor waives the right to receive a time extension.

It is understood and agreed by the Contractor and Owner that time extensions due to excusable or compensable delays will be granted only if such delays involve an impact to the critical path that would prevent completion of the whole Work within the specified Contract time.

25. LIQUIDATED DAMAGES

Should the Contractor fail to complete the Work within the time specified in the Contract, as extended in accordance with this section if applicable, the Contractor shall forfeit and the Owner may recover liquidated damages. Owner and the Contractor recognize that time is of the essence of this Contract and that the Owner will suffer financial loss if the Work is not completed within the time specified in the Contract. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage which the Owner will sustain in the event of and by reason of the Contractor's failure to fully perform the Work or to fully perform all of its contractual obligations that have accrued by the time for completion. It is, therefore, agreed in accordance with California Government Code Section 53069.85 that the Contractor will forfeit and pay to the Owner liquidated damages in the amount set forth in the Contract Documents, per day for each and every calendar day that expires after the time for completion in the Contract Documents. It is further understood and agreed in accordance with California Government Code Section 53069.85 that the liquidated damages sum specified in this provision is not manifestly unreasonable under the circumstances existing at the time this Contract was made, and that the Owner may deduct liquidated damages sums in accordance with this provision from any payments due or that may become due the Contractor. Liquidated damages will continue to accrue at the stated rate until substantial completion of the Work. Accrued liquidated damages may be deducted by the Owner from amounts due or that become due to the Contractor for performance of the Work.

26. SUSPENSION OF WORK

If the Contractor fails to correct defective work, Supply of Sufficient Workers, or fails to carry out the Work in accordance with the Contract Documents or any other applicable rules and regulations, the Owner, by a written order of the Owner's representative or signed personally by an agent specifically so empowered by the Owner, in writing, may order the Contractor to stop the work, in its entirety or any portion thereof. In the event of a suspension of only a

portion of the work, the Contractor is obligated to perform the portion of the work not suspended. The Suspension of Work shall remain in effect until the condition or cause for such order has been eliminated. The Owner's concurrence that the condition or cause has been eliminated will be provided to the Contractor in writing. This right of the Owner to stop and suspend the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity. All delays in the Work occasioned by such stoppage shall not relieve the Contractor of any duty to perform the Work or serve to extend the time for its completion. Any and all necessary corrective work done in order to comply with the Contract Documents shall be performed at no cost to the Owner.

In the event that a suspension of Work is ordered, as provided in this paragraph, the Contractor, at its expense, shall perform all work necessary to provide a safe, smooth, and unobstructed passageway through construction for use by public, pedestrian, and vehicular traffic, during the period of such use by suspension. Should the Contractor fail to perform the Work as specified, the Owner may perform such work and the cost thereof may be deducted from partial payments and/or final payment due to the Contractor under the Contract.

The Owner shall also have authority to suspend the Work wholly or in part, for such period as the Owner may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the Work. Such temporary suspension of the Work will be considered justification for time extensions to the Contract in an amount equal to the period of such suspension if such suspended work includes the current critical activity on the latest favorably reviewed progress schedule.

27. RIGHT TO TERMINATE CONTRACT

If at any time the Contractor is determined to be in material breach of the Contract, notice thereof in writing will be served upon the Contractor and its sureties, and should the Contractor neglect or refuse to propose and effect a means for a satisfactory compliance with the Contract, as directed by the Owner Representative, within the time specified in such notice, the Owner or the Owner's Representative in such case shall have the authority to terminate the operation of the Contract.

Upon such termination, the Contractor shall discontinue the Work or such parts of it as the Owner may designate. Upon such termination, the Contractor's control shall terminate and thereupon the Owner or its fully authorized representative may take possession of all or any part of the Contractor's materials, tools, equipment, and appliances upon the premises and use the same for the purposes of completing the Work and hire such force and buy or rent such additional machinery, tools, appliances, and equipment, and buy such additional materials and

supplies at the Contractor's expense as may be necessary for the proper conduct of the Work and for the completion thereof; or the Owner may employ other parties to carry the Contract to completion, employ the necessary workers, substitute other machinery or materials and purchase the materials contracted for, in such manner as the Owner may deem proper; or the Owner may annul and cancel the Contract and release the Work or any part thereof. Any excess of cost arising therefrom over and above the Contract Price will be charged against the Contractor and its sureties, who will be liable therefor.

In the event of such termination, all monies due to the Contractor or retained under the terms of this Contract shall be held by the Owner; however, such holdings will not release the Contractor or its sureties from liability for failure to fulfill the Contract. Any excess cost over and above the Contract Amount incurred by the Owner arising from the termination of the operations of the Contract and the completion of the Work by the Owner as above provided shall be paid for by the Contractor. The Contractor shall be entitled to credit against such excess costs and contract funds held by the Owner. Any contract funds remaining after all valid claims for completion of the Work have been paid shall be paid to the Contractor sixty (60) days after completion of the Work.

If at any time before completion of the work under the Contract, it shall be determined by the Owner that reasons beyond the control of the parties hereto render it impossible, impractical, undesirable, or otherwise against the interests of the Owner to complete the work, or if the work shall be stopped by an injunction of a court of competent jurisdiction or by order of any competent authority, the Owner may, upon ten (10) days written notice to the Contractor, discontinue the work and terminate the Contract for its convenience. Upon service of such notice of termination, the Contractor shall discontinue the work in such manner, sequence, and at such times as the Owner Representative may direct. The Contractor shall have no claim for damages for such discontinuance or termination, nor any claim for anticipated profits on the work thus dispensed with, nor any other claim except for the work actually performed in accordance with the Contract Documents up to the time of discontinuance, including any extra work ordered by the Owner Representative to be done, nor for any claim for liquidated damages.

28. CHANGE ORDERS

Without invalidating the Contract and without notice to sureties or insurers, the Owner through the Owner Representative, may at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by Field Order or Change Order. By the acceptance of a Change Order, the Contractor waives any claim for additional time, not

included in the Change Order, for the work covered by that Change Order. Additional or extra work performed by the Contractor without written authorization of a Field Order or Change Order will not entitle the Contractor to an increase in the Contract Amount or an extension of the Contract Time.

Compensable extra work shall be that work required for the completed project, but not shown, detailed or specified in the Contract Documents. Such work shall be governed by all applicable provisions of the Contract Documents. In giving instructions, the Owner Representative shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the purposes of the Work; but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Owner through the Owner Representative, and no claim for an addition to the Contract Amount and/or Contract Time shall be valid unless so ordered.

In case any change increases or decreases the work shown, the Contractor shall be paid for the work actually done at a mutually agreed upon adjustment to the Contract Price.

If the Contractor refuses to accept a Change Order, the Owner may issue it unilaterally. The Contractor shall comply with the requirements of the Change Order. The Owner shall provide for an equitable adjustment to the Contract Price and/or Contract Time, and compensate the Contractor accordingly. If the Contractor does not agree that the adjustment is equitable, it may submit claim through a dispute resolution procedure.

29. DIFFERING SITE CONDITIONS

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

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

Subsurface or latent physical conditions at the site differing from those indicated in the Contract Documents.

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

The Owner shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work the Owner shall cause to be issued a change order under the procedures relating to Change Orders.

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

30. PAYMENT

General

The Contractor shall accept the compensation, as herein provided, as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as herein specified; and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

No compensation will be made in case of loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

Full compensation for conforming to all of the provisions of the Contract Documents shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefor.

Payment of Taxes

The Contractor shall pay and shall assume exclusive liability for all taxes levied or assessed on or in connection with its performance of this Contract, whether before or after acceptance of the work, including, but not limited to, State and local sales and use taxes, Federal and State payroll taxes or assessments, and excise taxes, including any taxes or assessments, levied or increased during the performance period of the work. No separate allowance will be made therefor, and

all costs in connection therewith shall be included in the total amount of the Contract price.

Progress or Partial Payments

In consideration of the faithful performance of the Work prosecuted in accordance with the Contract Documents, the Owner will pay the Contractor for all such work installed on the basis of unit prices and/or percentage completion.

Payments will be made by the Owner to the Contractor on estimates duly certified and approved by the Owner Representative, based on the Lump Sum or unit price value of equipment installed and tested, labor and materials incorporated into said permanent work by the Contractor during the preceding month, and acceptable materials and equipment on hand (materials and equipment furnished and delivered to the site by the Contractor and not yet incorporated into the work accompanied by an approved invoice). Payments will not be made for temporary construction unless specifically provided for in the Contract Documents.

Partial payments will be made monthly based on work accomplished as of a day mutually agreed to by the Owner and the Contractor.

The Contractor shall submit a completed and signed progress payment request form with its estimate of the work completed during the prior month and the work completed to date in a format corresponding to the unit price schedule and accepted cost breakdown. Additionally, the Contractor shall submit a detailed statement of the Contractor's request for payment of acceptable materials and equipment on hand. Each payment request shall list each Change Order executed prior to date of submission, including the Change Order Number.

Contractor shall certify each payment request stating that the Contractor has met all requirements of the Contract Documents for all amounts included in the payment request and that all work included in the payment request has been performed in accordance with the Contract Documents.

Upon receipt of Contractor's requests for payment, the Owner shall act in accordance with the following: The Owner Representative shall review the submitted estimates, as soon as practicable after receipt for the purpose of determining that the estimates are a proper request for payment, and shall prepare a certified estimate of the total amount of work done and acceptable materials and equipment on hand.

If requested, the Contractor shall provide such additional data as may be reasonably required to support the partial payment request. The Owner Representative will adjust or correct the payment request and will be available to meet and discuss the partial payment request prior to its resubmittal(s). When the Contractor's estimate of amount earned conforms to the Owner

Representative's evaluation, the Contractor shall submit to the Owner Representative a properly completed and signed progress payment request. The Owner Representative will submit the recommended progress payment request for the Owner's approval and processing. Payment will be made by the Owner to the Contractor in accordance with Owner's normal accounts payable procedures; the Owner shall retain retention from the payment.

Each progress payment request and the final payment request shall be deemed “proper” only if it is submitted on the form approved by the Owner, with all of the requested information completely and accurately provided by the Contractor and such completed progress payment request form or final payment request form is accompanied by (i) certified payrolls of the Contractor and all Subcontractors, of any tier, for laborers performing any portion of the Work for which a progress payment or final payment is requested; (ii) duly completed and executed Conditional Waiver and Release Upon Progress Payment or Final Payment forms in accordance with California Civil Code 8132 for all Subcontractors of any tier, and Material Suppliers covering the progress payment or final payment requested; (iii) duly completed and executed Unconditional Waiver and Release Upon Progress Payment forms in accordance with California Civil Code 8136 and 8138 for all Subcontractors of any tier, and Material Suppliers covering the Progress Payment received by the Contractor under the prior progress payment request.

Right to Withhold Amounts

The Owner will withhold from each of the partial payments and retain as part security, five (5) percent of the amount earned until the final payment in accordance with Public Contract Code Section 7201.

Other Withholds

In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payments otherwise due to the Contractor, as in its judgment may be necessary to cover:

A. For defective work not remedied.

B. A reasonable doubt that the Contract can be completed for the balance then unpaid.

C. Damage to another contractor or third party, or to property.

D. Cost of insurance arranged by the Owner due to cancellation or reduction of the Contractor's insurance.

E. Failure to make proper submissions, as specified herein.

F. Payments due to the Owner from the Contractor.

G. Reduction of Contract Amount because of modifications.

H. The Contractor's neglect or unsatisfactory prosecution of the Work including additional engineering and administrative costs related to construction and/or shop drawing errors and the failure to clean up.

I. Provisions of law that enable or require the Owner to withhold such payments in whole or in part.

J. Stop Notice claims filed by Contractor's subcontractors, of any tier, or its material suppliers.

K. Failure of Contractor to submit Operation and Maintenance Manuals.

L. Failure to comply with legal, environmental or other regulatory requirements.

M. When the above reasons for withholding amounts are removed, payment will be made to the Contractor for amounts withheld because of them.

N. The Owner in its discretion may apply any withheld amount or amounts to the payment of valid claims. In so doing, Owner shall be deemed the agent of Contractor, and any payment so made by the Owner shall be considered as a payment made under the Contract by the Owner to the Contractor and the Owner shall not be liable to the Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. The Owner will render to the Contractor a proper accounting of such funds disbursed in behalf of Contractor.

31. AUDIT AND EXAMINATION OF RECORDS

The Owner may examine and audit at its own cost and expense all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports and other Work related data of the Contractor, subcontractors engaged in performance of the Work, and suppliers providing supplies, equipment and other materials required for the Work, including computations and projections related to bidding, negotiating, pricing or performing the Work or Contract modifications and other materials concerning the Work, including, but not limited to, Contractor daily logs, in order to evaluate the accuracy, completeness, and currency of cost, pricing, scheduling and any other Work-related data. The Contractor will make available all such Work-related data at all reasonable times for examination, audit, or reproduction at the Contractor's business office at or near the Worksite, and at any other location where such Work-related data may be kept until three years after final payment under the Contract. Pursuant to California Government Code Section 8546.7, if the amount of public funds to be expended is in excess of $10,000, this Contract will be subject to the examination and audit of

the State Auditor, at the request of the Owner, or as part of any audit of the Owner, for a period of three (3) years after final payment under the Contract.

32. SECURITY SUBSTITUTION FOR WITHHOLDS

Pursuant to Public Contract Code Section 22300 (the provisions of which are hereby incorporated herein by reference), the Contractor may substitute securities for any moneys withheld by the Owner as retention. Section 7 – Project Forms.

33. WARRANTY OF TITLE

No material, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the work and agrees upon completion of all work to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by the Contractor, to the Owner free from any claims, liens, security interests, or charges. The Contractor further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to a lien upon the premises or any improvement or appurtenances thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. In the event of the installation of any such metering device or equipment, the Contractor shall advise the Owner as to the legal Owner thereof.

34. SUBSTANTIAL COMPLETION

When the Contractor considers that the Work or portion of the Work is substantially complete, the Contractor shall notify the Owner Representative in writing. Upon receipt of the notification, the Owner Representative, the Owner, the Design Consultant and/or their authorized representatives will make inspection, to determine if the Work and administrative requirements are sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. If items are found which prevent such use or occupancy, the Owner Representative shall notify the Contractor in writing of such items by issuing a Corrective Work Item List.

Upon the completion of such corrective work, the Contractor shall so notify the Owner Representative in writing. The Owner Representative, the Owner and/or the Design Consultant shall inspect the Work to determine its acceptability for Substantial Completion and for

determination of other items which do not meet the terms of the Contract. Upon verification that the Work is substantially complete the Owner Representative shall prepare a Certificate of Substantial Completion and the Punch List. The Certificate shall establish the date of Substantial Completion and the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, commencement of warranties required by the Contract Documents, and shall fix the time, not to exceed sixty (60) days, within which the Contractor shall finish all items on the Punch List or remaining work or administrative requirements accompanying the Certificate. When the preceding provisions have been approved by both the Owner and the Contractor, they shall sign the Certificate to acknowledge their written acceptance of the responsibilities assigned to them in such Certificate. By such acknowledgment, the Owner has the right to retain, in accordance with applicable law, withheld monies due the Contractor to pay the Owner's actual costs including, but not limited to, charges for engineering, inspection, and administration incurred due to the failure to complete the Punch List within the time period provided in the Certificate of Substantial Completion, which costs the Owner may deduct from amounts due or that may become due the Contractor under the Contract.

35. FINAL CLEANUP

On all building projects and wherever else applicable, besides final site cleanup, the following special cleaning shall be performed at the completion of the Work:

A. Putty stains and paint shall be removed from glass; the glass shall be washed inside and outside. Care shall be exercised so as not to scratch glass.

B. Marks, stains, fingerprints, and other soil and dirt shall be removed from painted, decorated, or stained work.

C. Waxed woodwork shall be cleaned and polished.

D. Hardware shall be cleaned and polished of all traces; this shall include removal of stains, dust, dirt, paints, and blemishes.

E. Spots, soil, paint, plaster, and concrete shall be removed from tile; tile work shall be washed afterwards.

F. Fixtures, equipment, and visible piping and ducts shall be cleaned, and stains, paint, dirt, and dust shall be removed.

G. Temporary floor protections shall be removed; floors shall be cleaned, waxed, and buffed.

H. Dust, cobwebs, and traces of insects and dirt shall be removed.

I. Marred surfaces shall be repaired, patched, and touched up to specified finish to match adjacent surfaces.

J. All interior spaces including inside cabinets shall be vacuum cleaned.

K. Air handling filters and light bulbs shall be replaced if units were operated during construction. Ducts, blowers, and coils shall be cleaned if air-handling units were operated without filters during construction.

L. All other cleaning applicable to the work performed on the Project in order to convey to the Owner a sanitary, orderly, and aesthetically acceptable facility.

36. FINAL INSPECTION AND PAYMENT

Upon completion of the Work, including all items on the Punch List, and upon completion of final cleaning, the Contractor shall so notify the Owner Representative in writing. Upon receipt of the notification, the Owner Representative, the Owner and/or their authorized representatives will make the final inspection, to determine the actual status of the Work in accordance with the terms of the Contract. If materials, equipment, workmanship or administrative requirements are found which do not meet the terms of the Contract, the Owner Representative shall prepare a Final Inspection List of such items and submit it to the Contractor. Following completion of the work to correct all items in the Final Inspection List, the Contractor shall notify the Owner Representative. The Owner Representative shall, in turn, notify the Owner that the Work has been completed in accordance with the Contract. Final determination of the acceptability of the Work shall be made by the Owner. After completion of the work, but prior to its acceptance by the Owner, the last partial payment will be made to the Contractor.

After receipt of the last partial payment, but prior to acceptance of the Work by the Owner, the Contractor shall send a letter to the Owner Representative. The letter, pursuant to California Public Contract Code Section 7100, shall state that acceptance of the final payment described below shall operate as and shall be, a release to the Owner, the Owner Representative, the Design Consultant, and their duly authorized agents, from all claim of and/or liability to the Contract arising by virtue of the Contract related to undisputed contract amounts. Disputed Contract claims in stated amounts previously filed as provided in, Resolution of Disputes may be specifically excluded by the Contractor from the operation of the release.

