CASITAS MUNICIPAL WATER DISTRICT

LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT

(Specification No. 18-403)

Bids will be received at the office of the

Casitas Municipal Water District,

1055 Ventura Avenue, Oak View, California 93022

until ***Friday, August 31, 2018 @ 2:00 p.m.***

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CASITAS MUNICIPAL WATER DISTRICT

NOTICE INVITING BIDS

LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT
SPECIFICATION NO. 18 – 403

Sealed bids for the above referenced project and specification will be received by the Casitas Municipal Water District up to **2:00 p.m. on Friday, August 31, 2018** at the office of the District, 1055 Ventura Avenue, Oak View, California, 93022, at which time they will be opened and publicly read aloud. Each bid shall be made out on a form to be obtained from the Casitas Municipal Water District. Each bid must be accompanied by a certified check, a cashier's check, or by a bid bond executed by a corporate surety satisfactory to the Casitas Municipal Water District, in the sum of not less than ten (10) percent of the total amount of the bid for the initial contract items list, as a guarantee that the bidder will enter into the proposed contract, if it be awarded to them. The guarantee will be forfeited, should the bidder to whom the contract is awarded fail to enter into the contract.

The bidder to whom the contract is awarded may be required to furnish a sworn statement of their financial responsibility, technical ability, and experience.

In accordance with the provisions of Section 1770-1784 of the California Labor Code, the Casitas Municipal Water District has ascertained the general prevailing rate of wages applicable to the work to be done. It shall be mandatory upon the Contractor to whom the contract is awarded, and upon the subcontractor under them, to pay not less than the specified rates to all laborers and mechanics employed by them in the execution of the contract. The wage scale can be obtained on the internet at www.dir.ca.gov/dlsr/statistics_research.html.

All bidders and their subcontractors shall be registered with the California Department of Industrial Relations (DIR). Failure of the bidder or subcontractors to be registered with the DIR shall render their bid as non-responsive and will be rejected except where State code provides for exceptions to the registration requirements. All contractors and their subcontractors shall furnish electronic certified payroll records directly to the Labor Commissioner, also known as Division of Labor Standards Enforcement.

The District reserves the right to waive any formalities which, in the opinion of the Board of Directors, do not materially affect the relationship of the various proposals. The District reserves the right to retain all bids for a period of thirty (30) days and to reject any and all bids for any reason at the sole discretion of the District, with or without cause.

The contract documents shall consist of this Notice Inviting Bids, the Instructions to Bidders, Formal Proposal with Bidding Sheet and Bidder's Plan for Construction, Form of Agreement, Specifications and Drawings, and any changes made by issuance of a supplemental notice.

A non-mandatory pre-bid conference is scheduled for this project at the corner of West Surfside Street and Santa Barbara Avenue, Ventura, CA 93001 on August 16, 2018 at 10 a.m. PST. Bidders may contact Virgil Clary at (805) 649-2251 ext. 109. A complete bid package (plans and specifications) may be examined and **downloaded free of charge** from our website at: http://www.casitaswater.org/lower.php?url=bidding-jobs. Copies

may be ordered from Casitas for thirty ($30) dollars, or mailed to you for one hundred ($100) dollars. Please allow 3 working days to print a complete bid package plus mailing time. No refunds will be made.

INSTRUCTIONS TO BIDDERS

Proposal. The proposal shall be submitted on the separate bid forms accompanying these specifications, designated "Proposal" and made a part of these specifications. The proposal shall be enclosed in a sealed envelope marked “Bid” addressed to Casitas Municipal Water District, 1055 Ventura Avenue, Oak View, California, 93022, and shall be endorsed with the name of the project as set forth in the Notice Inviting Bids.

The sealed proposals will be publicly opened and read at the time and place stated in the Notice Inviting Bids. Bidders, or their authorized agents, are invited to be present.

The proposal shall give the price, both in words and in figures, for which the bidder proposes to do the work required by the Specifications and the accompanying Drawings. In the event of disagreement between words and figures, the words will govern and the figures will be disregarded. In the event that the unit price and the total amount named by any bidder for any item are not in agreement, the unit price shall govern and the totals shall be corrected to conform thereto. The bidder shall fill out all blanks of the proposal forms as therein required.

Unauthorized conditions, limitations, or provisions attached to a proposal will render it informal, and may cause its rejection. The completed proposal forms shall be without interlineations, alterations, or erasures. Alternate proposals will not be considered unless asked for. No oral or telephonic proposals or modifications will be considered.

The District reserves the right to waive any informalities which, in the opinion of the Board of Directors, do not materially affect the relationship of the various proposals. The District reserves the right to reject any and all bids for any reason at the sole discretion of the District, with or without cause.