Following receipt of all required submittals and the Owner Representative's written statement that construction is complete and recommendation that the Owner accepts the project, the Owner will take formal action on acceptance.

Within ten (10) days of the acceptance by the Owner of the completed work embraced in the Contract Documents, the Owner will cause to be recorded in the office of the County Recorder a Notice of Completion.

Within sixty (60) days after recording the Notice of Completion of the Work involved in the Contract, the Owner will pay the Contractor in lawful money such sums of money as may be due the Contractor and are undisputed including all sums retained but excluding such sums as have previously been paid the Contractor. This payment will constitute the final payment to the Contractor under this Contract. Upon receipt of such payment, the Contractor shall send Owner an "unconditional waiver and release upon final payment" properly executed in

accordance with California Civil Code Section 8136.

The Owner will pay the Contractor in lawful money such sums of money as may be due the Contractor including all sums retained but excluding such sums as have previously been paid the Contractor and as may be needed to cover outstanding stop notices. This payment will constitute the final payment to the Contractor under this Contract.

In the event of a dispute between the Owner and the Contractor, the Owner may in accordance with Public Contract Code Section 7107 withhold from the final payment an amount of 150 percent of the disputed amount.

37. WARRANTY AND GUARANTY

The Contractor guarantees all construction performed on this Project and also guarantees all material and equipment incorporated therein. Contractor hereby grants to County for a period of two years following the date of Final Acceptance of the Work completed, or such longer period specified in the Contract Documents, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all labor, materials and equipment provided by Contractor and its Subcontractors of all tiers in connection with the Work. Neither final payment nor use nor occupancy of the Work performed by the Contractor shall constitute an acceptance of Work not done in accordance with this Guaranty or relieve Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Contractor shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within one year, or longer if specified, from the date of Final Acceptance of the Work completed. If within two year after the date of Final Acceptance of the Work completed, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to County and in accordance with County's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by County and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, County may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses, and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, County shall have all rights and remedies granted by law. Inspection of the Work shall not relieve Contractor of any of its obligations under the Contract Documents. Even though

equipment, materials, or Work required to be provided under the Contract Documents have been inspected, accepted, and estimated for payment, Contractor shall, at its own expense, replace or repair any such equipment, material, or Work found to be Defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guaranty period. The foregoing Guaranty is in addition to any manufacturer's warranty. In the event of any conflict or inconsistency between the terms of this Guaranty and any warranty or obligation of the Contractor under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Contractor. Contractor shall provide a Warranty Bond to secure the performance of the Warranty and Guaranty set forth herein.

38. PUBLIC RECORDS ACT

Except as otherwise provided herein, all records, documents, drawings, plans, specifications, and all other information relating to the conduct of Owner's business, including information submitted by the Contractor ("Records"), shall become the exclusive property of Owner and shall be deemed public records. Said Records are subject to the provisions of the California Public Records Act (Government Code § 6250 et. seq.). The Owner's use and disclosure of its records are governed by this Act.

END OF DOCUMENT

5-B PREVAILING WAGES AND LABOR COMPLIANCE

LABOR CODE, PREVAILING WAGES AND APPRENTICESHIP REQUIREMENTS

ARTICLE 1 – REGISTRATION -- Contractor and Subcontractor Registration.

In accordance with California Labor Code Section 1725.5, Contractors and Subcontractors (as defined by California Labor Code Section 1722.1) bidding on or engaging in the performance of any Public Works contracts in California shall be registered with the Department of Industrial Relations. Labor Code Section 1725.5(f) states: "This section does not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work." Although the unregistered contractor or subcontractor under Labor Code Section 1725.5(f) is not required to furnish the records specified in Section 1776 directly to the Labor Commissioner, such unregistered contractor shall retain the records specified in Section 1776 for at least three years after completion of the work. (Labor Code Section 1771.4).

ARTICLE 2 – WORKING HOURS (Labor Code Section 1810-1815).

Eight hours labor constitutes a legal day's work in all cases where the same is performed under the authority of any law of this State, or under the direction, or control, or by the authority of any officer of this State acting in his official capacity, or under the direction, or control or by the authority of any municipal corporation, or of any officer thereof. (Labor Code Section 1810).

The time of service of any worker employed upon public work is limited and restricted to eight hours during any one calendar day, and 40 hours during any one calendar week, except as provided for under Labor Code Section 1815. (Labor Code Section 1811).

Every contractor and subcontractor shall keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by him or her in connection with the public work. The record shall be kept open at all reasonable hours to the inspection of the awarding body and to the Division of Labor Standards Enforcement. (Labor Code Section 1812).

The contractor or subcontractor shall, as a penalty to the Owner, forfeit twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. The awarding body shall take cognizance of all violations of this

article committed in the course of the execution of the contract, and shall report them to the Division of Labor Standards Enforcement. (Labor Code Section 1813).

Notwithstanding the provisions of Labor Code Sections 1810 to 1814, inclusive, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1-1/2 times the basic rate of pay. (Labor Code Section 1815).

ARTICLE 3 – WORKERS' COMPENATION (Labor Code Section 1860-1861).

In accordance with the provisions of Labor Code Section 3700, every contractor will be required to secure the payment of compensation to his or her employees. (Labor Code Section 1860).

By submission of a bid, the Contractor hereby certifies as follows: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract." (Labor Code Section 1861).

ARTICLE 4 – DEBARRED CONTRACTORS AND SUBCONTRACTORS.

Debarred Contractors or Subcontractors. In accordance with the provisions of the California Labor Code, contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Section 1777.1 or Section 1777.17 of the California Labor Code. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid or may have been paid to a debarred subcontractor by a contractor on the Project shall be returned to the Agency. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

ARTICLE 5 – PREVAILING WAGES.

This Project is subject to applicable prevailing wage requirements, including prevailing wage compliance monitoring and enforcement by the Department of Industrial Relations.

"Public Works" Includes Preconstruction, Construction, Post-Construction Work. Under Labor Code 1720(a), "public works" includes all of the following: Construction, alteration, demolition, installation, or repair work done under contract and paid for in whole or in part out of public funds. For purposes of this paragraph, "construction" includes work performed during the design, site assessment, feasibility study, and other preconstruction phases of construction, including, but not limited to, inspection and land surveying work, regardless of whether any further construction work is conducted, and work performed during the post-construction phases of construction, including, but not limited to, all cleanup work at the jobsite. For purposes of this paragraph, "installation" includes, but is not limited to, the assembly and disassembly of freestanding and affixed modular office systems.

This Project is subject to the requirements of Labor Code Section 1720 et seq., the terms of which are incorporated herein by this reference.

Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at http://www.dir.ca.gov/dlse/dlsePublicWorks.html or in the offices of the Owner and are deemed included in the Bidding Documents. Upon request, Owner will make available copies to any interested party. The successful Bidder shall post the applicable prevailing wage rates at the Site.

Contractor shall pay to persons performing labor in and about Work provided for in the Contract Documents an amount equal to or more than the general prevailing rate of per diem wages for (1) work of a similar character in the locality in which the Work is performed and (2) legal holiday and overtime work in said locality. The per diem wages shall be an amount equal to or more than the stipulated rates contained in a schedule that has been ascertained and determined by the Director of the State Department of Industrial Relations and Owner to be the general prevailing rate of per diem wages for each craft or type of workman or mechanic needed to execute this Contract. Contractor shall also cause a copy of this determination of the prevailing rate of per diem wages to be posted at each Site.

Contractor shall forfeit, as a penalty to Owner, Two Hundred Dollars ($200.00) for each worker employed in performing labor in and about the Work provided for in the Contract Documents for each Day, or portion thereof, that such worker is paid less than the said stipulated rates for any work done under the Contract Documents by him or her or by any Subcontractor under him or her, in violation of Articles 1 and 2 of Chapter 1 of Part 7 of Division II of the California Labor Code. The sums and amounts which shall be forfeited pursuant to this paragraph and the terms

of the Labor Code shall be withheld and retained from payments due to Contractor under the Contract Documents, but no sum shall be so withheld, retained or forfeited except from the final payment without a full investigation by either the State Department of Industrial Relations or by Owner. The Labor Commissioner pursuant to Labor Code Section 1775 shall determine the final amount of forfeiture.

Contractor shall insert in every subcontract or other arrangement which Contractor may make for performance of work or labor on Work provided for in the Contract, provision that Subcontractor shall pay persons performing labor or rendering service under subcontract or other arrangement not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the Work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed in the Labor Code.

Contractor stipulates that it shall comply with all applicable wage and hour laws, including without limitation Labor Code Section 1813. Failure to so comply, including without limitation Labor Code Section 1776, shall constitute a default under this Contract.

Contractor and all Subcontractors shall keep accurate payroll records in accordance with Labor Code Section 1776. If directed by the Labor Commissioner, Owner will withhold Contract payments when payroll records are delinquent or inadequate.

Contractor shall post all jobsite notices if and when prescribed by regulation.

The payroll records enumerated above must be certified and shall be available for inspection at all reasonable hours at the principal office of Contractor as required by Labor Code Section 1776.

Contractor shall inform Owner of the location of records enumerated above, including the street address, city and county, and shall, within five working Days, provide a notice of a change of location and address.

Each contractor and subcontractor shall furnish the records specified in Section 1776 directly to the Labor Commissioner, in the following manner:

(i) At least monthly or more frequently if specified in the contract with the awarding body. For purposes of this clause, “monthly” means that a submission of records shall be made at least once every 30 days while work is being performed on the project and within 30 days after the final day of work performed on the project.

(ii) In an electronic format, in the manner prescribed by the Labor Commissioner, on the department's internet website.

A contractor or subcontractor who fails to furnish records relating to its employees, shall be subject to a penalty by the Labor Commissioner of one hundred dollars ($100) per each day in which that party was in violation of subparagraph (A), not to exceed a total penalty of five thousand dollars ($5,000) per project. Penalties received pursuant to this paragraph shall be deposited in the State Public Works Enforcement Fund established by Section 1771.3 and shall be used only for the purposes specified in that section.

If the contractor or subcontractor is not registered pursuant to Section 1725.5 and is performing work on a project for which registration is not required because of subdivision (f) of Section 1725.5 (work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work), the unregistered contractor or subcontractor is not required to furnish the records specified in Section 1776 directly to the Labor Commissioner but shall retain the records specified in Section 1776 for at least three years after completion of the work.

Contractor or Subcontractor has 10 Days in which to comply subsequent to receipt of a written notice requesting the records enumerated in Labor Code Section 1776(a). In the event that Contractor or Subcontractor fails to comply with the ten-Day period, he or she shall, as a penalty to Owner on whose behalf the contract is made or awarded, forfeit $100.00 for each calendar Day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. Contractor is not subject to a penalty assessment pursuant to this paragraph due to the failure of a Subcontractor to comply with this paragraph.

Contractor shall notify Owner in writing in the event of any change, addition or substitution of a subcontractor.

Contractor will be fully responsible for reporting to and providing all documentation and other information required by the Department of Industrial Relations, and for paying all resulting penalties, fines, and other amounts due on account of any prevailing wage or other labor, wage or hour violation.

ARTICLE 6. APPRENTICES ON PUBLIC WORKS PROJECTS

Contractor and Contractor's subcontractor(s) shall be responsible for compliance with the provisions of law relating to employment of apprentices, including Labor Code Sections 1777.5, 1777.6, and 1777.7. Pursuant to Labor Code Section 1777.7, violations of Labor Code Section 1777.5 may result in forfeiture not to exceed One Hundred Dollars ($100.00) for each full calendar day of non-compliance. Information regarding apprenticeship standards, wage schedules, and other requirements may be obtained from the DIR or from the Division of Apprenticeship Standards of the DIR.

The requirements of Labor Code §1777.5 do not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor when the contracts of general contractors or those specialty contractors involve less than thirty thousand dollars ($30,000).

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

END OF DOCUMENT

5-C INSURANCE AND INDEMNIFICATION

1. PAYMENT, PERFORMANCE AND MAINTENANCE BONDS

The Contractor shall within ten (10) days after notice of award of the Contract, furnish surety bonds (Payment Bond, Performance Bond, and Maintenance Bond) executed by a surety authorized to conduct business in California using the bond forms approved by the Owner. The payment bond shall be in the amount equal to one hundred percent (100%) of the Contract Amount and shall be for payment of claims for materials, equipment, labor, and subcontractors employed by the Contractor thereon. The faithful performance bond shall be in an amount equal to one hundred percent (100%) of the Contract Amount and shall be for the faithful performance of the Contract, and for the fulfillment of such other requirements as may be provided by law. The performance bond shall remain in effect or a maintenance bond in the amount of 10% of the contract amount shall be provided to guarantee the repair and replacement of defective equipment, materials, and workmanship, and payment of damages sustained by the Owner on account of such defects, discovered within two (2) years after the date of final payment. The surety company shall waive the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased Work, or of the cancellation of the Contract, or of any other act or acts by the Owner or its authorized agents under the terms of this Contract; and failure to so notify the surety of changes shall not relieve the surety of its obligations under this Contract.

2. INSURANCE

Within ten (10) days after the Award of Contract, the Contractor shall promptly obtain, at its own expense, all the insurance required by this section. The Contractor shall not allow any subcontractor to commence work on its subcontract until all similar insurance required of the subcontractor, except Builder’s Risk Insurance, has been obtained and verified by the Contractor.

Companies writing the insurance under this article shall be licensed to do business in the State of California except as otherwise approved by the District. Insurance is to be placed with insurers with a current A.M. Best’s rating of no less than A-VII.

Contractor shall include all costs for insurance in its bids. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations under this Contract. For any claims related to this project, the Contractor’s insurance coverage shall be primary insurance as respects the District, the Design Consultant and the District's Representative, and their officers, officials,

employees, agents, and volunteers. Any insurance or self-insurance maintained by the District, its officers, officials, employees, agents or volunteers shall be in excess of the Contractor's insurance and shall not contribute with it.

Within ten (10) days after award of the Contract, Contractor shall furnish to Scotts Valley Water District ("Owner") satisfactory proof that Contractor has taken out for the entire period covered by the Contract the following classes of insurance in the form and with limits and deductibles specified below, unless otherwise specified in Contract Documents.

A. Comprehensive General Liability Insurance covering claims for personal injury, bodily injury and property damage arising out of the Work and in a form providing coverage not less than that of a Standard Commercial General Liability Insurance policy ("Occurrence Form"). Such insurance shall provide for all operations and include independent contractors, products liability, and completed operations for one year after Final Completion and acceptance of the final payment for the Work, contractual liability, and coverage for explosion, collapse, and underground hazards. The limits of such insurance shall not be coverage of less than [$2,000,000] each occurrence, [$3,000,000] general aggregate limit, and [$3,000,000] aggregate for products and completed operations. The policies shall be endorsed to provide Broad Form Property Damage Coverage.

B. Comprehensive Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. Such insurance shall provide coverage not less than the standard Comprehensive Automobile Liability policy with limits not less than [$1,000,000] each person Bodily Injury, [$1,000,000] each occurrence Bodily Injury, and [$1,000,000] each occurrence Property Damage.

C. All-Risk Course of Construction Insurance including damage to property owned by Owner, Contractor or third parties caused by fire. Insurance shall be in the amount of 100 percent of the completed value of the Work to be performed under this Contract. Deductible shall not exceed [$10,000.00]. Each loss shall be borne by Contractor.

D. Workers' Compensation Insurance for all persons whom the Contractor may employ in carrying out Work contemplated under Contract Documents, in accordance with the Act of Legislature of State of California, known as "Workers' Compensation Insurance and Safety Act," approved May 26, 1913, and all acts amendatory or supplemental thereto, in the statutory amount.

E. [Option] Environmental Impairment Liability Insurance covering bodily injury and property damage utilizing an occurrence policy form, in an amount no less than

[$1,000,000] combined single limit for each occurrence when, in the judgment of the District, the work involves environmental hazards.

3. INSURANCE REQUIREMENTS

Insurance Company Ratings

All policies of insurance shall be placed with insurers acceptable to Owner. The insurance underwriter(s) for all insurance policies except Workers' Compensation shall have an A. M. Best Company rating of **[A-VIII]** or better, unless otherwise specified in the Contract Documents. Required minimum amounts of insurance may be increased should conditions of Work, in opinion of Owner, warrant such increase. Contractor shall increase required insurance amounts upon direction by Owner.

Additional Insured Endorsement

The policies required under this Document shall be endorsed as follows: Name the Owner, its elected and/or appointed governing body and boards, employees, representatives, consultants, and agents, and Project Manager as additional insureds, but only with respect to liability arising out of the activities of the named insured.

Waiver of Subrogation Endorsement

Evidence of coverage shall be accompanied by an endorsement from the insurer agreeing to waive all rights of subrogation against the District, its officers, officials, employees, agents or volunteers; the Design Consultant, the Construction Manager and each of their partners, officers, officials, employees, agents and volunteers which might arise by reason of any payment under the policy in connection with the Work performed by Contractor.

Separate Application

Each such policy shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limit of the insurance company's liability required hereunder. Should any of the policies identified herein contain a "cross-suits" exclusion, such exclusion must not apply to any additional insureds.

Contractor's Insurance is Primary

Contractor's Insurance shall be primary and no other insurance or self-insured retention carried or held by Owner shall be called upon to contribute to a loss covered by insurance for the named insured.

Proof of Coverage

Before the Notice to Proceed with the Work under this Contract is issued, the Contractor shall furnish the Owner with certificate(s) evidencing issuance of all insurance mentioned herein, copies of the policy declaration or information page(s) and additional insured endorsements. The certificate(s) and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on the forms approved by the District. The certificate(s), policy declaration or information page(s), and endorsements are to be received and approved by the Owner before work commences. Contractor shall also provide certificate(s) evidencing renewals of all insurance required herein, at least thirty (30) days prior to the expiration date of any such insurance.

Evidence of Insurance

Certificates of insurance and endorsements shall have clearly typed thereon Owner information and the name of the Project.

Deductibles

Any deductibles or self-insured retentions must be declared to and approved by the District. At the option of the District, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions or procure a bond in a form satisfactory to the District guaranteeing payment of losses and related investigations, claim administration and defense expenses.