The proposal may be withdrawn upon request by the bidder without prejudice to themselves prior to, but not after, the time fixed for opening of bids, provided that the request is in writing, has been executed by the bidder or their duly authorized representative, and is filed with Casitas Municipal Water District.

Proposal Signature. If the proposal is made by an individual, it shall be signed and proposer’s full name and address shall be given; if it is made by a partnership, it shall be signed with the partnership name by a member of the firm, who shall sign their own name, and the name and address of each member shall be given; and if it is made by a corporation, the name of the corporation shall be signed by its duly authorized officer or officers, attested by the corporate seal, and the names and titles of all officers of the corporation shall be given.

Competency of Bidders. In selecting the bidder for award of the contract, consideration will be given not only to the total amount of the bid, but also to the general competency of the bidder for the performance of the work covered by the proposal. To this end, the District will require bidders to submit a statement of their technical ability, safety record and experience. The District reserves the right to require a statement of the lowest bidder’s current financial condition prior to acceptance of the proposal. If requested, such statement shall be prepared on Bidder's Questionnaire forms furnished by the District, shown on pages 29 through 35.

Bidders' Plan for Construction. As part of the proposal, bidders must furnish a detailed statement of the plan or layout for performing the work. As preparation for the foregoing, each Bidder shall examine carefully the site of the proposed work and the contract documents therefore. It will be assumed that the bidder has investigated, and is satisfied as to, the conditions to be encountered; the characters, quality, and quantities of work to be performed; the quality and quantities of the materials to be furnished, and the requirements of the contract, specifications, and drawings.

Subcontracts. Subcontracts will be permitted, subject to the following provisions. No subcontract will be permitted which has the effect of avoiding the residence or wage requirements, or any other provision of the main contract. Individual subcontractors, or members of the contracting or subcontracting organizations personally engaged upon the work, shall be subject to all the requirements of these specifications applicable to employees working for wages, including but not limited to wages, hours of work, character of workmen and certified payrolls.

Reference is hereby made to the provisions of Chapter 2 of Division 5 of Title 1 of the Government Code of the State of California, commencing with Section 4100, also known as the "Subletting and Subcontracting Fair Practices Act", which is incorporated herein and made a part hereof by reference, and the Contractor is bound thereby and shall be made subject to the consequences named in sections 4110 and 4111 of said Act, in the event of his violation thereof. Each bidder shall, in their bid or offer, set forth: (1) the name and the location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement, in an amount in excess of one-half of one percent of the Contractor's total bid, or a subcontractor licensed by the State of California who, under subcontract to the prime Contractor, specifically fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the Prime Contractor's total bid; and (2) the portion of the work which will be done by each such subcontractor under said Act. The Contractor shall list only one subcontract for each such portion as defined by the Contractor in their bid. If the Contractor fails to specify a subcontractor, or if the Contractor specifies more than one subcontractor for the same portion of the work to be performed under this contract in excess of one-half of one percent of the Contractor's total bid, the Contractor agrees that they are fully qualified to perform that portion, and that they shall perform that portion themselves.

Subcontractors. Bidders must furnish as a part of the proposal, a complete listing of names, addresses, Department of Labor Relations Registration Number (DIR No.) and contractor license number of all subcontractors who will perform work in an amount in excess of one-half (1/2) of one percent (1%) of the total bid price, and a statement of the work which will be done by each subcontractor. The required statement shall be on the form of Bidder's Statement of Subcontractors, accompanying these specifications.

Prevailing Rate at Per Diem Wages. In accordance with the provisions of Section 1770-1784 of the California Labor Code, the District has ascertained the general prevailing rates of wages applicable to the work to be done. It shall be mandatory upon the Contractor to whom the contract is awarded, and upon any subcontractor under contractor, to pay not less than the specified rates to all laborers, surveyors and mechanics employed by Contractor in the execution of the contract. The wage can be viewed on the

internet at www.dir.ca.gov/dlsr/statistics_research.html. **Final payment for services provided shall not be distributed until receipt of proof of prevailing wage payments.**

The Contractor and all subcontractors shall be subject to Executive Order 12549, "Debarment and Suspension" and Department of Commerce regulations published at 15 CFR Part 26, Subparts A through E, "Governmentwide Debarment and Suspension (Nonprocurement)" for a drugfree work place.

Disqualification of Bidders. More than one proposal from an individual, partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one proposal for the work contemplated will cause the rejection of all proposals in which said Bidder is interested. If there is reason for believing that collusion exists among Bidders, all bids will be rejected, and none of the participants in such collusion will be considered in future proposals.

Return of Proposal Guarantee. Proposal guarantees will be held until the contract has been executed. They will be returned to the respective Bidders whose proposals they accompany upon request.