Notice of Cancellation or Non-Renewal

Written notice of cancellation, non-renewal, or reduction in coverage of any policy shall be mailed to Owner, 60 Days in advance of the effective date of the cancellation, non-renewal, or reduction in coverage. Written notice of cancellation for non-payment shall be mailed within 10 Days of cancellation.

Continuous Coverage

Contractor shall maintain insurance in full force and effect during the entire period of performance of the Work. Contractor shall keep insurance in force during warranty and guarantee periods, except that Contractor may discontinue All-Risk Course of Construction Insurance after Final Payment. At the time of making application for extension of time, and during all periods exceeding the Contract Time resulting from any cause, Contractor shall submit evidence that insurance policies will be in effect during the requested additional period of time. Upon Owner's request, Contractor shall submit to Owner, within 10 Days, copies of the actual insurance policies or renewals or replacements.

Requirement to Maintain Insurance

Contractor shall pay all insurance premiums, including any charges for required waivers of subrogation or the endorsement of additional insureds.

Workers Compensation

If injury occurs to any employee of Contractor, Subcontractor or sub-subcontractor for which the employee, or the employee's dependents in the event of employee's death, is entitled to compensation from Owner under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation is claimed from Owner, Owner may retain out of sums due Contractor under Contract Documents, amount sufficient to cover such compensation, as fixed by the Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If Owner is compelled to pay compensation, Owner may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse Owner.

No Limitation

Nothing herein shall be construed as limiting in any way the extent to which Contractor or any Subcontractor may be held responsible for payment of damages resulting from their operations.

Subcontractor's Insurance

All Subcontractors shall maintain the same insurance required to be maintained by Contractor with respect to their portions of the Work unless otherwise indicated in Contract Documents, and Contractor shall cause the Subcontractors to furnish proof thereof to Owner within ten Days of Owner's request.

Failure to Obtain and Maintain Insurance

In the event of the breach of any provision of this paragraph, or in the event of any notices received which indicates any required insurance coverage will be diminished or canceled, Owner, at its option, may, notwithstanding any other provisions of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work pursuant to this Agreement. If Contractor fails to maintain insurance, Owner may (but is not required to do so) take out comparable insurance, and deduct and retain the amount of premium from any sums due Contractor under Contract Documents.

INDEMNIFICATION

Contractor shall indemnify, defend with counsel acceptable to Owner and hold harmless to the full extent permitted by law, Owner, the Design Consultant and the Construction Manager, their consultants, sub consultants, and their officers, officials, employees, agents and volunteers, (collectively "the Indemnified Parties"), from and against any and all liability, loss, damage, claims, expenses and costs (including, without limitation, attorney fees and costs and fees of litigation) (collectively, "Liability") of every nature arising out of or in connection with

Contractor's performance of the Work or its failure to comply with any of its obligations contained in this Agreement. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist. Such indemnification by the Contractor shall include, but not be limited to, the following:

A. Liability or claims resulting directly or indirectly from the negligence or carelessness of the Contractor, its subcontractors, employees, or agents in the performance of the Work, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the Contractor, its employees, or agents.

B. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the Contractor's, or Supplier's own employees, or agents engaged in the Work resulting in actions brought against the Indemnified Parties;

C. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the Contractor, its subcontractors, employees, or agents.

D. Liability or claims arising directly or indirectly from the use or manufacture by the Contractor, its subcontractors, employees, or agents in the performance of this Agreement of any copyrighted or non-copyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specified stipulated in this Agreement.

E. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the Owner or any other parties by the Contractor, its subcontractors, employees, or agents;

F. Liability or claims arising directly or indirectly from the willful misconduct of the Contractor, its subcontractors, employees, or agents.

G. Liability or claims arising directly or indirectly from any breach of the obligations assumed in this Agreement by the Contractor.

H. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the Contractor, Subcontractors, Suppliers, or any of their employees or agents, and;

I. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the Indemnified Parties, their consultants, sub-consultants, and the officers, directors, employees, agents and volunteers of each or any of them, to the extent caused by the Contractor's use of any premises acquired by

permits, rights of way, or easements, the Site, or any land or area contiguous hereto or its performance of the Work thereon.

Liability arising directly or indirectly from exposure to hazards in violation of the California Labor Code that may be asserted by any person or entity, including, but not limited to, the Contractor, arising out of or in connection with the negligent activities of the Contractor, its agents, employees or privities pursuant to this Contract, whether or not there is concurrent negligence on the part of the Indemnified Parties.

The Contractor shall reimburse the Indemnified Parties for all costs and expenses, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court costs of appeal) incurred by said Indemnified Parties in enforcing the provisions of this Paragraph.

The indemnification obligation under this Section shall not be limited in any way by any limitation on the amount or type of insurance carried by Contractor or by the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

Pursuant to California Public Contract Code Section 9201, Owner shall timely notify Contractor of receipt of any third-party claim relating to this Agreement.

The Contractor's obligations pursuant to this provision will survive the expiration or earlier termination of this Contract.

The Contractor's duty to indemnify and save harmless shall include the duty to defend as set forth in California Civil Code Section 2778; provided, that nothing herein contained shall be construed to require Contractor to indemnify the Indemnified Party against any responsibility or liability in contravention of California Civil Code Section 2782. The duty to defend and indemnify hereunder is not limited by the insurance coverage required under the Contract Documents and is separate and apart from such coverage.

The Contractor shall furnish the District with a copy of the Employer's Report of Injury immediately following any incident requiring the listing of said report on the OSHA Log during the prosecution of the work under this Contract. The Contractor shall also furnish the Construction Manager with a copy of the Employer's Report of injury involving any subcontractor on this project.

The Contractor shall advise all insurance companies to familiarize themselves with all of the

Conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by the Indemnified Parties, under the terms of this Contract, and failure to so notify the aforesaid insurance companies of changes shall in no way relieve the insurance companies of their obligation under this Contract.

For all work the Contractor or its subcontractors perform during the guarantee period, worker's compensation, and commercial general liability insurance and insurance in the amounts and format required herein, shall remain in force and be maintained for five (5) years after final completion.

END OF DOCUMENT

SECTION 6 CONTRACT ADMINISTRATION

TABLE OF CONTENTS

6-A PRE-AWARD SUBSTITUTION 1

6-B INFORMATION AND PROCEDURES INSTRUCTIONS 5

6-C MODIFICATION PROCEDURES 7

6-D SUBMITTALS 21

6-E MEASUREMENT AND PAYMENT 33

6-F PROJECT MEETINGS 34

6-G PROGRESS MEETING 36

6-H TESTING AND INSPECTION 38

6-I CONTRACT CLOSE-OUT 53

6-J DISPUTE RESOLUTION PROCEDURES 60

6-A PRE-AWARD SUBSTITUTION

1. SUBSTITUTION OF MATERIALS AND EQUIPMENT

All substitution requests shall be submitted prior to the bid by the date noted Instruction to Bidders.

The Owner will review substitution requests submitted after the Owner award if one of the following criteria is met:

The specified product is no longer available.

The proposed substitute product provides a substantial cost or time savings to the Owner.

Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required.

Wherever more than one (1) manufacturer's product is specified, the first-named product is the basis for the design Substitutions which are equal in quality, utility, and appearance to those specified may be accepted, subject to the following provisions:

All substitution requests shall be submitted prior to the bid by the date noted in the Instructions to Bidders.

Contractor shall provide supporting data required by this Section. The supporting data must be submitted in reasonable promptness and in a sequence as to cause no delay in the Work, or in activities of the Owner or of separate Contractors.

The Owner will accept, in writing, proposed substitutions that are in the Owner's Representative's opinion equal in quality, utility, and appearance to the material or equipment specified, after a complete submittal of all supporting data, as required by this Section, is received by the Owner, the Contractor must allow at least ten (10) working days for the Owner’s review.

Such acceptance shall not relieve Contractor from complying with the requirements of the Drawings and the Specifications.

Contractor shall be responsible for all costs (including additional design and engineering costs) of any changes resulting from Contractor's proposed substitutions that affect other parts of the Work or the work of Separate Contractors. Contractor is responsible for coordination of all

other work effected by the substitution, including but not limited to vibration, isolation, and acoustical requirements and criteria, at no additional cost to the Owner.

The decision of the Owner shall be final.

If a request for substitution occurs after the bid period, the substitution may be reviewed only at the sole discretion of the Owner; and the costs of such review, as approved by the Owner, shall be borne by Contractor and will be deducted from the Contract Sum.

Requests for substitutions will only be considered if Contractor submits the following minimum supporting data:

2. COMPLETED SUBSTITUTION FORM

Complete technical data including drawings, performance specifications, samples, and test reports of the article proposed for substitution; and any additional information required by the Owner's Representative.

Statement by Contractor that the proposed substitution is in full compliance with the requirements of the Contract Documents and applicable Code requirements, and that any costs as a result of delay in the Work related to the proposed substitution will be borne by the Contractor.

List of Subcontractors, if any, that may be affected by the substitution.

If the proposed substitution requires that portions of the Work be redesigned or removed in order to accommodate the substituted item, submit design and engineering calculations prepared by a properly licensed design professional.

Failure of the Contractor to submit proposed substitutions in the time limits and manner described within this Section shall be sufficient cause for the Owner to reject and disapprove any substitutions otherwise proposed.

Wherever catalog numbers and specific brands or trade names not followed by the designation "or equal" are used in conjunction with material or equipment required by the Specifications, no substitutions will be considered.

Wherever more than one (1) manufacturer's product is specified, the first-named product is the basis for the design used in the work and all other listed products and/or manufacturers are considered substitutions. The use of alternative-named manufacturers' products or substitutes may require modifications in the design. If such substitutions are proposed by Contractor and

are approved by the Owner, Contractor shall assume all costs required to make necessary revisions and modifications to the design, including additional costs to the Owner for evaluation of revisions and modifications of the design resulting from the substitutions submitted by Contractor to the Owner.

When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and product number, and "or equal," supporting data for the second manufacturer's product, if proposed by Contractor, is not required. However, Contractor shall be responsible for all costs (including additional design and engineering costs) of any changes resulting from the use of the second manufacturer that affect other parts of the Work. Contractor is responsible for coordination of all other work effected by the substitution, including vibration, isolation, and acoustical requirements and criteria, at no additional cost to the Owner.

When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name (without the product number), and "or equal," supporting data for the second manufacturer's product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions.

If the Owner, in reviewing the list of substitution materials and equipment, requires revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the Owner to be unacceptable, the specified material or equipment shall be provided.

Samples may be required. Tests required by the Owner for the determination of quality and utility shall be made by Contractor's Testing Laboratory and at the expense of Contractor, with acceptance of the test procedure first given by the Owner.

In reviewing the supporting data submitted for substitutions, the Owner will use, for purposes of comparison, all the characteristics of the first listed material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Specifications. If more than two submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor; and the Owner will deduct the costs from the Contract Sum.

Where alternate brands are specified as equal but without model number or other specific identification, Contractor shall submit this information in the foregoing listing for approval by the Owner. Specified items shall be listed in the following format: first manufacturer and

model number, equivalent second manufacturer and model number. Contractors wishing to submit any 'equivalent' second manufacturer shall do so in accordance with this Section.

When an unnamed brand or materials are proposed as an equal, sufficient information shall be included to prove equality to and for comparison with the named brand. The burden of proving the quality rests with Contractor; final decision rests with the Owner.

END OF DOCUMENT

6-B INFORMATION AND PROCEDURES INSTRUCTIONS

1. GENERAL

This Section contains the procedures to be followed by the Contractor upon discovery of any apparent conflicts, omissions, or errors in the Contract Documents or upon having any question concerning interpretation.

2. NOTIFICATION BY CONTRACTOR

Submit all requests for clarification or additional information in writing to the Owner's Representative using a Request for Information (RFI) form as acceptable to the Owner's Representative.

Request for Information
Number RFIs sequentially. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI would be "001." the second RFI would be "002." The first resubmittal of RFI "002" would be "002a."

Limit each RFI to one (1) subject.

Submit a RFI if one of the following conditions occur:

A. The Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.

B. The Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or cannot be reasonably inferred from the intent of the Contract Documents.

C. The Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.

RFIs will not be recognized or accepted if, in the opinion of the Owner's Representative, one of the following conditions exists:

A. The Contractor submits the RFI as a request for substitution.

B. The Contractor submits the RFI as a submittal.

C. The Contractor submits the RFI under the pretense of a Contract Documents discrepancy or omission without thorough review of the Contract Documents.

D. The Contractor submits the RFI in a manner that suggest that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.

E. The Contractor submits an RFI in an untimely manner without proper coordination and scheduling of Work of related trades.

F. Ask for any clarification or request for information immediately upon discovery. Submit RFIs in a reasonable time frame so as not to affect the Contract Schedule while allowing the full response time described below.

3. RESPONSE TIME

The Owner's Representative, whose decision will be final and conclusive, shall resolve such questions and issue instructions to the Contractor within a reasonable time frame. In most cases, RFIs will receive a response within 10 working days. In some cases, this time may need to be lengthened for complex issues, or shortened for emergency situations, as mutually agreed in writing.

Should the Contractor proceed with the Work affected before receipt of a response from the Owner's Representative, within the response time described above, any portion of the Work which is not done in accordance with the Owner's Representative's interpretations, clarifications, instructions, or decisions is subject to removal or replacement and the Contractor shall be responsible for all resultant losses.

END OF DOCUMENT

6-C MODIFICATION PROCEDURES

1. GENERAL

Procedures for modifying the Contract Documents and determining costs for changes in contract amounts.

2. CONTRACTOR INITIATED CHANGE ORDER REQUEST (COR) PROCEDURES

Contractor may initiate changes by submitting a 7-D Change Order Request Form (COR).

Whenever Contractor elects or is entitled to submit a COR, Contractor shall prepare and submit to Owner for consideration a COR using the form included in these Contract Documents. All CORs must contain a complete breakdown of costs of credits, deducts and extras; itemizing materials, labor, taxes, Markup and any requested changes to Contract Time. All Subcontractor Work shall be so indicated. Individual entries on the COR form shall include applicable Schedule of Values code, with all amounts determined as provided herein. After receipt of a COR with a detailed breakdown, Owner will act promptly thereon.

If Owner accepts a COR, Owner will prepare a Change Order for Owner and Contractor signatures.

If COR is not acceptable to Owner because it does not agree with Contractor's proposed cost and/or time, Owner will provide comments thereto. Contractor will then, within seven (7) Days (except as otherwise provided herein), submit a revised COR.

When necessity to proceed with a change does not allow Owner sufficient time to conduct a proper check of a COR (or revised COR), Owner may issue a Change Directive (CD) as provided below.

3. CONTRACTOR-INITIATED REQUEST FOR INFORMATION (RFI) PROCEDURES, REQUIREMENTS AND LIMITATIONS

Contractor may submit RFI's for clarifications in Owner-prepared Contract Documents, which may result in the Contractor submitting a COR.

Whenever Contractor requires information regarding the Project or Owner-prepared Contract Documents, or receives a request for such information from a Subcontractor, Contractor may prepare and deliver an RFI to Owner. Contractor shall use RFI format provided on approval by Owner. Contractor shall not issue an RFI to Owner solely to clarify Contractor-prepared Construction Documents. Contractor must submit time critical RFIs at least 30 Days before

scheduled start date of the affected Work activity. Contractor shall reference each RFI to an activity of Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required. Contractor's failure to reference RFI to an activity on the Progress Schedule and note time criticality on the RFI shall constitute Contractor's waiver of any claim for time delay or interruption to the Work resulting from any delay in responding to the RFI.

Contractor shall be responsible for its costs to implement and administer RFIs throughout the Contract duration. Regardless of the number of RFIs submitted, Contractor shall not be entitled to additional compensation for the effort required to submit the RFIs. Contractor shall be responsible for Owner's administrative costs for answering RFIs where the answer could reasonably be found by reviewing the Contract Documents, as determined by Owner; at Owner discretion, such costs may be deducted from progress payments or final payment.

Owner will respond within fourteen (14) Days from receipt of RFI with a written response to Contractor. Contractor shall distribute response to all appropriate Subcontractors.

If Contractor is satisfied with the response and does not request a change in Contract Sum or Contract Time, then the response shall be executed without a change.

If Contractor believes the response is incomplete, Contractor shall issue another RFI (with the same RFI number with the letter "A" indicating it is a follow-up RFI) to Owner clarifying original RFI. Additionally, Owner may return RFI requesting additional information should original RFI be inadequate in describing condition.

4. TIME REQUIREMENTS

If Contractor believes that an Owner response to an RFI, submittal or other Owner direction, results in change in Contract Sum or Contract Time, Contractor shall notify Owner with the issuance of a preliminary COR within seven Days after receiving Owner's response or direction, and in no event after starting the disputed work or later than the time allowed the General Conditions). If Contractor also requests a time extension, or has issued a notice of delay or otherwise requests a time extension with a COR, then Contractor shall submit the TIE required herein concurrently with the COR.

If Contractor requires more time to accurately identify the required changes to the Contract Sum or Contract Time, Contractor may submit an updated and final COR and TIE within 14 days of submitting the preliminary COR.

If Owner agrees with Contractor, then Contractor must submit a COR within fourteen (14) Days of receiving the response to the RFI and COR. If Owner disagrees with Contractor, then Contractor may give notice of potential claim and proceed thereunder.

Contractor must submit CORs, CP's, notices of potential claim or Claims within the required time periods. Any failure to do so waives Contractor's right to submit a COR, CP or file a Claim.

5. COST ESTIMATE INFORMATION

Contractor and subcontractors shall, upon Owner's request, permit inspection of the original unaltered cost estimates, subcontract agreements, purchase orders relating to the change, and documents substantiating all costs associated with its COR or Claims arising from changes in the Work.

6. PROCEDURES FOR OWNER INITIATED CHANGE DIRECTIVES (CD) CHANGE ORDERS (CO) OR REQUEST FOR QUOTATION (RFQ)

<u>Owner Initiated Change Directives (CD)</u>
Owner may, by Change Directive ("CD") or initially by Supplemental Instruction or by following the procedures for disputed work herein, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with or without adjustment to Contract Sum or Contract Time.

If at any time, Owner believes in good faith that a timely Change Order will not be agreed upon using the foregoing procedures, or at any other time, Owner may issue a CD with its recommended cost and/or time adjustment (if any). Upon receipt of CD, Contractor shall promptly proceed with the change of work involved and respond to Owner within ten (10) Days.

Contractor's response must be any one of following:

A. Return CD signed, thereby accepting Owner response, including adjustment to time and cost (if any).
B. Submit a (revised if applicable) COR with supporting documentation (if applicable, reference original COR number followed by letter A, B, etc. for each revision), if Owner so requests.
C. Give notice of intent to submit a claim and submit its claim as provided therein.

If COR or the CD provides for an adjustment to any Contract Sum, the adjustment shall be based on one of the following methods:

A. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.

B. Contractor to proceed on cost reimbursable (force account) basis while negotiating towards a firm price.

C. Cost to be determined in a manner agreed.

Change Directive signed by Contractor indicates the agreement of Contractor therewith, including adjustment in Contract Sum or the method for determining them. Such agreement shall be effective immediately and shall be finalized as a Change Order. Where Owner authorizes CD work on a time and materials basis up to a maximum amount, then Contractor shall promptly advise Owner upon reaching 75% of such maximum amount, otherwise Contractor shall accept fully the risk of completing the CD work without exceeding such maximum amount.

If Contractor does not respond promptly or disagrees with the method for adjustment (or non-adjustment) in the Contract Sum, the method and the adjustment shall be determined by Owner on the basis of the Contract Documents and the reasonable expenditures and savings of those performing the Work attributable to the change. If the parties still do not agree on the proper adjustment due to a Change Directive, Contractor may file a claim and/or Owner may direct the changed work through a unilateral change order. Contractor shall keep and present an itemized accounting in a manner consistent with the Schedule of Values (SOV), together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this paragraph shall be limited to those provided herein.

Pending final determination of cost to Owner, Contractor may include amounts not in dispute in its Applications for Payment. The amount of credit to be allowed by Contractor to Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by Owner. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for Markup shall be figured on the basis of net increase, if any, with respect to that change.

<u>Owner Initiated Change Order (CO) or Request for Quotation (RFQ):</u>

Owner may initiate changes in the Work or Contract Time by issuing a Request for Quotation ("RFQ") or Change Order ("CO") to Contractor.

Owner may issue an RFQ to Contractor. Any RFQ will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Time from Contractor.

In response to an RFQ, Contractor shall furnish a COR within twenty-one (21) Days of Owner's RFQ. Upon approval of COR, Owner may issue a Change Directive directing Contractor to proceed with extra Work.

If the parties agree on price and time for the work, the Owner will issue a Contact Change Order. If the parties do not agree on the price or time for a CP, Owner may either issue a CD or decide the issue per the claim process. Contractor shall perform the changed Work notwithstanding any claims or disagreements of any nature.

Supplemental Instruction

Owner may issue Supplemental Instruction to Contractor.

If Contractor is satisfied with Supplemental Instruction and does not request change in Contract Sum or Contract Time, then Supplemental Instruction shall be executed without a Change Order.

If Contractor believes that Supplemental Instruction results in change in Contract Sum or Contract Time, then Contractor must submit a COR with the appropriate Cost Proposal to Owner within fourteen (14) Days of receiving the Supplemental Instruction.

Procedures that Apply to Contractor- and Owner-Initiated Change Orders

Adjustment of Schedules to Reflect Change Orders or CDs:

A. Contractor shall revise Schedule of Values and Application for Payment forms to record each authorized Change Order or CD as a separate line item and adjust the Contract Sum as shown thereon prior to the next monthly pay period.

B. Contractor shall revise the Progress Schedules prior to the next monthly pay period, to reflect CO or CD.

C. Contractor shall enter changes in Project Record Documents prior to the next monthly pay period.

Required Documentation for Adjustments to Contract Amounts

For all changes and cost adjustments requested, Contractor shall provide documentation of change in Contract Amounts asserted, with sufficient data to allow evaluation of the proposal.

On all requests for compensation, cost proposals, estimates, claims and any other calculation of costs made under the Contract Documents, Contractor shall breakout and quantify costs of labor, equipment and materials identified herein, for Contractor and subcontractors of any tier.

Contractor shall, on request, provide additional data to support computations for:

A. Quantities of products, materials, labor and equipment.

B. Taxes, insurance, and bonds.

C. Justification for any change in Contract Time and new Progress Schedule showing revision due, if any.

D. Credit for deletions from Contract, similarly documented.

Contractor shall support each claim or computation for additional cost, with additional information including:

A. Origin and date of claim or request for additional compensation.

B. Dates and times Work was performed and by whom.

C. Time records and wage rates paid.

D. Invoices and receipts for products, materials, equipment and subcontracts, similarly documented.

E. Credit for deletions from Contract, similarly documented.

Responses and Disputes

For all responses for which the Contract Documents do not provide a specific time period, recipients shall respond within a reasonable time.

For all disputes arising from the procedures herein, Contractor shall follow the claims procedures.

7. COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

Calculation of Total Cost of Extra Work

Total cost of changed Work, extra Work or of Work omitted shall be the sum of three components defined immediately below as: Component A Direct Cost(s); Component B Markup; and, Component C Bonds, Insurance, Taxes.

Component A is Direct Cost(s) of labor, equipment and materials, is calculated based upon actually incurred (or omitted) labor costs, material costs and equipment rental costs, as defined herein;

Component B: Markup on such actually incurred Direct Costs, is applied in the percentages identified below; and

Component C is actual additional costs for any additionally required insurance, bonds, and/or taxes, defined herein, is calculated without Markup.

COMPONENT A: MEASUREMENT OF DIRECT COST OF CONSTRUCTION

Component A has four subcomponents, also referred to as "LEMS":

Labor (Component 1)

Equipment (Component 2)

Materials (Component 3)

Subcontractors (Component 4)

Measurement of Cost of Labor (Component 1)

Cost of Labor shall be calculated as: Cost of labor for workers (including forepersons when authorized by Owner) used in actual and direct performance of the subject work, whether employer is Contractor, Subcontractor or other forces, in the sum of the following:

A. Actual Wages: Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes.
B. Labor surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined, such as worker's compensation insurance. Such labor surcharge shall not exceed generally accepted standards in the State for labor rates in effect on date upon which extra Work is accomplished.
C. Cost of labor shall include no other costs, fees or charges.

Labor cost for operators of equipment owned and operated by Contractor or any Subcontractor, shall be no more than rates of such labor established by collective bargaining agreements for type of worker and location of Work, whether or not owner-operator (i.e., Contractor or Subcontractor) is actually covered by such an agreement.

Cost of labor shall be recorded and documented in certified payroll records, maintained in the form customary and/or required in the State, delivered to Owner weekly.

Measurement of Cost of Equipment (Component 2)

Cost of Equipment shall be calculated as: Cost of Equipment used in actual and direct performance of the subject work, whether by Contractor, Subcontractor or other forces. Cost of Equipment shall be calculated as herein described:

A. For rented equipment, cost will be based on actual rental invoices, appropriate for the use and duration of the work. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by Owner.

B. Equipment rental cost for Contractor or Subcontractor-owned equipment, shall be determined by reference to, and not in excess of, the generally accepted standards in the State for equipment rental rates in effect on date upon which extra Work is accomplished. If there is no applicable rate for an item of equipment, then payment shall be made for Contractor- or Subcontractor-owned equipment at rental rate listed in the most recent edition of the CalTrans Standard Schedules and Specifications, and absent a rental rate therein, then the Association of Equipment Distributors (AED) book.

In all cases, rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of $700 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.

For equipment on Site, rental time to be paid for equipment shall be time equipment is in operation on extra Work being performed or on standby as approved by Owner. The following shall be used in computing rental time of equipment:

A. When hourly rates are listed, less than 30 minutes of operation shall be considered to be ½ hour of operation.

B. When daily rates are listed, less than four hours of operation shall be considered to be ½ Day of operation.

C. Rates shall correspond to actual rates paid by Contractor, i.e., if Contractor pays lower weekly or monthly rates, then same shall be charged to Owner.

For equipment that must be brought to Site to be used exclusively on extra Work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:

A. Owner will pay for costs of loading and unloading equipment.

B. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.

C. Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission or appropriate State Dept. of Transportation.

D. Owner will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than upon extra Work.

E. Rental period may begin at time equipment is unloaded at Site of extra Work and terminate at end of the performance of the extra Work or Day on which Owner directs Contractor to discontinue use of equipment, whichever first occurs. Excluding Saturdays, Sundays, and Owner legal holidays, unless equipment is used to perform extra Work on such Days, rental time to be paid per Day shall be four hours for zero hours of operation, six hours for four hours of operation and eight hours for eight hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight hours due to breakdowns, shall not exceed eight less number of hours' equipment is inoperative due to breakdowns.

Employee vehicles are not part of Component 2, rather, are included within Component B (Markup).

Equipment costs shall include no other costs, fees or charges.

Measurement of Cost of Material (Component 3)

Cost of Material shall be calculated as herein described. Cost of such materials will be cost to purchaser (Contractor, Subcontractor or other forces) from supplier thereof, except as the following are applicable:

If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to Owner notwithstanding fact that such discount may not have been taken.

For materials salvaged upon completion of Work, salvage value of materials shall be deducted from cost, less discounts, of materials.

If cost of a material is, in opinion of Owner, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in this Paragraph.

Material costs shall include no other costs, fees or charges.

Measurement of Cost of Subcontractors (Component 4)
Where reimbursed or calculated per the terms of the Contract Documents, change order or Change Directive, cost of Subcontractors shall be calculated as amounts earned by Subcontractors procured in compliance with the Contract Documents and approved by the Owner, provided such subcontractor earned amounts meet the following requirements:

Such amounts are earned under the terms of the Subcontracts and the Work complies with the terms of the Contract Documents;

Such amounts are properly requested, documented and permitted under the terms of the subcontract(s) and the Contract Documents;

Total cost to Owner of Direct Costs of Construction (labor, equipment, materials), Markup, and costs of bonds, insurance and taxes, conform to contract limitations (i.e., totals paid by Owner do not exceed the 20% Markup limitation.)

8. COMPONENT B: MEASUREMENT AND PAYMENT OF MARK UP

Markup on Direct Cost of labor and materials for extra Work shall be 15%. Markup on Direct Cost of equipment for extra Work shall be 15%.

When extra Work is performed by Subcontractors, regardless of the number of tiers, total Markup on "Component A" Direct Costs shall not exceed 20%. Contractor and its Subcontractors shall divide the 20% as they may agree.

Under no circumstances shall the total Markup on any extra Work exceed twenty (20) percent, stated as a percent of the Direct Cost of labor, equipment and materials. This limitation shall apply regardless of the actual number of subcontract tiers.

On proposals covering both increases and decreases in Contract Sum, Markup shall be allowed on the net increase only as determined above. When the net difference is a deletion, no percentage for Markup shall be allowed, but rather an appropriate percentage deduction shall be issued in the amount of the net difference.

Measurement and Payment of Component B Mark Up
Component B Mark Up provides complete compensation to Contractor for:

A. All Contractor profit;

B. All Contractor home-office overhead;

C. All Contractor assumption of risk assigned to Contractor under the Contract Documents;

D. Subject to the qualifications below regarding self-performed work, all General Conditions and General Requirements.

Profit Compensation for profit included within Component B (Mark Up), includes without limitation: Fees of all types, nature and description; and Profit and margins of all types, nature and description.

Home Office Expenses. Compensation for home office expenses included within Component B Mark Up, includes without limitation: Salaries and other compensation of any type of Contractor's personnel (management, administrative and clerical), and all direct and indirect operating, travel, payroll, safety, storage, quality control, maintenance and overhead costs of any nature whatsoever, incurred by Contractor at any location other than the Project specific site office, including without limitation, Contractor's principal or branch offices; insurance premiums other than those for Project specific insurance directed by the Owner in a change order; all hardware, software, supplies and support personnel necessary or convenient for Contractor's capture, documentation and maintenance of its costs and cost accounting data and cost accounting and control systems and work progress reporting.

Assumption of Risk. Compensation for Contractor's assumption of risk under the Contract Documents, included within Component B Mark Up, includes without limitation loss, cost, damage, expense or liability resulting directly or indirectly from any of the following causes ("unallowable costs"), for Contractor and subcontractors of any tier: noncompliance with the Contract Documents, fault or negligence, defective or non-conforming Work, by Contractor or any Subcontractor or Vendor of any tier or anyone directly or indirectly employed by any of them, or for whose acts or omissions any of them are responsible or liable at law or under the Contract Documents; cost overruns of any type; costs in excess of any lump sum, not to exceed amount or GMP; costs resulting from bid or "buy out" errors, unallocated scope, or incomplete transfer of scope or contract terms to subcontractors; any costs incurred by Contractor relating to a Change in the Work without a Change Order or Change Directive in accordance with the Contract Documents; costs for work or materials for which no price is fixed in the Contract Documents, unless it is expressly specified that such work or material is to be paid for as extra work.

General Conditions and Division 1 General Requirements. Compensation for Contractor's General Conditions and General Requirements Costs included within Component B Mark Up, includes compensation to Contractor for: Contractor's direct costs, without overhead or profit, for salaries and related forms of compensation and employer's costs for labor and personnel costs, of Contractor's employees and sub-consultant's employees (if any), while and only to the extent they are performing Work at the Project Site. Personnel and Work compensated by this

Component include without limitation: All required Project management responsibilities; all on-site services; monthly reporting and scheduling; routine field inspection of Work; general superintendence; general administration and preparation of cost proposals, schedule analysis, change orders and other supporting documentation as necessary; salaries of project superintendent, project engineers, project managers, safety manager, other manager, timekeeper, and secretaries; all cost estimates and updates thereto; development, validation and updates to the project schedule; surveying; estimating. Compensation for Contractor's General Requirements Costs included within Component B Mark Up, compensates Contractor for its "General Requirements" Costs, including without limitation: all scheduling hardware, software, licenses, equipment, materials and supplies; purchase, lease or rental, build out, procurement, supporting equipment and maintenance of temporary on-Site facilities, Project field and office trailers and other temporary facilities, office equipment and supporting utilities; platforms, fencing, cleanup and jobsite security; temporary roads, parking areas, temporary security or safety fencing and barricades, etc.; all Contractor's motor vehicles used by any Contractor's personnel, and all costs thereof; all health and safety requirements, required by law or Owner procedures; all surveying; all protection of Work; handling and disposal fees; final cleanup; repair or maintenance; other incidental Work; all items, activities and function similar to any of those described above; all travel, entertainment, lodging, board and the like.

Personnel compensated by the Markup Component do not include workers of foreman level or below in the case of self-performed work; rather, such personnel shall be treated as a Direct Cost of Construction. Costs compensated by the Markup component do not include temporary measures specifically required by the changed work, not otherwise required or ongoing in the prosecution of the Work, that commences specifically to support the changed work and conclude with the completion of the changed work. Such costs shall be treated as Direct Costs of Construction. Examples of General Requirements costs that this component may not cover are the following: temporary barricades or fencing of specific areas required specifically for the changed work; cranes required specifically for the changed work; extra security required specifically for the changed work.

COMPONENT C: MEASUREMENT AND PAYMENT OF BONDS INSURANCE TAXES

Component C Bonds, Insurance, Taxes) consists of the cost of bonds, insurance and taxes, also referred to as "BIT**".** All State sales and use taxes, applicable County and applicable City sales taxes, shall be included. Federal and Excise tax shall not be included.

There is no mark up on BIT.

Bonds and Insurance cost shall not exceed 1 ½% of the cost of the price change.

9. EFFECT OF PAYMENT

Change Order Compensation is All Inclusive

Except as provided expressly below regarding changes that extend the Contract Time, payment of calculated cost of extra work constitutes full and complete compensation for costs or expense arising from the extra Work, and is intended to be all inclusive.

Payment for Direct Cost of Construction (Component A Labor or LEMS) is intended to be all-inclusive. Any costs or risks not delineated within cost of labor, equipment or materials herein, shall be deemed to be within the costs and risks encompassed by the applicable Markups and unallowable in any separate amount.

Payment of Markup (Component B Markup) is intended to be all-inclusive. Contractor waives claims for any further or different payment of cost and risk items delineated herein, other than the allowable percentage markup on costs set forth in the Contract Documents; such separate, further or different cost or risk items shall be unallowable, waived and liquidated within the allowable percentage markup.

Contractor shall recover no other costs or markups on extra work of any type, nature or description.

Exception for Changes Extending the Contract Time

Where a change in the Work extends the Contract Time, Contractor may request and recover additional, actual direct costs, provided Contractor can demonstrate such additional costs are actually incurred performing the Work, not compensated by the Markup allowed, and directly result from the extended Contract Time. Contractor shall make such request and provide such documentation following all required procedures, documentation and time requirements in the Contract Documents, and subject to all contract limitations of liability. Contractor may not seek or recover such costs using formulas (e.g., Eichleay).

Limits of Liability / Accord and Satisfaction

The foregoing limits of compensation apply in all cases of claims for changed Work, whether calculating Change Order Requests, Change Orders or CDs, or calculating claims and/or damages of all types, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including strict liability or negligence. Contractor may recover no other costs arising out of or connected with the performance of extra Work, of any nature.

Under no circumstances may Contractor claim or recover special, incidental or consequential damages against Owner, its representatives or agents, whether arising from breach of contract,

negligence, strict liability or other tort or legal theory, unless specifically and expressly authorized in the Contract Documents.

No change in Work shall be considered a waiver of any other condition of Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for extra payment whatever, except as expressly provided for in Contract Documents.

Accord and Satisfaction: Every Change Order and accepted CD shall constitute a full accord and satisfaction, and release, of all Contractor (and if applicable, Subcontractor) claims for additional time, money or other relief arising from or relating to the subject matter of the change including, without limitation, impacts of all types, cumulative impacts, inefficiency, overtime, delay and any other type of claim. Contractor may elect to reserve its rights to disputed claims arising from or relating to the changed Work at the time it signs a Change Order or approves a CD, but must do so expressly in a writing delivered concurrently with the executed Change Order or approved CD, and must also submit a Claim no later than thirty (30) Days after Contractor's first written notice of its intent to reserve rights. Execution of any Change Order or CD shall constitute Contractor's representation of its agreement with this provision.