Insurance and Bonds. The Bidder to whom award is made shall promptly secure Workmen's Compensation Insurance, in accordance with the provisions of the California Labor Code and all amendments thereto, and also shall furnish to the District certificate of insurance showing that they have taken out the insurance of the kinds and in the amounts required under the specifications. The successful Bidder shall also promptly secure, with a reasonable corporate surety or corporate sureties, satisfactory bonds conditioned upon faithful performance by the said Bidder of all requirements under the Contract and upon the payment of claims of materialmen and laborers there under. Refer to Summary of Insurance, Bond and Payment Requirements for Various Construction Contracts attached.

Permits. The Contractor, at their sole expense, shall be required to obtain all other permits and/or licenses as required. Casitas has applied for an Encroachment Permit from Ventura County for the project. The Contractor shall follow all permit requirements and pay all fees associated with any required additional permits.

Licensing of Contractors. All Contractors submitting bids shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California. Effective January 1, 1990, Contractors submitting bids must state, under penalty of perjury, the Contractor's license number and expiration date. Any bid not containing this information shall be considered non-responsive and shall be rejected by Casitas (Business & Professions Code 7028.15). The license required for this project is either a A-General Engineering Contractor or C-34 Pipeline Contractor.

Failure of the bidder to meet either of the criteria above shall deem the bid proposal non-responsive and the bid proposal will be rejected.

Supplemental Notices. Full consideration shall be given to all Supplemental Notices in the preparation of Bids, as Supplemental Notices form a part of the Contract Documents. Bidders shall verify the number of Supplemental Notices in the bid. Failure to so acknowledge may cause the Bid to be rejected.

Pre-bid Information Requests. All requests for information and questions regarding this bid proposal, the specifications, permits or the plans shall be submitted to the District. The request can be emailed to the District at vclary@casitaswater.com. The District will make a reasonable attempt to respond to the request prior to the bid opening. All questions shall be submitted in writing by **4 p.m. on August 24, 2018**. If questions are received after that time they will not be answered.

Award of Contract. The award of the contract by the Board of Directors of the Casitas Municipal Water District, if it is awarded, will be to the lowest responsible bidder or bidders whose proposal complies with all requirements presented herein. Casitas maintains the right to reject any and all bids for any reason and to waive minor irregularities.

Execution of Contract. The Bidder to whom award is made shall execute a written contract with the Casitas Municipal Water District in the form of agreement provided, and shall furnish certificate of Workmen's Compensation Insurance and good and approved bonds as required in the preceding paragraphs, within seven (7) days from the date of the mailing of a notice from the Casitas Municipal Water District to the Bidder, to the address given by them, of the acceptance of their proposal. At this time Contractor shall also provide District with a completed IRS W-9 form (Request of Taxpayer Identification Number and Certification.)

Failure or refusal to enter into a contract as herein provided, or to conform to any of the stipulated requirements in connection therewith, shall be just cause for the annulment of the award and the forfeiture of the proposal guarantee. If the successful Bidder refuses or fails to execute the contract, the Casitas Municipal Water District may award the contract to the second lowest responsible Bidder.

Notice to Proceed shall be issued by the District within fifteen (15) days of the receipt of the bonds, insurance and agreements documents satisfactory to the District and the execution of the Agreement by the District. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the District and the Bidder. If the Notice to Proceed has not been issued within the period stated herein, the Bidder may terminate the Agreement without further liability on the part of either party.

Time for Completion and Forfeiture Due to Delay

The work for this contract shall be completed within 60 consecutive calendar days from and after the date of Notice to Proceed. Pursuant to Government Code 53069.85, forfeiture for each day completion is delayed beyond the time allowed will be at a rate of $500 per day.

A. Project Milestones: Durations provided are consecutive calendar days from and after the date of the Notice to Proceed.

a. Milestone 1: Submittal of initial project schedule and cost breakdown, 10 days. Submit items outlined in the General Conditions.
b. Milestone 2: Completion of all work in Bid Items: #2, #5, #6, #7, #9, and #10, 30 consecutive calendar days after Notice to Proceed is delivered.
c. Milestone 3: Completion of remainder of contract required items, 60 consecutive calendar days after Notice to Proceed is delivered.

B. The existing potable water system is allowed to be out of service only on weekdays which are not District holidays from 8:00 a.m. to 4:30 p.m. Limit system shutdowns to a few as possible so as not to cause customer supply issues.

PROPOSAL
LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT

SPECIFICATION NO. 18 – 403

TO: Casitas Municipal Water District
1055 Ventura Avenue, Oak View, California 93022

The undersigned proposes to furnish all materials and labor, and provide all necessary tools and machinery for the completion of the above referenced project and specification, and to perform and complete all the work in the manner set forth, described, and shown in the specifications or on the drawings for the work and in the form of agreement.