10. MISCELLANEOUS REQUIREMENTS

Owner-Furnished Materials

Owner reserves right to furnish materials as it deems advisable, and Contractor shall have no claims for costs and Markup on such materials.

Records and Certification

All charges shall be recorded daily and summarized in Change Order Request form attached hereto. Contractor or authorized representative shall complete and sign form each day. Contractor shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; and a list by size type and identification number of equipment and hours operated.

Owner shall have the right to audit all records in possession of Contractor relating to activities covered by Contractor's claims for modification of Contract, including CD Work. This right shall be specifically enforceable, and any failure of Contractor to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been filed.

END OF DOCUMENT

6-D SUBMITTALS

1. TIMELY SUBMITTAL

The Contractor shall have submitted the following data as required in these Specifications before request is made for first progress payment. Submittal of the following data shall be regarded as an essential part of the construction operation that is required before any progress payment will be made.

Schedule of Values (Cost Breakdown) as specified herein and in the General Conditions.

Bill of Materials, which shall itemize the quantity of all materials for the Project correlated with each item in the cost breakdown.

Schedule of submittals as specified herein.

List of materials as specified herein.

Construction Schedule.

Contractor may expect submittal turnaround in ten (10) working days' maximum for most submittals. Some submittals may take longer than ten (10) working days depending on the volume and complexity of the submittals.

2. PROGRESS REPORTS

Daily Reports

The Contractor shall prepare a Daily Report for every working day giving brief particulars of work accomplished, number of workers employed for each trade, and weather conditions.

Distribution

One (1) copy of the Daily Report shall be mailed to the Owner's Representative no later than one day after the day covered by the report. One copy shall be delivered to the Owner's Inspector no later than 8:15 a.m. on the day after the day covered by the report. The Contractor's delivery of complete and accurate daily reports on a daily basis is a material obligation of the Contractor under the Contract Documents.

3. SCHEDULE OF VALUES

Provide cost breakdown of the Contract Price, itemizing estimated cost of each class of Work.

Include line item amounts for mobilization, bonds and insurance. Mobilization shall be limited to one percent of the total contract amount.

An amount equal to one percent of the total contract amount shall be designated for punch list work. Values will be assigned to individual punch list items as the punch list is compiled. If the aggregate value of these items is less than the one percent designated for this work, the difference will be included in the next payment to the Contractor.

An amount equal to one percent of the total contract amount shall be assigned to the Contract Closeout items.

4. SCHEDULE AND FORM OF SUBMITTALS

Schedule
Within thirty (30) days after the date of commencement specified in the Notice to Proceed. Schedule shall list submittals and indicate date submittal will be made.

Form
Number each submittal beginning with the applicable 5-digit specification section followed by a 3-digit number ie: 001, 002, etc., representing the order in which the submittals were submitted. Re-submittals shall use original submittal number followed by "R." For additional re-submittals, use the original submittal number followed by "R2," "R3," etc.

5. SCHEDULE FORMAT

Prepare Schedules as a horizontal bar chart or CPM with separate bar for each major portion of Work operation, identifying first work day of each week.

The Contractor shall develop a Critical Path Method Schedule demonstrating fulfillment of all contract requirements. The project schedule shall be kept current to be utilized for scheduling, coordinating, monitoring work progress, and for preparation of the monthly payment application for payment under the Contract including all Work of Subcontractors and equipment and material suppliers.

Sequence of Listings
The chronological order of the start of each item of Work.

Scale and Spacing
To provide space for notations and revisions.

6. SCHEDULE CONTENT

Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

The Contractor shall develop a Critical Path Method Schedule demonstrating fulfillment of all contract completion milestone requirements. The project schedule shall be kept current to be utilized for scheduling, coordinating, monitoring work progress, and for preparation of the monthly payment application for payment under this Contract including all Work of Subcontractors and equipment and material suppliers.

Schedule shall include activities pertaining to long lead delivery items, fabrication items and submittal of shop drawings and product samples.

Show coordination with Owner work and other contractors.

7. OFFICIAL CONTRACT SCHEDULE (AKA "PROJECT CONSTRUCTION SCHEDULE")

Project Construction Schedule

The Critical Path Method Schedule to be prepared by the Contractor pursuant to this section will be a part of a total system for scheduling, reporting work progress, and preparing the monthly payment application.

Within ten (10) working days after the Notice to Proceed, the Contractor shall submit to the Owner's Construction Manager four original prints of the complete project construction schedule for approval or disapproval. In the event the complete project schedule is disapproved; the Contractor shall resubmit a correct schedule within five (5) working days after the notice of disapproval is received by the Contractor.

Should the Project Construction Schedule not be accepted within thirty (30) calendar days after Notice to Proceed, the Contractor may be due provisional progress payment(s) on work performed. It is the responsibility of the Contractor to reconcile such cost information and payments with the Project Contract Schedule. However, no payment shall be approved after the thirty (30) calendar day period, until the Project Contract Schedule has been accepted by the Owner.

The initial submittal of the Project Contract Schedule shall not reflect contract changes of delays. These changes shall be added within the first schedule revision.

Project Construct Schedule Elements

The Project Construction Schedule shall include, in addition to construction activities, the following:

A. The submittal and approval of construction drawings, shop drawings and materials, the procurement and fabrication of major materials and equipment, and their installation and testing.

B. Contract requirements dates of all or parts of the Work will be shown including all activities of the Owner that affect the progress of the work.

C. Activities of completed work ready for use by next trade, etc.

D. Activities relating to different areas of responsibility, such as sub-contracted Work which is distinctly separate from that being done by Contractor directly.

E. Different categories of Work as distinguished by craft or crew requirements.

F. Different categories of Work as distinguished by materials.

G. Location of Work within the project that necessitates different times or crew to perform.

H. Outage schedules of limiting times that existing utility services may be interrupted to construct the Project.

I. Acquisition and installation of equipment and materials supplied and/or installed by Owner or separate Contractors.

J. Material stored on site.

Major Equipment/Materials

For all major equipment and materials fabricated or supplied for Project, the Construction Schedule shall show a sequence of activities including:

A. Preparation of shop drawings and sample submissions.

B. Review of shop drawings and samples.

C. Shop fabrication, delivery, and storage.

D. Erection or installation.

E. Test of equipment and materials.

F. Required dates of completion.

Early Completion: Include in Project Construction Schedule an early completion date for the Project that is no later than Project's required date of completion.

Construction activities are to be delineated separately for off-site sewer, site development, earthwork, utilities, roads, parking lots, fences and like Work and each building, separately.

The network diagrams shall clearly indicate any work that is planned to be accomplished on a work schedule other than eight (8) hours per day and forty (40) hours per week.

The basic concept of CPM network diagramming will be followed to show how the start of a given activity is dependent on the completion of preceding activities and its completion restricts the start of following activities. The diagrams shall show a continuous flow from left to right to left sequences.

The following information will be provided in a report for each network activity:

A. Activity description.

B. Activity duration in work days.

C. Activity cost. The Contract Price shall be broken down with the appropriate values distributed to the network diagram activities.

D. Working activities and General Conditions activities shall be identified separately.

E. Activity predecessors.

F. Activity successors.

Schedule review by the Owner and its agents is limited to ensuring the logic of sequencing is reasonable and Contractor had demonstrated ability to meet contractual milestone and completion dates. Approval of schedule should not be constructed as direction from the Owner to Contractor on how to schedule the work.

After Completion and Acceptance of the Official Project Construction Schedule: The Contractor will provide initial computer reports and weekly and monthly reports thereafter, as follows.

Three-week Window: Weekly, for the progress meeting, the Contractor shall produce a three-week window of the current schedule, indicating activities competed the previous week and activities scheduled for the current and following week.

Payment Progress Reporting

Owner and Contractor shall select a specified time for updating the Project Schedule at the jobsite each month.

A. The Owner and Contractor and his/her designated scheduling representatives will attend the meeting to review the project progress.

B. The schedule shall be the basis for monthly pay requests derived from the joint review of the cost loaded schedule.

C. All progress and status information provided by the Contractor shall clearly define the reporting period for which the status is provided.

At the monthly progress review meeting, the Contractor will provide "actual start" and "actual completion" dates for activities that were started or completed during the reporting period. The Contractor and the Owner will agree upon and assign percent complete values to activities in progress. In the event of a disagreement, the Owner, or its designated representative, shall make the final decision as to percent completion of each activity.

After joint review, Owner will process the Contractor's pay request based on progress from the schedule.

Payment to the Contractor shall be made from the progress reflected by the Interim or the Contract Schedule.

Time is of the Essence: Whenever it becomes apparent from the current monthly progress review that phases of Work or the Contract Completion Date will not be met, through no fault of the Owner, the Contractor will take the following actions with no change in the contract amount:

A. Increase construction manpower to eliminate an adverse backlog of work.

B. Increase the number of working hours per shift, shifts per day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the adverse backlog of Work.

The Official Project Construction Schedule as approved by the Owner will be an integral part of the Contract, and will establish interim Contract Completion Dates or milestone dates for the various activities.

Should any activity fall fifteen (15) work days or more behind the Official Project Construction Schedule approved by the Owner, the Owner will have the right to order the Contractor to

expedite completion of that activity using whatever means are appropriate and necessary, without additional compensation to the Contractor.

Should any activity fall twenty (20) or more work days behind the Official Contract Schedule approved by the Owner, through no fault of the Owner, the Owner will have the right to perform the activity or have the activity performed by whatever method the Owner deems appropriate. All costs incurred by the Owner in connection with expediting such activity under this subparagraph shall be reimbursed promptly to the Owner by the Contractor.

It is expressly understood and agreed that the failure by the Owner to either order the Contractor to expedite an activity or to expedite the activity by other means, pursuant to the two preceding paragraphs, shall not be considered precedent setting with respect to any other activities which may fall behind the Official Contract Schedule approved by the Owner; nor will it relieve the Contractor from completion of the Project Work in accordance with the Official Contract Schedule and the Contract Completion Date.

Owner's acceptance of, or its review of, comments about any schedule or scheduling data shall not relieve the Contractor from its sole responsibility to plan for, perform, and complete the Work within the Contract Time. Acceptance of or review of comments about any schedule shall not transfer responsibility for any schedule to Owner nor imply their agreement with (1) any assumption upon which such schedule is based, or (2) any matter underlying or contained in such schedule.

Failure of Owner to discover errors or omissions in schedules that it has reviewed, or to inform Contractor that Contractor, Subcontractors, or others are behind schedule, or to direct or enforce procedures for complying with the Contract Schedule shall not relieve Contractor form its sole responsibility to perform and complete with Work within the Contract Time and shall not be a cause for an adjustment of the Contract Time or the Contract Sum.

Schedule Revisions

General: Revisions to approved Construction Schedule must be approved in writing by the Owner and Contractor.

Contractor: Submit requests for revision to schedule to the Owner together with written rationale for revisions and description of logic for researching Work and maintaining Specific Contractual Milestone Dates listed in Contract Documents.

Proposed revisions acceptable to Owner will be incorporated into next update of Construction Schedule.

Acceptance: Acceptance of revised schedule by Owner does not relieve Contractor of meeting contractual milestone and completion dates.

Changes initiated by Owner and implemented by Change Orders which have potential to affect critical dates will require the Contractor to prepare revised schedule for Owner's concurrence. Once Owner agrees to revision, Contractor will incorporate it into updated Construction Schedule. Adjustments in schedule completion dates, either for intermediate activities or for Contract as a whole, will be considered for compensation only to extent that there is not sufficient float to absorb the revisions accepted.

8. RECOVERY SCHEDULE

General: Should updated Project Construction Schedule show Contractor to be fourteen (14) or more calendar days behind schedule at any time during construction, Contractor will prepare Recovery Schedule displayed on CPM schedule, at no additional costs to Owner. Prepare Recovery Schedule to show plan for returning to original schedule as expeditiously as possible.

Schedule Assessment: Five (5) days prior to expiration of Recovery the Owner and Contractor will meet with Construction Manager to assess effectiveness of Recovery Schedule. As a result of this conference, Owner will direct Contractor as follows:

A. Behind Schedule: If Owner determines Contractor is still behind schedule, Owner will direct Contractor to prepare another Recovery Schedule for subsequent pay period.

B. On Schedule: If Owner determines Contractor has successfully complied with provisions of Recovery Schedule, Owner will direct Contractor to return to use of Project Construction Schedule.

9. SUBMITTAL REQUIREMENTS

General: Submit a minimum three (3) sets of submittals for Owner, Owner Representatives, and Contractor Copy. The submittal shall include but not be limited to the following materials:

<u>Asphalt Concrete</u>
Gradation and Type per Plans.

<u>Bedding, Backfill (including permeable backfill), and Aggregate Base</u>
Certificate of Compliance with appropriate gradation specifications;
Sieve Analysis;
Mix Design (Sand/Cement Slurry, Controlled-Density Backfill).

Control and Instrumentation Systems

Manufacturer's resumes
Catalog cuts
Dimensional drawings
Logic diagrams
Ladder diagrams with plain language narrative
Wiring diagrams
Block diagrams
Programming manual
Parts lists including source of supply
Nameplate data
Manufacturer's warranty

Copper Pipe, Tubing, and Fittings

Certificate of Compliance with AWWA C800

Ductile Iron Fittings

Certificate of Compliance with AWWA C110 or C153
Catalog cuts
Details showing dimensions and installation procedures

Ductile Iron Pipe

Certificate of Compliance with AWWA C151
Details showing dimensions and installation procedures

Electrical Equipment including Panels, Switch Gear, Lighting, Low-Voltage Electrical

Certificate of Compliance with Underwriter's Laboratories as appropriate
Certificate of Compliance with NEMA and NEC as appropriate
Catalog cuts
Dimensional drawings and details
Wiring diagrams
Ladder diagrams
Parts list including sources of supply
Short circuit calculations
Bench test results and performance curves
Complete installation and operations manuals
Breaker/fuse coordination diagrams
Breaker/fuse assignment list
Nameplate data
Manufacturer's warranty

Flowmeters, Residential Service (Domestic) Meters
Certificate of Compliance with AWWA C701, C703, and C704
Details showing dimensions and installation procedures

Galvanized Iron Pipe
Certificate of Compliance with AWWA C800
Details showing dimensions and installation procedures

Painting and Coating Systems including Caulking and Sealants
Color chips
Full material specifications including hazardous materials handling requirements
Material Safety Data Sheets
Application instructions
Certificates of Compliance with AWWA and ASTM specifications

Service Tubing and Fittings
Certificate of Compliance with AWWA C800 and C901
Details showing dimensions and installation procedures

Drainage Pipe and Fittings
Certificate of Compliance with ASTM F405, F667, and F810
Details showing dimensions and installation procedures

Polyvinyl Chloride (PVC) Pipe
Certificate of Compliance with AWWA C900, AWWA C905, AWWA C800, ASTM D1785, and ASTM D2241
Details showing dimensions and installation procedures

Precast Concrete Structures: Grates, Drainage inlets, Meter and Valve Boxes, and Vaults
Manufacturer's Resume citing Work of a similar nature within the previous 5-years
Structural calculations
Structural plans and details
Concrete mix designs
Specifications for installation
Manufacturer's warranty
Material specifications
Certificate of Compliance with ASTM Standards as appropriate
Catalog cuts as appropriate.

Pump Suction Barrels
Certificate of Compliance with AWWA C200
Details showing dimensions, welding, and installation procedures as appropriate

Pumping Equipment including Domestic Service Pumps, Chemical Feed Pumps, and Air Compressors
Manufacturer's Resume
Catalog cuts
Certificates of Compliance with AWWA Specifications as appropriate
Pump Curves including pumping rates at specified heads, NPSH Curves, and Efficiency Curves
Complete mechanical drawings
Complete electrical drawings including schematics, wiring, motors, connections, ladder diagrams with plain language narrative, and controls
Complete installation, maintenance, and operations manuals
Parts list including sources of supply
Bench test results
Nameplate data
Manufacturer's warranty

Retaining Wall Systems including but not limited to, Concrete Masonry Units, Structural Steel and Timber, Cast-in-Place Portland Cement Concrete, Pre-Cast Portland Cement Concrete, Crib Type, and Gabion/Mattress Type
Certificates of Compliance with ASTM Standards as appropriate
Dimensional drawings and details
Color chips
Structural calculations and design data
Reinforcing steel diagrams
Erection, bending, and placement drawings
Mix design for mortar and grout
Parts list including sources of supply
Welder certifications
Bench test results
Complete installation, operation, and maintenance manuals

Treatment Works
Manufacturer's Resum
Catalog cuts
Certificates of Compliance with AWWA Specifications as appropriate
Pump Curves including pumping rates at specified heads, NPSH Curves, and Efficiency Curves;
Complete mechanical drawings

Complete electrical drawings including schematics, wiring, motors, connections, ladder diagrams with plain language narrative, and controls
Complete installation, maintenance, and operations manual
Parts list including sources of supply
Bench test results
Nameplate data
Manufacturer's warranty

Valves including Control, Air and Air/Vacuum, Line Valves, Hydrants, Flood Control Valves, Flap Gates, Meters, and Small Valves and Couplings
Certificate of Compliance with AWWA Specifications as appropriate
Catalog cuts
Dimensional drawings and details
Complete mechanical drawings and details
Complete electrical drawings including schematics, wiring, motors, connections, ladder diagrams with plain language narrative, and controls

Water Storage Tanks, Hydro-Pneumatic Tanks, Chemical Storage Tanks, Fuel Tanks
Manufacturer's Resume
Catalog cuts
Certificates of Compliance with AWWA Specifications as appropriate
Complete mechanical drawings as appropriate
Complete installation, maintenance, and operations manuals
Parts list including sources of supply
Nameplate data
Manufacturer's warranty

10. DISTRIBUTION

Distribute copies of Project Construction Schedule to project site file, Subcontractors, suppliers, and other concerned parties.

Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

END OF DOCUMENT

6-E MEASUREMENT AND PAYMENT

11. UNIT PRICES

Unit Prices quoted in the Bid Form are for additions of (and deletions of) approved items of work. All Unit Prices quoted shall be for installed, completely furnished, and operable modifications according to the Contract Documents, and shall include profit, overhead, taxes, cost of coordinating the Unit Price work with adjacent work, compensation for risk of loss or damage to the Work regardless of cause, all expenses due to delays in performance, so they are the complete price to the District. The Unit Prices shall not apply to work the Contractor elects to do for its own convenience or to correct errors committed by the Contractor.

All Unit Prices shall remain in effect during construction and will be used to adjust the Contract Sum.

The Contractor shall immediately notify the District's Representative when conditions indicate the probability of the need to make use of any Unit Price work.

he applicability of, measurement methods for, documentation of, and the final adjustment in the Contract sum for Unit Price work shall be determined by the District's Representative.

After performing Unit Price work as directed by the District's Representative, the Contractor shall take necessary measurements in the presence of the District's Inspector and shall submit calculations of the quantities to the District's Representative for approval. The Contractor shall notify the District's Inspector one (1) day in advance of taking measurements.

12. APPLICATION FOR PAYMENT

The Contractor shall submit monthly, on the first working day of each month, to the District’s Representative, Application for Progress Payments, on forms approved by the District, setting forth an itemized estimate of Work completed in the preceding month for the purpose of the District’s making of Progress Payments thereon. Valuation utilized in the Application for Progress Payments shall be based upon the District pre-approved Cost Breakdown and shall be only for determining the basis of Progress Payments to Contractor and shall not be considered as fixing a basis for adjustments, where additive or deductive to the Contract Price or for determining the extent of Work actually completed. A Sample Application for Payment is included in Section 7.

END OF DOCUMENT

6-F PROJECT MEETINGS

1. PRECONSTRUCTION CONFERENCE

Prior to mobilization or the commencement of any work on the Project site, and not later than 14 days after issuance of the Notice to Proceed, a pre-construction conference will be scheduled. The pre-construction conference will be conducted by the Owner's Representative to discuss timing procedures for smooth job progress, items requiring clarification, distribution of documents and correspondence with the Owner and the Owner's Representative, and other procedures which are to be followed during performance of the Work.

Location
On the Project site, as designated by the Owner's Representative.

Attendees
Owner
Owner's Representative
Engineer and the Engineers Consultants;
Contractor
Contractor's Project Manager
Contractor's Superintendent
Subcontractors, as appropriate
Others, as appropriate

Agenda
The agenda will include:

A. Distribution of a list of major subcontractors and suppliers and the Project Construction Schedule.
B. Critical work sequencing.
C. Major equipment deliveries and priorities.
D. Project coordination.
E. Designation of responsible personnel.
F. Procedures and processing of field decisions; submittals; modifications (Change Orders and Field Orders); proposal requests, cost proposals, supplemental information, requests for information (RFI) and applications for payment.
G. Adequacy of distribution of Contract Documents.
H. Procedures for maintaining Record Documents.
I. Use of premises for office, work, and storage areas and the owner's representative's requirements.

J. Construction facilities, controls, and aids; temporary utilities; tree protection procedures; erosion control; owner's operations and maintenance department concerns; housekeeping procedures; insurance requirements; wage and hour compliance; conducting work in operating facility and noise control.
K. Other subjects as appropriate.

END OF DOCUMENT

6-G PROGRESS MEETING

During the course of construction, progress meetings will be held to discuss and resolve field problems.

1. OWNER'S REPRESENTATIVE RESPONSIBILITIES

The Owner's Representative shall schedule and administer weekly progress meetings and specially called meetings throughout progress of the Work:

Prepare agenda for meetings.

Make physical arrangements for meetings.

Preside at meetings.

Record minutes, including significant proceedings and decisions. Items not concluded will be retained on the agenda and in the minutes until conclusion is recorded in subsequent minutes. Format of the minutes shall be as mutually agreed upon by the Contractor and the Owner's Representative.

Reproduce and distribute copies of minutes within four (4) working days after each meeting to participants in meeting and to parties affected by decisions made at meeting.

Attendees taking exception to items contained in the minutes shall state their objections, in writing, within one (1) working day prior to the next scheduled meeting.

Representatives of Contractor, subcontractors and suppliers attending meeting shall be qualified and authorized to act on behalf of entity each represents.

The weekly time and day of job meetings shall be mutually agreed upon by all parties concerned and once determined the job meeting shall be held every week on the same day and at the same time.

The Location will be designated by the Owner's Representative.

<u>Attendees</u>
Owner
Owner's Representative
Engineer and the Engineers Consultants
Inspector
Contractor
Contractor's Project Manager

Contractor's Superintendent
Subcontractors, as appropriate
Others, as appropriate

2. BILLING MEETING

The Contractor shall conduct the billing meeting each month prior to submittal of the Application for Payment. During this meeting, the percentage of completing will be discussed.

The Location will be designated by the Owner's Representative

Attendees
Owner
Owner's Representative
Engineer and the Engineers Consultants
Inspector
Contractor
Contractor's Project Manager

END OF DOCUMENT

6-H TESTING AND INSPECTION

1. DEFINITIONS

The term "The Owner's Testing Laboratory" means a testing laboratory retained and paid for by the Owner for the purpose of reviewing material and product reports and performing other services as determined by the Owner. The Owner will select an independent Testing Laboratory to conduct tests. Selection of the material to be tested will be by the Laboratory or the Owner's Inspector and not by the Contractor.

The term "Contractor's Testing Laboratory" means a testing laboratory retained and paid for by Contractor to perform the testing services required by the Contract Documents. Contractor's Testing Laboratory shall be an organization other than the Owner's Testing Laboratory and shall be acceptable to the Owner's Representative. It may be a commercial testing organization, the testing laboratory of a trade association, the certified laboratory of a supplier or manufacturer, Contractor's own forces, or other organization. Contractor's Testing Laboratory shall have performed testing of the type specified for at least five (5) years.

The term "The Owner's Inspector" or "Inspector of Record" means an inspector retained and paid for by the Owner for the purpose of observing the progress of the Work and insuring compliance with the Contract Documents and applicable codes and regulations.

2. GENERAL

Contractor shall perform all tests as specified herein and as may be required to insure and demonstrate proper installation and operation of materials and equipment in this Contract.

Tests, inspections, and acceptances of portions of the Work required by the Contract Documents or by Applicable Code Requirements shall be made at the appropriate times. Except as otherwise provided, Contractor shall make arrangements for such tests, inspections, and acceptances with Contractor's Testing Laboratory. Contractor shall give the Owner's Representative timely notice of when and where tests and inspections are to be made.

If such procedures for testing, inspection, or acceptance reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Owner's Representative's, the Owner's Representative's Consultants', and the Owner's Inspector's services and expenses.

If the Owner's Representative or the Owner's Inspector is to observe tests, inspections, or make acceptances required by the Contract Documents, the Owner's Representative or the Owner's Inspector will do so promptly and, where practicable, at the normal place of testing.

Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

The Work will be available for inspection at any and all times for the Owner, the Owner's Representative or the Owner's Inspector. Contractor will be expected to consult and cooperate with the Owner's Representative or the Owner's Inspector in regard to all requirements as set forth in the Contract Documents.

The Owner will select and pay Owner's Testing Laboratory costs for all test and inspections, but shall be reimbursed by the Contractor for certain cost as specified herein. Any direct payments by the Contractor to the Testing Laboratory on this Project is prohibited.

3. TESTING AND INSPECTION

Project Inspectors

The Owner will employ one or more qualified inspectors, acceptable to the Owner's Representative, who will be employed at Project site to observe progress of Work and to report to the Owner's Representative any nonconformance with the Contract Documents.

Geotechnical Engineer

The Owner will retain and pay the expenses of a Geotechnical Engineer to perform inspection, testing, and observation functions specified by the Owner. Geotechnical Engineer shall communicate only with the Owner and the Owner's Representative. The Owner's Representative shall then give notice to Contractor, with a copy to the Owner, of any action required of Contractor.

Persons performing testing and inspections shall not be authorized to:

A. Release, revoke, alter or enlarge requirements of the Contract Documents.

B. Stop Work except as may be required to perform testing or inspection operations.

C. Advise on or issue directions relative to any aspect of construction means, methods, techniques, sequences, or procedures.

Contractor's Responsibilities

Maintain quality control over suppliers, manufacturers, products, services, site conditions and

workmanship, to produce work of specified quality. Testing and inspection shall not relieve Contractor of his responsibility for quality of materials in place.

Be responsible for scheduling all testing and inspections specified.

A. Schedule work that is to be tested or inspected so that tests can be performed within a reasonable time period.

B. Notify and obtain concurrence of Project Inspector prior to scheduling testing or inspection by Testing Laboratory or Geotechnical Engineer.

C. Notify the Owner's Representative in writing on the form contained within the Project Manual at least forty-eight (48) hours in advance of operations on site requiring testing or inspection.

D. Notify the Owner's Representative and the Owner's Inspector in writing on the form contained within the Project Manual a minimum of three (3) working days in advance of off-site operations requiring testing or inspection, in order that testing at the source can be arranged without delaying Work.

E. Material shipped by the Contractor from the source of supply before having satisfactorily passed such testing and inspection, or before the receipt of notice from the Owner's Inspector that such testing and inspection will not be required, shall not be incorporated into the work.

F. Notify the Owner's Representative in writing on the form contained within the Project Manual at least four (4) working days prior to commencement or resumption of operations requiring observation or testing by the Owner's Geotechnical Engineer.

G. When a specified test or inspection is not performed due to Contractor's failure to schedule services, the Owner's Representative will establish remedial work and Contractor shall bear cost of remedy.

H. Additional tests and inspections not herein specified but requested by the Owner or Architect, will be paid for by the Owner, unless results of such tests and inspections are found not in compliance with the Contract Documents, in which case the Owner will pay all costs for initial testing as well as re-testing and re-inspection, and deduct the costs from the Contract sum.

Reimburse the Owner for the following by deduction from Contract Sum:

A. Costs of testing required because of changes in materials or proportions required by the Contractor.

B. Where inspections or tests prove unsatisfactory or not in compliance with Contract Documents, costs for further inspection and retesting.

C. Costs attributable to the Contractor's methods of operation, when these methods result in excessive test and inspection costs to the Owner, and if after warning, costs remain excessive.

D. Premium time fees for testing performed after regular working hours or on Saturday, Sunday, or on legal holidays; except when testing is required for the Owner's requested overtime work.

E. Tests arising from errors and omissions by the Contractor.

F. Retests of materials that fail; tests required by the lack of required identifications of materials (mill tests, manufacturer's certifications, etc.); and re-inspections.

G. Services required to expedite the Contractor's operations.

H. Testing and inspection fees for travel and per diem expenses, when shops or plants of fabrication are located more than a 50-mile radius from the Project site.

Where required by individual Sections of the Specifications, the Contractor shall pay all costs associated with inspection and testing without adjustment of the Contract Price or the Contract Time. For example, but not limited to, the following:

A. Concrete mix designs.

B. Certified mill test reports.

C. Qualification of welding procedures, operators and welders.

Repair or replace damage to work made necessary by retesting.

Secure and deliver to the Owner's Testing Laboratory adequate quantities of representative samples of materials proposed for use as specified.

Submit to the Owner's Testing Laboratory the preliminary design mixes proposed to be used for concrete and other materials which require review by the Owner's Testing Laboratory.

Submit copies of product test reports as specified.

Furnish incidental labor and facilities:

A. To provide the Owner's Testing Laboratory access to the Work to be tested.

B. To obtain and handle samples at the Project site or at the source of the product to be tested.

C. To facilitate inspections and tests.

D. For storage and curing of test samples.

Provide notice to the Owner's Representative sufficiently in advance of operations to allow for the Owner's Testing Laboratory assignment of personnel and scheduling of tests.

When tests or inspections are not performed after such notice, Contractor shall reimburse the Owner for the Owner's Testing Laboratory personnel and travel expenses incurred.

Several Sections of the Specifications require testing by the Contractor's Testing Laboratory.

Maintain and keep available at the Project Site, California Code of Regulations, Part I and Part II, Title 24.

4. TESTING SERVICES

The Owner may retain Testing Laboratories to observe structure excavation, to test compaction of backfill, and to test concrete, masonry, steel, reinforcing and other construction materials and methods as the Owner's Representative may deem necessary and as the Specifications require. The Testing Laboratory will make as many field observations and tests as are required to determine the acceptability of the Work. Contractor shall provide safe access to the Work as required for the Testing Laboratories to perform sampling and tests.

Testing and inspection services, which are performed, shall be in accordance with the requirements of the California Building Code (CBC), and as specified herein. Testing and inspection services shall verify that Work meets the requirements of the Contract documents.

In general, tests and inspections for structural materials shall include all items enumerated on the Structural drawings as listed for this Project and as prepared and listed by the Architect.

Notice to the Owner's Representative: In instances where the Owner's Representative requires testing and where the Specifications require work to be specially tested or approved, it shall be tested only in the presence of the Owner's Representative after timely notice of its readiness for inspection and test, and the Work after testing shall be covered up only upon the consent thereto of the Owner's Representative.

The results of any tests made are for the information of the Owner. Regardless of any test results, Contractor is solely responsible for the quality of work and materials and for compliance with the requirements of the Drawings and Specifications.

Registered Civil Engineer currently licensed in the State of California shall sign test reports.

5. ADDITIONAL TESTING AND INSPECTION

If initial tests or inspections made by the Owner's Testing Laboratory, or Geotechnical Engineer reveal that any portion of the Work does not comply with Contract Documents, or if the Owner's Representative determines that any portion of the Work requires additional testing or inspection, additional tests and inspections shall be made as directed.

A. If such additional tests or inspections establish that such portion of the Work complies with the Contract Documents, all costs of such additional tests or inspections shall be paid by the Owner.

B. If such additional tests or inspections establish that such portion of the Work fails to comply with the Contract Documents, all costs of such additional tests and inspections, and all other costs resulting from such failure, including compensation for the Owner's Representative and the Owner's consultants shall be deducted from the Contract Sum.

6. TEST REPORTS

Certification and Copies

The Owner's Testing Laboratory will furnish certified reports summarizing results of inspection, indicating observations and results of tests and indicating compliance or non-compliance with the Contract Documents, and other equipment as to adequacy and compliance, and results of tests and inspections. The Owner's Testing Laboratory will make copies and distribute test and inspection reports as follows:

Owner.	1 copy
Owner's Engineer/Architect.	2 copies
The Owner's Inspector.	1 copy
Contractor.	1 copy
Construction Manager.	2 copies

Test reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of CBC and with the Contract Documents. The reports shall also state definitely whether or not the material or materials tested comply with the requirements.

Contractor's Testing Laboratory shall submit four (4) copies of all reports to the Owner's Representative, indicating observations and results of tests and indicating compliance or non-compliance with the Contract Documents.

Form: Reports will clearly distinguish type of test, material tested, whether original (first) test or retest, and related information.

7. SAMPLES AND MATERIALS

Contractor shall furnish samples and materials for testing free of charge, and shall provide job storage facilities.

8. AVAILABILITY OF SAMPLES

Contractor shall make materials required for testing available to Laboratory and assist in acquiring these materials as directed by the Owner's Inspector. The samples shall be taken under the immediate direction and supervision of the Testing Laboratory or Inspector.

If Work that is required to be tested or inspected is covered up without prior notice or approval, such Work may be uncovered at the discretion of Architect at no additional cost to the Owner. Refer to Article 1.05 above.

Unless otherwise specified, Contractor shall notify Testing Laboratory a minimum of 10 working days in advance of all required tests, and a minimum of 2 working days in advance of all required inspections. Extra laboratory expenses resulting from a failure to notify the Laboratory will be paid by the Owner and back-charged to the Contractor.

Contractor shall give sufficient advance notice to Testing Laboratory in the event of cancellation or time extension of a scheduled test or inspection. Charges due to insufficient advance notice of cancellations or time extension will be paid for by the Owner and back-charged to the Contractor.

9. REMOVAL OF MATERIALS

Unless otherwise directed, materials not conforming to the requirements of Contract Documents shall be promptly removed from the Project site.

10. INSPECTION BY THE DISTRICT

The Owner's Inspector shall at all times have access for the purpose of inspection to all parts of the Work and to the shops wherein the Work is in preparation, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

he Owner's Inspector shall have the right to reject materials and workmanship that are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without cost to the Owner. If the Contractor does not correct such rejected Work within a reasonable time, fixed by written notice, the Owner may correct such rejected Work and charge the expense to the Contractor.

Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire Work to make an examination of Work already completed by removing or tearing out completed Work, the Contractor shall on request promptly furnish necessary facilities, labor and materials. If such Work is found to be defective in any respect because of the fault of the Contractor or Installer, he shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such Work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the Contractor.

An Inspector employed by the Owner will be assigned to the Work.

The Contractor shall notify the Inspector a minimum of 24 hours in advance of execution of all Work that requires special or continuous inspection.

The Work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. He/She shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep the Inspector fully informed respecting the progress and manner of the Work and the character of the materials. Inspection of the Work shall not relieve the Contractor from any obligation to fulfill this Contract.

11. UNDESIRABLE CONDITIONS / NONCONFORMANCE

Substandard Test Results: When test or inspection reveals undesirable conditions, nonconformance or failure to meet requirements, the Owner's Testing Laboratory will notify the Owner's Representative. The Owner's Representative will notify Contractor that the Work does not meet requirements and is rejected.

Immediately upon Testing Laboratory determination of a test failure, the Laboratory shall telephone the results of the test to the Owner's Representative and the Architect. On the same day, the Laboratory shall send written test results via facsimile to those names on the distribution list above.

Correction: Work done or materials delivered that fail to comply with requirements of Specifications or Drawings shall be rejected and shall immediately be made satisfactory at no additional expense to the Owner.

12. MATERIALS AND WORK QUALITY

All work under all Sections shall be performed in strict accordance with the highest standards of practice related to the trades involved and shall be complete and properly coordinated with all work adjacent or related to it.

All materials must be of the specified quality and equal to approved samples, if samples have been submitted. All work shall be done and completed in a thoroughly high-quality manner, notwithstanding any omission from these Specifications, or the Drawings, and it shall be the duty of Contractor to call the Owner's Representative's attention to apparent errors or omissions and request written instructions before proceeding with the Work. The Owner's Representative may, by appropriate instructions, correct errors and supply omissions; such instructions shall be as binding upon Contractor as though contained in the original Specifications or Drawings.