The bidder agrees that, upon receipt of written notice of the acceptance of this proposal within seven (7) days after the opening of the bids, bidder will execute the contract in accordance with the proposal as accepted and furnish the required bonds and will secure the required insurance, all within seven (7) days from the date of mailing of said notice of acceptance to them at their address as given below; and that, upon failure to do so within said time, then the proposal guarantee accompanying this proposal shall become the property of the Casitas Municipal Water District as liquidated damages for such failure, and shall be deposited as monies belonging to the Casitas Municipal Water District. If said bidder shall execute the contract, furnish the required bonds, and secure the required insurance, the proposal guarantee check or bond shall be returned to them within five (5) days thereafter.

The bidder declares that they have read the Notice Inviting Bids and the Instructions to Bidders, and agrees to all the stipulations contained therein; that they have examined the site of the work, the form of agreement, the specifications and the drawings therein referred to; that they propose and agree, in the event their bid as submitted in the attached Bid Schedule be accepted, to enter into a contract to perform all the work mentioned in the agreement and the specifications, and to complete the same within the time stipulated therein; and that they will accept in full payment therefore the amount named in said Bid Schedule.

The bidder further declares that the surety or sureties named in the space provided below have agreed to furnish bonds in the form and amounts set forth in the Instructions to Bidders, in the event the contact is awarded on the basis of this proposal.

Dated: _____ _____

(Corporate Seal) By:_____

Title: _____

Telephone No. _____

Corporation organized under

the laws of the State of

_____ _____

_____

Contractor's License Number:

_____ Names and addresses of all members of the

Date of Expiration: _____ partnership, or names and titles of all officers of

Surety or Sureties agreeing to furnish bond: the corporation:

_____ _____

_____ _____

_____ _____

_____ _____

BID SCHEDULE

LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT
SPECIFICATION NO. 18 – 403

Schedule of prices for all work, materials and site cleanup for the above-mentioned project and specification in accordance with these specifications. Any item not specifically mentioned shall be considered incidental to the item to which it pertains. The bidder shall list prices for all bid items. Bids received which do not list prices in succession shall be rejected. Quantity and unit are listed for initial contract items list.

Bid Item #	Quantity & Unit	Description & Price in Words	Unit Price	Amount $
1	1 LS	**Mobilization/Demobilization of all contract work** for the lump sum amount of _____Dollars	Lump Sum	$
General				
2	1 LS	**Remove** existing 6-inch fire hydrant #1000067, bollard, bolt kits and gaskets and; **Replace** with new 6-inch wet barrel fire hydrant, O.F.C.I. spool kit, breakaway spool, bolt kits and gaskets, and 6-inch bollard for the lump sum price of _____Dollars	Lump Sum	$
3	1 LS	**Remove** existing 6-inch fire hydrant #1000068, 6-inch gate valve, associated service line cast iron piping, breakaway spool, bolt kits and gaskets and; **Install** O.F.C.I. double flanged 6-inch gate valve and; **Replace** with new 6-inch wet barrel fire hydrant, 6-inch C-900 piping, (2) 6-inch bollards, bolt kits and gaskets and; **Relocate** new fire hydrant to a distance of approximately 2-feet west of original location for the lump sum price of _____Dollars	Lump Sum	$
4	1 LS	**Remove** existing 6-inch fire hydrant #1000069, 6-inch gate valve, associated service line cast iron piping, bollards, breakaway spool, bolt kits and gaskets and; **Install** bolt kit and gasket on abandoned equipment flange; O.F.C.I. double flanged 6-inch gate valve and; **Replace** with new 6-inch fire hydrant, 6-inch C-900 piping, (2) 6-inch bollards, breakaway spool, bolt kits and gaskets and; **Relocate** new wet barrel fire hydrant location to an approximate horizontal distance 7-feet and 6-inches east of existing gate valve for the lump price of _____Dollars	Lump Sum	$
5	1 LS	**Remove** existing 6-inch fire hydrant #1000070, 6-inch gate valve, associated service line cast iron piping, breakaway spool, and bollards and; **Install**; blind flange, bolt kit and gasket on abandoned equipment flange; O.F.C.I. double flanged 6-inch gate valve and; **Replace** with new 6-inch wet barrel fire hydrant, 6-inch C-900 piping, (2) 6-inch bollards, 6-inch tapping sleeve, breakaway spool, bolt kits and gaskets and; **Relocate** new fire hydrant location to an approximate horizontal distance approximately 8-feet east of existing 6-inch C900 pipeline for the lump sum price of _____Dollars	Lump Sum	$
6	1 LS	**Remove** existing 6-inch fire hydrant #1000071, 6-inch gate valve, associated service line cast iron piping, bollards, bolt kits and gaskets and; **Install** 6-inch tapping sleeve and O.F.C.I. double flanged 6-inch gate valve; blind flange, bolt kit and gasket on abandoned equipment flange and; **Replace** with new 6-inch fire hydrant, 6-inch C-900 piping, 6-inch tapping sleeve, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets and; **Relocate** new wet barrel fire hydrant location to an approximate horizontal distance 21-feet west of existing 6-inch C900 pipeline for the lump sum price of _____Dollars	Lump Sum	$