All defective work or materials shall be promptly removed from the premises by Contractor, whether in place or not, and shall be replaced or renewed in such manner as the Owner's Representative may direct. All materials and work quality of whatever description shall be subjected to the inspection of, and rejection by the Owner's Representative if not in conformance with the Specifications. The decision of the Owner's Representative is final and conclusive upon the parties.

Any defective material or work quality, or any unsatisfactory or imperfect work which may be discovered before the final acceptance of the Work or within the initial (and any extended) warranty period, shall be corrected immediately as required by the Owner, without extra charge, notwithstanding that it may have been overlooked in previous inspections and estimates. Failure to inspect work shall not relieve Contractor from any obligation to perform sound and reliable work as herein described.

13. APPROVAL

Approval of the Work in part or as a whole by the Owner's Representative shall not relieve Contractor of the responsibility for such compliance with the requirements of the Contract Documents. Such approvals may be withdrawn at any time that subsequent examination reveals that apparently satisfactory Work is, in fact, either defective or otherwise fails to

comply. Such work from which approval has been withdrawn shall be replaced or re-executed in accordance with the Contract, at no expense to the Owner.

14. SPECIFIC TESTING REQUIREMENTS

The following tests and inspections as detailed in applicable specification sections, are required, but not limited to:

15. EARTHWORK

The Geotechnical Engineer of record or a Geotechnical Engineer selected by the Owner will provide continuous inspection of earthwork, field test fill and earth backfill as placed and compacted, inspect excavations and sub-grade before concrete is placed, and provide periodic inspection of open excavations, embankment, and other cuts or vertical surfaces of earth. The Geotechnical Engineer will submit a report indicating that he has observed and tested fills and that in his opinion the fills were placed in accordance with the Contract Documents.

Contractor shall remove unsatisfactory material, re-roll, adjust moisture, place new material, or in the case of excavations, provide proper protective measures, perform other operations necessary, as approved by the Geotechnical Engineer whose decisions will be considered final.

Soils Test and Inspection Procedure

Allow sufficient time for testing, and evaluation of results before material is needed. The Geotechnical Engineer shall be sole and final judge of suitability of all materials.

Laboratory compaction tests to be used will be in accordance with ASTM D 1557.

Field density tests will be made in accordance with ASTM D 1556.

Number of tests will be determined by Geotechnical Engineer. Materials in question may not be used pending test results.

Excavation and embankment inspection procedure. Geotechnical Engineer will visually or otherwise examine such areas for bearing values, cleanliness and suitability.

Earth Work Test Reports

In order to avoid misinterpretations by the reviewing agencies, any retest results shall be reported on the same sheet, immediately following the previous failure test to which it is related. Retests shall be clearly noted as such.

CONCRETE

Concrete Mix Design

The Owner will pay for the sampling of aggregate and preparation of mix design one time for each strength and aggregate size specified. Testing cost for additional mix designs will be paid by the Owner and back-charged to the Contractor. The Owner will pay tests of materials, but the Contractor will be back-charged for all tests performed on materials that do not meet requirements. Two copies of the mix designs shall be filed with the Architect for record purposes only, not for review or approval.

Test concrete aggregates for mix design only.

Test suitability of aggregates in accordance with ASTM C 88-90 if material is under suspicion and if so directed by Architect.

If compressive test of core specimens fails to show compressive strength specified, remove and replace concrete or adequately strengthen in a manner approved by Architect.

Make all tests, take samples, and prepare samples in accordance with the latest standards adopted by American Society for Testing and Materials, referred to as ASTM.

Frequency of Testing

Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards (38 m^3) of concrete, or not less than once for each 2,000 square feet (186 m^2) of surface area for slabs or walls. In addition, samples for strength tests for each class of concrete shall be taken for seven-day tests at the beginning of the concrete work or whenever the mix or aggregate is changed.

Concrete shall be mixed at certified automatic concrete batch plants.

Waiver of Batch Plant Inspection

Batch plant inspection may be waived if the concrete plant complies fully with the requirements of UBC Standard 19-3, and has been certified to comply with the requirements of the National Ready Mixed Concrete Association. The plant must be equipped with an automatic batcher in which the total batching cycle, except for the measuring and introduction of an admixture, is completed by activating a single starter device.

Owner's Inspector Responsibilities

Inspect placing of reinforcing steel and concrete at Project.

Obtain load ticket and identify mix before accepting each load. Keep daily record of concrete placement, identifying each truckload, time of receipt, and location of concrete in structure.

During progress of work, take reasonable number of test cylinders as directed by Architect, but at least one set of cylinders for each 100 cubic yards or fractional part thereof for each class of concrete and at least one set from each day's pour. Test cylinders need not be made for concrete used in walks.

One set of cylinders shall consist of 3 samples all taken from same batch, one to be tested at age of 7 days and two at 28 days. The 28-day test may be omitted if the 7-day compressive strength exceeds 85 percent of the specified 28-day strength.

Make and store cylinders according to ASTM C 31-90.

Deliver cylinders to laboratory or store cylinders in a suitable protected environment for pick up by laboratory personnel.

Make slump test of wet concrete according to test for slump of Portland cement concrete, ASTM C 143-90a, at least at the same frequency that the cylinders are taken.

16. REINFORCING STEEL

Testing

Tests shall be performed before the delivery of steel to Project site. Steel not meeting specifications shall not be shipped to the Project.

Testing procedure shall conform to ASTM A615-90.

Sample at the place of distribution, before shipment: make one tensile test and one bending test from samples out of 10 tons, or fraction thereof, of each size and kind of reinforcing steel, where taken from bundles as delivered from the mill and properly identified as to heat number. Mill analysis shall accompany report. Where identification number cannot be ascertained, or where random samples are taken, make one series of tests from each 2-1/2 tons, or fraction thereof, of each size and kind of reinforcing steel. Tests on unidentified reinforcing steel will be paid by the Owner and back-charged to the Contractor. Samples shall include not fewer than 2 pieces, each 18 inches long, of each size and kind of reinforcing steel. Inspection of welding of reinforcing steel shall be done by a specially qualified laboratory inspector and tested in accordance with AWS D1.4-79.

Owner’s Inspector will inspect all reinforcement for concrete Work for size, dimensions, locations and proper placement. Inspector shall be present during welding of all reinforcing steel.

17. MASONRY

Inspection

Masonry work shall be continuously inspected during laying and grouting by an Inspector.

The Inspector shall check the materials, details of construction and construction procedure. The Construction Inspector shall furnish a verified report that of his own personal knowledge the work covered by the report has been performed and materials used and installed are in accordance with and in conformance to, the duly approved drawings and specifications.

18. MASONRY TESTS:

Concrete Masonry Units

Test each type of unit for strength in accordance with UBC Standard 24-7; absorption in accordance with ASTM C 140-75 (1980); for drying shrinkage in accordance with ASTM C 426-70 (1982); and for staining materials in lightweight concrete in accordance with ASTM C 641-82.

Mortar and Grout Test

At the beginning of all masonry work, at least on test sample of the mortar and grout shall be taken on 3 successive working days and at least at one-week intervals thereafter. The samples shall be continuously stored in moist air until tested. They shall meet the minimum strength requirement given in CCR Title 24, Sec 2103A.3 and 2103A.4 for mortar and grout, respectively. Additional samples shall be taken whenever any change in materials or job conditions occur or whenever in the judgment of the Architect, such tests are necessary to determine the quality of the material. Test specimens for mortar and grout shall be made as set forth in UBC Standard Nos. 21-16 and 21-18. In making the mortar test specimens the mortar shall be taken from the unit soon after spreading. After molding, the molds shall be carefully protected by a covering, which shall be kept damp for at least 24 hours, after which the specimens shall be stored and tested as required for concrete cylinders. In making grout test specimens, an absorbent paper liner shall be used and the mold left in place until the specimen has hardened. The prisms shall be stored as required for concrete cylinders. They shall be tested in the vertical position.

Masonry Core Tests

Not less than 3 cores having a diameter of approximately two-thirds of the wall thickness shall be taken from each project. At least one core shall be taken from each building for each four classrooms or equivalent area. The architect in responsible charge of the project or the Inspector shall select the areas for sampling. Core samples shall not be soaked before testing. Materials and workmanship shall be such that for all masonry when tested in compression, cores shall show strength of at least 1500 psi. When tested in shear the unit shear on the cross section of the core shall not be less than 100 pounds per square inch. Visual examination of all

cores shall be made to ascertain if the joints are filled. The Owner Inspector or testing agency shall inspect the coring of the masonry walls and shall prepare a report of coring operations for general distribution. Such reports shall include the total number of cores cut, the location, and the condition of all cores cut on each project regardless of whether or not the core specimens failed during cutting operation. All cores shall be submitted to the laboratory for examination

19. STRUCTURAL STEEL

Mill certificates or affidavits and manufacturers' certification shall be supplied to the Testing Laboratory and Inspector for verification of steel materials. Testing Laboratory shall be notified at least 2 Working days in advance of fabrication and supplied with the reports so that it can make a shop inspection of the steel.

Tests of Steel Materials

If structural steel cannot be identified by heat or melt numbers, or if its source is questionable, not less than one tension test and one bend test will be made for each 5 tons or fractional part thereof. Such testing will be paid for by the Owner and back-charged to the Contractor. Structural steel identified by heat or melt numbers marked at the mill need not be tested, except testing is required of steel with Fy greater than 36 ksi.

General Inspection

Testing Laboratory will visit the fabricator's plant to verify that materials used check with the mill tests; affidavits of test reports, and that fabrication and welding procedures meet Specifications.

Testing Laboratory will visually check fabricated steel against the Contract Drawings and reviewed shop drawings for compliance, and will make physical tests and measurements as required to meet the Specifications. Single pass fillet welds may be visually checked.

Inspection of Shop Fabrication

Inspection of shop fabrication may be required for important work if so designated on the Structural Tests and Inspections list. A qualified inspector approved by the DSA shall make this inspection. He shall furnish the Architect and the DSA a report duly verified by him that the materials and workmanship conform to the approved plans and specifications.

Approved Fabricators

In addition to welding inspection, fabrication inspection will be required for all work done on the premises of a steel fabricator who does not hold currently valid certificate CCR Title 24 Part 2, Sec. 306(f), Approved Fabricators. The cost of the fabrication inspection will be paid by the Owner and back-charged to the Contractor.

Inspection of welding shall be in accordance with the requirements of the 2001 CBC, Sec. 2231-A.

Erection Inspection

If so designated on the Structural Tests and Inspections list, Testing Laboratory will visually inspect bolted and field welded connections, perform such additional tests and inspections of field work as are required by the Architect and prepare test reports for the Architect's review.

Shop Fabrication Inspection Outside of Area

The added cost of shop fabrication inspection, and material testing outside the State of California or 150-mile radius of the Project site will be paid by the Owner and back-charged to the Contractor.

Corrections

Correct deficiencies in structural steel Work that inspections and test reports indicate to be not in compliance with the specified requirements.

Perform additional tests required to reconfirm noncompliance of the original Work and to show compliance of corrected Work. Costs for all additional tests will be paid for by the Owner and back-charged to the Contractor.

END OF DOCUMENT

6-I CONTRACT CLOSE-OUT

1. CLOSE-OUT PROCEDURES

Close-out Submittals

Prior to final payment and before the Owner's Representative issues a final Certificate for Payment, following shall be submitted as directed:

A. When called for in the Specifications, maintenance materials (extra stock) will be delivered to the Owner at its designated storage location materials, etc., for use in maintenance work.

B. Provide list of materials and quantities delivered to the Owner indicating date and acceptance by the Owner.

C. Evidence of compliance with requirements of governing authorities.

D. Record of all inspections and tests.

E. Project Record Documents.

F. Operating and Maintenance Data, Instructions to the Owner's Personnel in suitable transfer cases.

G. Evidence of Payment and Release of Liens.

H. Guarantees, Bonds, Service and Maintenance contracts as per Contract.

Final Adjustment of Accounts

The Contractor will prepare a final Certificate for Payment, reflecting approved adjustments to the Contract Sum not previously made by modifications. Submit the final request for payment to the Owner.

The final request shall reflect all adjustments to the Contract Sum as follows:

The original Contract Sum, including accepted alternates.

Additions and deductions resulting from:

A. Previous modifications (Change Orders).

B. Unit prices.

C. Deductions for uncorrected Work.

D. Deduction for re-inspection payments.

E. Retainage.

F. Other adjustments.

Total Contract Sum, as adjusted.

Previous payments.

Sum remaining due.

Prerequisites to Final Payment

The Contractor shall satisfactorily fulfill all the following requirements of the Contract before making request for final payment.

Work shall be complete and the Contractor shall receive the Owner's Representative's acceptance of all phases of the Project.

Deliver to the Owner's Representatives and receive the Owner's Representative's written acceptance of the following:

A. Written Guarantees.

B. As-built Drawings (original with redlines and AutoCAD Corrections).

C. Record of all inspections and tests.

D. File of all operations and maintenance manuals.

Deliver to the Owner a copy of the Final Verified Report filed or to be filed by the Contractor with DSA.

Deliver to the Owner's Representative and receive the Owner's Representative's acceptance of the Owner's Inspection Card(s) with all applicable items thereon signed as having been duly inspected and satisfactorily completed.

2. PROJECT CLOSE-OUT

Completion of Work

On completion of the Work, the Contractor shall request the final inspection in writing to the Owner's Representative. In the written request for final inspection, the Contractor shall certify that all work specified in the Contract Documents has been completed, including starting of systems. The final cleaning shall be completed prior to requesting the final inspection.

Deficiencies

If deficiencies and omissions by the Contractor are observed, they will be listed by the Owner's

Representative in a written memo (Punch List) to the Contractor and the Owner. The Contractor shall correct all listed deficiencies and omissions in a timely manner until all of the Work is in an acceptable condition and will so certify in writing to the Districts Representative.

Punch List Inspection

After receipt of the Contractor's certification in writing that all deficiencies have been corrected; the Owner's Representative will make a Punch List inspection. The Owner's Representative will notify the Contractor in writing of any items that remain unsatisfactory. The Contractor shall be responsible for all costs for re-inspection due to unsatisfactory work that is incurred by the Owner after the first Punch List inspection.

3. PROJECT RECORD DOCUMENTS

Record Drawings (As-Built Drawings)

The Contractor shall be solely responsible for the maintenance and completion of As-Built Drawings, and the following procedure shall be strictly adhered to:

The Contractor's shall have one complete set of blueline prints of the Project Drawings, Shop Drawings and Specifications which shall be recorded thereon by the Contractor.

As the Work progresses, a complete and accurate notation of all deviations from the Drawings and Specifications, including but not limited to, work by Change Order, clarifications made via Letters of Instruction, Architect’s Supplemental Information, and Requests for Information (RFI's), shall be recorded thereon by the Contractor. Such indications shall be neatly made and kept current. Where exact locations are critical, such as in the case of buried piping or conduit, said locations - both horizontal and vertical - shall be dimensioned.

Maintain at the Project site for the Owner, one record copy of favorably reviewed shop drawings, product data, and samples, field test reports, inspection records, manufacturer’s certificates, construction schedule. Store record documents and samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

The Contractor shall not request that inspection be made of any Work that has been installed in locations contrary to the Drawings until the Contractor properly notes such deviations on the As-Built Drawings.

The importance of keeping the Record Drawings accurately, neatly and current cannot be overstressed. The Owner's Representative may, if the Owner's Representative deems it necessary, withhold approval of periodic requests for payment if in the Owner's Representative's judgment, the provisions of this Section are not strictly adhered to. All such

requests for payment will be approved immediately, assuming all other requirements of the Contract Documents are satisfied, upon the satisfactory current completion of the Record Drawings.

At the completion of the Project, and before the final request for payment is made and the Owner's Representative's approval obtained, the Record Drawings shall be completed by the Contractor. The Contractor shall transfer all of the indications on the blueline prints to mylar reproductions of the Working Drawings. The Owner shall provide the mylar reproductions of the Working Drawings. The cost of the mylar reproductions shall be borne by the Contractor.

Approval by the Owner's Representative of the Contractor's final request for payment shall be contingent upon the satisfactory completion and delivery to the Owner of the Record Drawings.

All as-built indications shall be made to the project CAD file.

Maintain Record Documents in a clean, dry, and legible condition. Do not use Record Documents for construction purposes. Keep Record Documents and samples available for inspection by the Construction Manager, Architect/Engineer, and Owner’s Inspector.

Upon completion of the Project, the Contractor shall deliver this record of all construction changes to the Construction Manager, for transmittal to the Architect, along with a letter which declares that other than the noted changes, “The Project was constructed in conformance with the Contract Documents.”

4. OPERATING AND MAINTENANCE DATA

Contractor shall assemble and furnish three (3) complete sets of all data, except that which is noted to be mounted in frames, in three-ring loose-leaf binders, complete with index, indexed dividers and permanently attached exterior labels on the cover and back of the binder. Bound publications need not be assembled in binders.

<u>Manufacturers' Manuals</u>
Complete installation, operation, maintenance and service manuals and printed instructions and parts lists for all materials and equipment, where such printed matter is regularly available from the manufacturer. This includes, but is not limited to, such service manuals as may be sold by the manufacturer covering the operation and maintenance of the manufacturer's items, and complete replacement parts list sufficiently detailed for parts replacement ordering to the manufacturer.

<u>Equipment Nameplate Data</u>
A typewritten list of all mechanical and electrical equipment showing all equipment nameplate

data exactly. Identify equipment by means of names, symbols, and numbers used in the Contract Documents.

System Operating Instructions

Type written instructions covering operation of the entire system as installed (not duplicating manufacturers' instructions for operating individual components). Include schematic flow and control diagrams as appropriate and show or list system valves, control-elements, and equipment components using identification symbols and show proper settings for valves, controls and switches.

System Maintenance Instructions

Type written instructions covering routine maintenance of the system. List each item of equipment requiring inspection, lubrication or service and briefly describe such maintenance, including types of lubricants and frequency of service. It is not intended that these instructions duplicate manufacturers' detailed instructions. Give name, address and phone number of nearest firm authorized or qualified to service equipment or provide parts.