Bid Item #	Quantity & Unit	Description & Price in Words	Unit Price	Amount $
7	1 LS	**Remove** existing 6-inch fire hydrant #1000072, 6-inch gate valve, associated service line cast iron piping, bolt kits and gaskets and; **Install**; blind flange, bolt kit and gasket on abandoned equipment flange; O.F.C.I. double flanged 6-inch gate valve and; **Replace** with new 6-inch wet barrel fire hydrant, approximately 11 feet of 6-inch C-900 piping, (2) 6-inch bollards, 6-inch tapping sleeve, breakaway spool, bolt kits and gaskets and; **Relocate** new fire hydrant #1000072 location to an approximate horizontal distance 11 feet east of existing 6-inch C900 pipe for the lump sum price of _____Dollars	Lump Sum	$
8	1 LS	**Remove** existing 6-inch fire hydrant #1000964, bolt kits and gaskets and; **Replace** with new 6-inch wet barrel fire hydrant, O.F.C.I. spool kit, breakaway spool, bolt kits and gaskets for the lump sum price of _____Dollars	Lump Sum	$
9	5 Each	**Remove and Replace** existing O.F.C.I. 4-inch gate valve for the unit price of _____Dollars	/EA	$
10	1 Each	**Remove and Replace** existing O.F.C.I 6-inch gate valve for the unit price of _____Dollars	/EA	$
11	1 LS	**Remove** existing ½" ball valve and valve can and; **Replace** with new ½" ball valve and valve box for the lump sum price of _____Dollars	Lump Sum	$
12	1 LS	**Disposal of all removed contract material** for the lump sum price of _____Dollars	Lump Sum	$
Miscellaneous Patching & Repairs				
13	200 SF	**Saw cut pavement and cold mill to a 2 inch depth** a minimum of 12-inches outside the top of trench (T-Grind) for the unit price of _____Dollars	/ SF	$
14	6 SF	**Remove and Replace** existing sidewalk for the unit price of _____Dollars	/SF	$
Traffic Control				
15	1 LS	**Provide traffic control** to include but not be limited to: certified flagger, flashing arrow signs, all required construction signs and traffic barricades per WATCH requirements for bid items 1-14 the lump sum price of _____Dollars	Lump Sum	$

TOTAL BID AMOUNT (Item 1 -15) $_____

Alternative Bid Items				
Bid Item #	**Quantity & Unit**	**Description & Price in Words**	**Unit Price**	**Amount $**
16	8 Each	**Install** O.F.C.I. 1-inch corporation stop, approximately 15 feet of 1-inch copper piping, angle meter stop and meter box into existing 4-inch asbestos cement piping for the unit price of _____Dollars	/EA	$
17	30 Valve Cans	**Raise valve can** in accordance with Plate E-4(a) of Ventura County Road Standards for the unit price of _____Dollars	/Valve Can	$
18	1 Each	**Remove and Replace** existing fire hydrant with 6-inch gate valve, tee, approximately 10 linear feet of cast-iron piping and all appurtenances for the unit price of _____Dollars	/EA	$

The above quantities are based on a lump sum price, measurement and payment for each bid item per Part D of these General Specifications. The contract award will be based on **Bid Items 1-15**. Bid Items 1-17 quantities are for currently known quantities. **For Bid Items 16-18, there is not any current need for these items but may be required during the term of the agreement. All dimensions shall be field verified with District Engineer prior to mobilization to confirm final hydrant and valve locations.** Bidder will not be released on account of errors. When a discrepancy occurs between the written price and the number listed, the written price shall govern. The Bidder understands that the District reserves the right to reject any or all bids, and to waive any informalities in the bidding. Pursuant to and in compliance with the Notice Inviting Bids and the other documents relating thereto, the undersigned bidder, being fully familiar with the terms of the Contract Documents, local conditions affecting the performance of the contract, the character, quality, quantities, and scope of the work, and the cost of the work at the place where the work is to be done, hereby proposes and agrees to perform within the time stipulated in the contract, including all of its component parts and everything required to be performed, and to furnish any and all of the labor, material, tools, equipment, transportation, services, permits, utilities, and all other items necessary to perform the contract and complete in a conformity with the plans and specifications and other contract documents, including **Addenda Nos. ____, ____, ____, and ____,** for the prices hereinafter set forth.

Date:_____

(**CORPORATE SEAL**)

BIDDER: _____

By: _____

Title: _____

License No. _____ Expiration Date: _____

License Classifications: _____DIR No. _____

Telephone. No: _____ Cell No: _____

Fax No: _____ Email: _____

Address: _____

_____

BIDDER'S PLAN FOR CONSTRUCTION

1. The location for the proposed work was examined on _____
(Date)
by _____ on behalf of the bidder.
(Name and Title)

2. Explain briefly your plan and tentative schedule for performing the proposed work.

BIDDER'S STATEMENT OF SUBCONTRACTORS

The bidder is required to state the name and address of each subcontractor who will perform work in an amount in excess of one-half (2) of one percent (1%) of the total bid price and the portion of the work which each subcontractor will do.

The undersigned submits herewith a list of subcontractors whom he proposes to employ on the work, with the proper firm name and business address of each and a statement of the work or bid item which will be done by each subcontractor.

Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )
Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )
Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )
Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )
Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )
Subcontractor		Portion of Work
Location and Place of Business		DIR No.
License No.	Expiration Date: / /	Phone ( )

BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS,

That we _____

_____

_____, as PRINCIPAL,

and _____

_____, as SURETY,

are held and firmly bound unto the Casitas Municipal Water District, hereinafter called the District, in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Casitas Municipal Water District, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety hereunder exceed the sum of $ _____

_____

THE CONDITIONS OF THIS OBLIGATION ARE SUCH,

That whereas the Principal has submitted the above-mentioned bid to the Casitas Municipal Water District, for certain construction specifically described as **La Conchita Valves and Appurtenances Replacement Specification No. 18 – 403** which bids are to be opened at the office of Casitas Municipal Water District on **August 31, 2018 at 2:00 pm.**

NOW, THEREFORE, if the aforesaid Principal is awarded the contract and, within the time and manner required under the heading Instructions to Bidders, after the prescribed forms are presented to him for signature, enters into a written contract, in the form set forth in said specifications, in accordance with the bid, and files the two bonds with the District, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by Instructions to Bidders and Certificate of Insurance for Workmen's Compensation and Contractor's liability insurance, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgement is recovered, the surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 2018.

_____
Principal

By _____

(SEAL)

NOTE: Signatures of those executing for the surety must be properly acknowledged.

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____ in the year 2018 by and between the Casitas Municipal Water District, hereinafter designated as the District, and hereinafter designated as the Contractor.

WITNESSETH: The parties hereto do mutually agree as follows with respect to the project known as **La Conchita Valves and Appurtenances Replacement Specification No. 18 – 403**.

ARTICLE I. For and in consideration of the payment of _____Dollars ($_____) in conformance with the specifications hereinafter mentioned, the Contractor agrees with the District to construct the aforementioned project and to perform and complete in a good and workmanlike manner all the work pertaining thereto shown on the Drawings and described in the Specifications therefor, to furnish at its own cost and expense all tools, equipment, labor, and materials necessary therefor, except such materials as in the said specifications are stipulated to be furnished by the District, and to do everything required by this Agreement and the said Specifications and Drawings.

ARTICLE II. For the same consideration set forth in Article I above, Contractor agrees to furnish all said materials and labor, furnishing and removing all plants, temporary work or structures, tools and equipment, and doing all the work contemplated and embraced in this Agreement, also to be responsible at its own expense for all loss and damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties which may arise or be encountered in the prosecution of the work until its acceptance by the District, and for all risks of every description connected with the works, and also for all expenses incurred by or in consequence of the suspension or discontinuance of works, except such as in the said Specifications are expressly stipulated to be borne by the District, and for well and faithfully completing the work and the whole thereof, in the manner shown and described in the said Drawings and Specifications and in accordance with the requirements of the Engineer under them, the District will pay and the Contractor shall receive in full compensation thereof the prices for the several items named in the Bidding Sheet of the Proposal.

ARTICLE III. The District hereby promises and agrees with the said Contractor to employ, and does hereby employ the said Contractor to provide the materials and to do the work according to the terms and conditions herein contained and referred to for the price aforesaid, and hereby contracts to pay the same at the time, in the manner and upon the conditions set forth in the Specifications; and the said parties for themselves, their heirs, executors, administrators, successors and assignees do hereby agree to the full performance of the covenants herein contained.

ARTICLE IV. The Notice Inviting Bids, the Instructions to Bidders, the Proposal, the Specifications and the Drawings mentioned therein, and all addenda issued by the District with respect to the foregoing prior to the opening of bids, are hereby incorporated in and made part of this Agreement.

IN WITNESS WHEREOF: the parties hereto have caused this contract to be executed the day and year first above written.