Wall Mounted Data

Frame one set of typewritten system instructions and diagrams as required under Paragraphs 3) and 4) above, covered with glass and mount in locations as directed by the Owner's Representative.

5. INSTRUCTION OF THE DISTRICT'S PERSONNEL BY CONTRACTOR

After Work under this Contract is completed, tested and prior to acceptance by the Owner and not less than five (5) days after submittal of the Operation and Maintenance Data required in the paragraph above, operate all systems during which time a qualified factory trained representative familiar with the items installed shall instruct and supervise the Owner's personnel in the operation and maintenance of the equipment and systems.

Any instructions from manufacturers' representatives required under other Sections of the Specifications shall be conducted during this period. This instruction period shall be conducted after completion of all piping and equipment labeling periods through the Owner's Representative.

Contractor shall make all arrangements and notices for operation and instruction periods through the Owner's Representative.

This one (1) day instruction period is in addition and subsequent to any period of operation, testing and adjustment called for elsewhere in the Specifications.

6. FINAL CLEANING

The Contractor shall provide final cleaning of the Work. The Contractor shall employ experienced workers or professional cleaners for final cleaning. The Contractor shall clean each surface or unit of Work to the condition expected from a normal, commercial building cleaning and maintenance program.

The Contractor shall comply with the manufacturer's instructions for cleaning operations.

The Contractor shall complete the following cleaning operations before requesting the final inspection.

Remove labels which are not required as permanent labels.

Clean transparent materials, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances that are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

Clean exposed exterior and interim hard-surfaced finishes to a dust-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

Wipe surfaces of mechanical and electrical equipment clean. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

Clean the Project site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas to a broom clean condition; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

Clean plumbing fixtures to a sanitary condition, vacuum and wipe inside of all electrical panels and cabinet work, clean light fixtures and lamps, clean permanent filters and replace disposable filters of units operated during construction; in addition, clean ducts, blowers and coils when units have been operated without filters during construction.

Clean roofs, gutters, downspouts and drainage systems.

7. REMOVAL OF TEMPORARY FACILITIES

At the completion of the Work, the Contractor shall remove from the premises all tools, appliances, materials, debris, scaffolding, temporary structures, temporary construction for which the Contractor has been responsible.

At the completion of the Work, the Contractor shall remove or cap all temporary utility lines as directed by the Owner's Representative.

At the completion of the Work, the Contractor shall remove all erosion control fencing, straw waddles, inlet protection and wood stakes associated with erosion control if protection measures are deemed no longer necessary by the Owner.

END OF DOCUMENT

6-J DISPUTE RESOLUTION PROCEDURES

It is the intent of this Contract that disputes regarding the Contract be resolved promptly and fairly between the Owner Representative and Contractor. However, it is recognized that some disputes will require detailed investigation and review by one or both parties before a determination and resolution can be reached. For the protection of the rights of both the Contractor and Owner the following provisions apply to the resolution of disputes.

Contractor shall provide verbal or written notice of disputed or potentially disputed work to the Owner Representative's attention prior to the commencement of and sufficiently in advance of performing the disputed work to allow the Owner Representative initial review of the disputed work. If there is disagreement subsequent to the initial review, the Contractor shall formally request a Contract Interpretation by the Owner Representative. If the Contractor disagrees with the Owner Representative's decision, the Contractor shall notify the Owner Representative, in writing, of its intention to make a claim. Written notice of claims shall be clearly titled "Notice of Potential Claim". Such Notice of Potential Claim shall state the circumstances and the reasons for the claim and the amount of the claim within ten (10) days after the date that the claim arises.

In proceeding with a disputed portion of the Work, the Contractor shall keep accurate records of all costs, including a summary of the hours and classification of equipment and labor utilized on the disputed work, as well as a summary of any materials or any specialized services which are used. Such information shall be submitted to the Owner Representative on a daily basis, receipt of which shall not be construed as an authorization for or acceptance of the disputed work.

The Contractor shall submit to the Owner Representative its costs incurred for the claimed matter within five (5) days after request for said information is requested by the Owner Representative. Claims shall be made in itemized detail and should the Owner Representative be dissatisfied with the format or detail of presentation, upon request for more or different information, the Contractor will promptly comply, to the satisfaction of the Owner Representative. If the additional costs are in any respect not knowable with certainty, they shall be estimated as best can be done. The Owner Representative shall have the right as provided to review the Contractor's records pertaining to a submitted claim. In case the claim is found to be just, it shall be allowed and paid for through a Change Order.

From time to time the Contractor may request or the Owner Representative may call a special meeting to discuss outstanding claims should it deem this a means of possible help in the resolution of the claim. The Contractor shall cooperate and attend prepared to discuss its

claims, making available the personnel, subcontractors and suppliers necessary for resolution, and all documents which may reasonably be requested by the Owner Representative.

Public Contract Code Section 9204

The Contractor is hereby informed that the Public Contract Code Sections 9204 provides:

"(a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation…a special district, public authority, political subdivision, public corporation…

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a

mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on their own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017….

(i) This section shall remain in effect only until January 1, 2027, and as of that date is repealed, unless a later enacted statute that is enacted before January 1, 2027, deletes or extends that date."

END OF DOCUMENT

SECTION 7 PROJECT FORMS

TABLE OF CONTENTS

7-A PRE-BID REQUEST FOR SUBSTITUTION 2

7-B PROPOSAL REQUEST 4

7-C SUBMITTAL TRANSMITTAL 5

7-D CHANGE ORDER REQUEST 6

7-E FIELD ORDER 8

7-F CHANGE ORDER 9

7-G ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION 11

7-A REQUEST FOR SUBSTITUTION

All Substitution Requests are due within five (5) business days after the Notice of Award. Substitution Requests are not allowed when so stated in the Plans and Specifications.

Proposed Substitution _____

Manufacturer _____

Product (model, pattern, etc.) _____

Reason for proposed substitution _____

- ❑ The specified item is unavailable (certified letter from manufacturer/supplier attached).
- ❑ Significant Time Reduction Estimated Calendar Day Reduction: _____ Days
- ❑ Significant Cost Reduction Estimated Reduction in Contract Sum: $ _____
- ❑ Significant improvement in quality without a change in Contract sum. Provide comparison information and supporting data substantiating the request per requirements

EFFECTS OF PROPOSED SUBSTITUTION**:**

Does substitution affect dimensions indicated on Drawings ❑ Yes ❑ No

Does substitution affect Work of other Sections? ❑ Yes ❑ No

Does substitution require modifications to design, changes to Drawings, or revisions to specifications to be incorporated into the Project? ❑ Yes ❑ No

Explain any yes answer above _____

Attach list of at least 3 projects where proposed substitution has been used within past 12 months; include name, address, and telephone number of Owner and Architect.

1. _____
2. _____
3. _____

CONTRACTOR'S / BIDDER'S REPRESENTATION:
Undersigned accepts responsibility for coordination of proposed substitution and accepts all additional costs resulting from the incorporation of proposed substitution into the Project.

SUBMITTED BY: _____ DATE: _____

_____

REVIEWED BY _____ DATE: _____

❑ Accepted ❑ Not Accepted ❑ No Action Required ❑ Incomplete ❑ Too Late

COMMENTS

END OF DOCUMENT

7-B PROPOSAL REQUEST

To Contractor: Proposal Request No. _____

Name: _____ Date Issued _____

Address _____

Attention: _____

Project _____

Copy to: _____

The following change is being considered for the Project. Please provide a Cost Proposal for any changes in Contract Sum and/or Contract Time to perform the work described below in accordance with the General Conditions. Cost Proposal shall be submitted on the Owner's form, 7-B PROPOSAL REQUEST of the Contract Documents.

THIS IS NOT A CHANGE ORDER OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED HEREIN

Description of Work Requested:

Subject:
Contract Reference:

The Owner request your Cost Proposal in time and money to:

Attachment:

Project Manager: _____ **Date:** _____

END OF DOCUMENT

7-C SUBMITTAL TRANSMITTAL

Submittal Number: _____

SUBMITTAL

Specification Section	**Article/Paragraph**	**Description**:

The following supporting information is attached:

☐ Product Submittal ☐ Shop Drawings ☐ Schedules (Contract Time)
☐ Certified Test Results ☐ Calculations ☐ Color Selection Charts
☐Product/Material Samples ☐ Manufacturer's Recommendations
☐ Other: _____

Total Number of Copies Submitted

	Number of copies to returned to the Contractor.
	Original Transparency (Shop Drawings Only).
	Opaque Reproductions/Non-Reproducible Submittal. *(District's Project Files, Construction Manager's File, Architect's File, Inspector of Record's File)*
	Total Number of Copies Submitted.

Specified Item: Yes: ☐ No: ☐ (complete *Request for Substitution Information* below)

As the Contractor for this Project, we have thoroughly checked this submittal and ascertained that this submittal complies in detail with the Contract Documents. Prior to submission, we have reviewed, marked-up as appropriate, and stamped this submittal. The submittal clearly shows that we have clearly reviewed this submittal for conformance with the requirements of the Contract Documents and for coordination with other Sections. We have determined and verified; field measurements, field construction criteria, catalog numbers and similar data, conformance with Contract Documents.

_____
Contractor Date

END OF DOCUMENT

7-D CHANGE ORDER REQUEST

(Reference Contract Administration 6-C Modification Procedures)

Cost Proposal #:		
Date Submitted:		
Project:		
Scope of Change:		
Adjustment of Contract Time:	*(Include justification based upon the Contract Schedule)*	
Adjustment of the Contract Sum:	*Total Additional Cost from Cost Proposal Breakdown*	

Instructions:

Complete this form by providing (a) all information required above, (b) the amount and justification based upon the Contract Schedule for any proposed adjustment of Contract Time, (c) the proposed adjustment of Contract Sum, and (d) the attached Cost Proposal Breakdown.

Attach detailed cost breakdowns for all materials, wages and salaries, and Fringe Benefits and Payroll Taxes.

The Contractor Fee shall be computed on the Cost of Extra Work only; and shall constitute full compensation for all costs and expenses related to the subject change and not enumerated in the Cost Proposal Breakdown, including overhead and profit.

The mark-up for all overhead (including home and field office overhead), general conditions costs and profit, shall not exceed the percentage of allowable direct actual costs for performance of the Change as set forth below. Contractor Fee shall be computed as follows:

For the portion of any Change performed by Subcontractors of any tier, the percentage mark-up on allowable actual direct labor and materials costs incurred by Subcontractors of any tier shall be Twelve Percent (12%).

For the portion of any Change performed by a Subcontractor of any tier, the Contractor may add an amount equal to Five Percent (5%) of the allowable actual direct labor and materials costs of Subcontractors performing the Change.

For the portion of any Change performed by the Contractor's own forces, the mark-up on the allowable actual direct labor and materials costs of such portion of a Change shall be Fifteen Percent (15%).

PREPARED BY:	REVIEWED AND RECOMMENDED BY:
_____	_____
(Contractor)	(Owner's Representative)
Title: _____	Title: _____
Date: _____	Date: _____

ACTUAL COSTS	(1)	(2)	(3)	(4)
	Contractor	1st Tier Subs	2nd & Lower Tier Subs	Total
1. Straight Time Wages – Labor				
2. Overtime Wages – Labor				
3. Straight. Time Wages/Salaries Supervisory Personnel				
4. Over Time Wages/Salaries – Supervisory Personnel				
5. Fringe Benefits and Payroll Taxes				
6. Materials				
7. Sales Taxes				
8. Rental Charges				
9. Royalties				
10. Permits				
11. Utilities				
Subtotal Cost of Extra Work (sum lines 1-11)				
OVERHEAD, GENERAL CONDITIONS & PROFIT				
Contractor Fee				
Subcontractor Fee (12% of line 12, col. 2 and col. 3.)				
Contractor Fee for Subcontractor and Subcontractor work (5% line 12 col. 3.)				
Total Subcontractor and Subcontractor Work (Sum of lines 12, col.2 and 3)				
Contractor Fee for Subcontractor and Subcontractor Work. (5% of the Total Subcontractor and Sub-Subcontractor Work)				
SUBTOTAL ADDITIONAL COST (Sum of lines 12 and 13a-13d)				
Insurance				
Bonds				
TOTAL ADDITIONAL COST (Sum of lines 14 - 16)				

END OF DOCUMENT

7-E FIELD ORDER

Scotts Valley Water District Field Order Number: _____

Project: _____ Date: _____

FIELD ORDER

This form to be used only for emergency instructions to the Contractor where time required for preparation and execution of a formal Change Order would result in delay or stoppage of the work. This Field Order is issued as per the requirements of the Contract Documents. A Change Order will supersede this Field Order. The Change Order will include the scope of the change in the Work and any actual adjustments of the Contract sum and the Contract time.

To the Contractor: _____

Reference: _____

Subject: _____

You are hereby authorized and instructed to effect the following modifications in your Contract for the above project:

Estimated Adjustment to Contract Sum: _____

Estimated Adjustment to Contract Time: _____ calendar days

To be used where agreed cost or credit cannot be immediately determined. The final agreed amount shall not be more than the maximum cost nor less than the minimum credit noted above.

Owner's Representative	Date
Contractor	Date
District	Date

7-F CHANGE ORDER

Scotts Valley Water District Change Order No.: _____

Project: _____ Date: _____

To Contractor:

Description of Change: You are hereby authorized to make changes in the Work as described in the detail sheets (attached to this Change Order) and summaries.

Summary of Contract Sum:

Original Contract Sum:	$
Prior Adjustments:	$
Contract Sum Prior to this Change:	$
Adjustments for this Change:	$
Revised Contract Sum:	$

Summary of Contract Time:

Original Contract Time:	(Calendar days) Date	
Prior Adjustments:	(Calendar days) Date	
Contract Time Prior to this Change:	(Calendar days) Date	
Adjustments for this Change:	(Calendar days) Date	
Revised Contract Time:	(Calendar days) Date	

The Contractor waives any claim for further adjustments of the Contract sum and Contract time related to items contained in the Change Order. This Change Order is complete accord and satisfaction for all items included in this Change Order. Also refer to the General Conditions.

The foregoing adjustment of the Contract Price and the Contract Time for the changes noted in this Change Order (the "Changes") represents the full and complete adjustment of the Contract Price and the Contract Time due the Contractor for providing and completing such Changes, including without limitation: (i) all costs (whether direct or indirect) for labor, equipment, materials, tools, supplies and/or services; (ii) all general and administrative overhead costs (including without limitation, home office, field office and Site general conditions costs) and profit; and (iii) all impacts, delays, disruptions, interferences, or hindrances in providing and completing the Changes. The Contractor waives all rights, including without limitation those arising under Civil Code Section 1542, for any other adjustment of the Contract Price or the Contract Time on account of this Change Order or the performance and completion of the Changes.

Accepted by the Contractor and approved by the District:

Contractor

Signature Date

Reviewed and Recommended for Approval

Signature Date

District Approval

Signature Date

Attachments:

7-G ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

California Public Contract Code §22300

THIS ESCROW AGREEMENT ("Escrow Agreement") is made and entered into this Day of , 20 by and between Scotts Valley Water District ("Owner") whose address is 2 Civic Center Drive, Scotts Valley, CA 95066 NAME OF CONTRACTOR ("Contractor"), whose place of business is located at: CONTRACTOR'S ADDRESS , and Owner, as escrow agent **OR** NAME OF BANK , a state or federally chartered bank in the State of California, whose place of business is located at: BANK ADDRESS ("Escrow Agent")

For the consideration hereinafter set forth, Owner, Contractor and Escrow Agent agree as follows:

1. Pursuant to California Public Contract Code §22300, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Contract entered into between Owner and Contractor for PROJECT NAME located at: PROJECT ADDRESS in the amount of $ dated DATE (the "Contract"). Alternatively, on written request of Contractor, Owner shall make payments of the retention earnings directly to Escrow Agent. When Contractor deposits the securities as a substitute for Contract earnings, Escrow Agent shall notify Owner within ten days of the deposit. The market value of the securities at the time of substitution shall be at Least equal to the cash amount then required to be withheld as retention under terms of Contract between Owner and Contractor. Securities shall be held in name of and shall designate Contractor as the beneficial owner.
2. Owner shall make progress payments to Contractor for those funds which otherwise would be withheld from progress payments pursuant to Contract provisions, provided that Escrow Agent holds securities in form and amount specified in Paragraph 1 of this Document 00 6290.

3. When Owner makes payment(s) of retention earned directly to Escrow Agent, Escrow Agent shall hold said payment(s) for the benefit of Contractor until the time that the escrow created under this Escrow Agreement is terminated. Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when Owner pays Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of Owner. Such expenses and payment terms shall be determined by Owner, Contractor, and Escrow Agent.

5. Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to Owner.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from Owner to Escrow Agent that Owner consents to withdrawal of amount sought to be withdrawn by Contractor.

7. Owner shall have the right to draw upon the securities in event of default by Contractor. Upon seven Days written notice to Escrow Agent from Owner of the default, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by Owner.

8. Upon receipt of written notification from Owner certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

9. Escrow Agent shall rely on written notifications from Owner and Contractor pursuant to Paragraphs 5 through 8, inclusive, of this Document 00 6290 and Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth.

10. Names of persons who are authorized to give written notice or to receive written notice on behalf of Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

ON BEHALF OF OWNER:

Title

Name

Signature

Address

City/State/Zip Code

ON BEHALF OF CONTRACTOR:

Title

Name

Signature

Address

City/State/Zip Code

ON BEHALF OF ESCROW AGENT:

Title:

Name:

Signature:

Address:

City/State/Zip Code

IN WITNESS WHEREOF, the parties have executed this Escrow Agreement by their proper officers on the date first set forth above.

OWNER:

Title

Name

Signature

CONTRACTOR

Title

Name

Signature

ATTEST:

Signature

Secretary

ESCROW AGENT:

Title

Print Name

Signature

REVIEWED AS TO FORM:

Counsel for Owner

Print Name

Date

At the time the Escrow Account is opened, Owner and Contractor shall deliver to Escrow Agent a fully executed counterpart of this Document 00 6290.

END OF DOCUMENT