CASITAS MUNICIPAL WATER DISTRICT

By: _____
President of the Board of Directors

ATTEST:

_____

Secretary

Approved as to form:

_____

Attorney

Dated: _____ , 2018

CONTRACTOR

By_____

_____
Title

BOND FOR FAITHFUL PERFORMANCE

KNOW ALL MEN BY THESE PRESENTS,

We _____

_____

hereinafter referred to as Contractor, as principal, and _____

_____ , as surety,

are held and firmly bound unto the Casitas Municipal Water District, OAK VIEW, California, in

the sum ONE HUNDRED PERCENT (100%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Casitas Municipal Water District, for the work described below, for the payment of which sum in lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such:

whereas, said Contractor has been awarded and is about to enter into a contract with the Casitas Municipal Water District, for construction of the project known as **LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT CONTRACT – SPECIFICATION NO. 18 – 403**, and is required by said District to give this bond in connection with the execution of the contract. The total bond shall be equal to the funds budgeted for the total of this contract work.

NOW, THEREFORE, if the said Contractor shall well and truly do and perform all the covenants and obligations of said contract on his part to be done and performed at the times and in the manner specified herein, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect;

PROVIDED, any alterations in the work to be done, or the material to be furnished, which may be made pursuant to the terms of said contract shall not in any way release the Contractor or the surety thereunder, nor shall any extensions of time granted under the provisions of said contract release either the Contractor or the surety, and notice of such alterations or extensions of the contract is hereby waived by the surety.

WITNESS our hands this _____ day of _____, 2018.

_____

Contractor

By:_____

_____

Surety

By:_____

Approved as to form and execution:

_____

Attorney

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS,

We _____

_____

hereinafter referred to as Contractor, as principal, and _____

_____ , as surety,

are held and firmly bound unto the Casitas Municipal Water District, OAK VIEW, California, in

the sum ONE HUNDRED PERCENT (100%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Casitas Municipal Water District, for the work described below, for the payment of which sum in lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of the above obligation is such:

Whereas, said principal has been awarded and is about to enter into a contract with the Casitas Municipal Water District, for construction of the project known as **LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT CONTRACT – SPECIFICATION NO. 18 – 403,** and is required by said District to give this bond in connection with the execution of the contract.

NOW, THEREFORE, if said principal as Contractor in said contract, or subcontractors, fails to pay for any materials, provisions, provender or other supplies, or teams, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, said surety will pay for the same, in an amount not exceeding the sum specified above, and also, in case suit is brought upon this bond, a reasonable attorney's fee, to be fixed by the court. This bond shall insure to the benefit of any and all persons entitled to file claims under Section 11929 of the Code of Civil Procedure of the State of California.

PROVIDED, any alterations in the work to be done, or the material to be furnished, which may be made pursuant to the terms of said contract shall not in any way release either the Contractor or the surety thereunder, nor shall any extensions of time granted under the provisions of said contract release either the Contractor or the surety, and notice of such alterations or extensions of the contract is hereby waived by the surety.

WITNESS our hands this _____ day of _____, 2018.

_____

Contractor

By _____

_____

Surety

By _____

Approved as to form and execution:

_____

Attorney

CASITAS MUNICIPAL WATER DISTRICT
SUMMARY OF INSURANCE, BOND & PAYMENT REQUIREMENTS
FOR VARIOUS CONSTRUCTION CONTRACTS

	Informal Under $35,000	Formal $35,000 &Over
Certificates of Insurance (CG 2010 Endorsement required)		
1. Workmen's Compensation	Yes	Yes
2. Commercial, General & Auto Liability	Yes	Yes
a. For one person per accident	$1,000,000	$1,000,000
b. More than one person per accident	$1,000,000	$1,000,000
3. Property damage per accident	$1,000,000	$1,000,000
4. Thirty days written notice prior to cancellation	Yes	Yes
Bonds		
Bidder's Bonds	None	10%
Payment Bonds (Material and Labor)* (Projects bid by CMWD only)	None	100%
Performance Bonds* (Projects bid by CMWD only)	None	100%
Maintenance and Guarantee Provisions	Yes	Yes
Contracts		
Period for Final payment upon acceptance	15 Days	35 Days
Amount of Retention	-0-	5%
Progress Payment (if required, retain 5%)**	None	If Required
Final Cost Statement	None	Yes
Notice of Completion	None	Yes
Labor and Material Releases	Yes	Yes

* At the option of the District and depending upon the type of construction activity, payment bonds and/or performance bonds may be placed as a requirement on the job.

** If progress payments are required for a Purchase Order Contract, provisions therefor must be added.

NOTE: The above listed are the minimum requirements for all construction contracts. Provisions are included within the Terms and Conditions for Purchase Order Contracts which will be issued for all jobs under $35.000. Provisions should be included within the Specifications for all contracts $35,000 and over. **The United States (Bureau of Reclamation), Casitas Municipal Water District, their directors, officers, employees or authorized volunteers,** shall be named as additional insured as respects to all coverages listed above when the named insured is Lessee or Licensee of the Casitas Municipal Water District or when work is performed by the named insured for the Casitas Municipal Water District, and in both instances this coverage shall be primary. Casitas, in addition to Certificates of Insurance, shall be provided with the ISO CG 2510 Endorsement or insurer's equivalent.

In accordance with the provisions of Section 1770 of the California Labor Code, the District has ascertained the general prevailing rates of wages applicable to the work to be done. If shall be mandatory upon the Contractor to whom the contract is awarded, and upon any subcontractor under him, to pay not less than the specified rates to all laborers and mechanics employed by him in the execution of the contract. The wage scale is on the internet at www.dir.ca.gov/dlsr/statistics_research.html.

CERTIFICATE OF INSURANCE

NOTICE TO CONTRACTORS, AGENTS AND INSURANCE COMPANIES. PLEASE COMPLETE AND RETURN THIS FORM TO

CASITAS Municipal Water District

CERTIFICATE OF INSURANCE

(This certificate is to be used to list such coverages as the policies listed thereon provide, and does not reflect our insurance requirements.)

TO:
Casitas Municipal Water District
P. O. Box 37
Oak View, California 93022

Name and Address of Insured:

TYPE OF POLICY	COMPANY AND POLICY NO.	POLICY PERIOD	LIMITS OF LIABILITY	
			Bodily Injury	Property Damage
1.—Workmen's Compensation Employers Liability		Eff. Exp.	Statutory	Nil
2.		Eff. Exp.		
3.—Comprehensive Liability (A) Automobile		Eff. Exp.	Each Person $ Each Occurrence $	Each Occurrence $
(B) General*		Eff. Exp.	Each person $ Each Occurrence $ Aggregate $	Each Occurrence $ Aggregate $
4.—Comprehensive Liability Auto and General*		Eff. Exp.	Combine Single Limit: Each Occurrence $ Aggregate $	
5.		Eff. Exp.		
6.		Eff. Exp.		
7.—Umbrella Liability		Eff. Exp.	Each Occurrence and Aggregate $ (A) Excess of Items: (B) Total Limit Including Items:	

*COVERAGE includes Contractual Liability, Completed Operations, Protective Liability, Product's - Liability, and Explosion, Collapse and Underground Hazards.

REMARKS: **The U.S. Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees or authorized volunteers shall be named as additional insured as respects to all coverages listed above when the named insured is Lessee or Licensee of the Casitas Municipal Water District or when work is performed by the named insured for the Casitas Municipal Water District, and in both instances this coverage shall be primary.**

These policies shall not be canceled nor reduced in coverage until after 30 days written notice of such cancelation or reduction in coverage shall have been mailed to this certificate holder.

Name and Address of Agent:

Dated_____

By_____

PROGRESS PAYMENT FORM

CASITAS MUNICIPAL WATER DISTRICT	Payment Document No. Progress ( ) Final ( )	OFFICE USE ONLY - Contractor/Vault/Engineer
PROJECT:		Reviewed By:
CONTRACTOR:		Approved for Payment:
Date:		

Spec. No. Project No. , General Manager Date

Bid Item No.	Description	Unit	Quantity	Per Bid Schedule		This Estimate		Actual to Date	
				Unit Price	Amount	Quantity	Amount	Quantity	Amount
1							$0.00		$0.00
2							$0.00		$0.00
3							$0.00		$0.00
				TOTAL	$0.00		$0.00		$0.00

I certify the above bill is correct & just; that payment therefor has not been received; that all statutory requirements as to American Production and Labor Standards and that all conditions of purchase applicable to the transactions have been complied with.

CONTRACTOR:

By:

Date:

Actual to Date:	$0.00
Less 5% Retained:	$0.00
Total Allowed to Date:	$0.00
Less Previous Payment	$0.00
*Less Deductions:	$0.00
Net Amount Due this Payment	$0.00

PREV. PAYMENT RECORD		
PP No.	Date	Amount

g:\engr.wks\specs\boilerforms\progpayblank.xls

BIDDER'S QUESTIONNAIRE

INSTRUCTIONS

Pending award of a contract to the lowest bidder, Casitas may require bidders to submit a statement of their current financial condition, technical ability and experience (reference is made to the paragraph on Page 6 of the Instructions to Bidders entitled "Competency of Bidders").

Each bidder is required to complete the attached Bidder's Questionnaire. Each subcontractor for a bidder whose work has a monetary value of 15 percent or more of the total price bid is also required to complete the Bidder's Questionnaire and submit said Bidder's Questionnaire(s) with the bid package.

PART I - BIDDER'S STATEMENT OF TECHNICAL ABILITY AND EXPERIENCE

A. History of Bidder

1. Total years organization doing business._____

2. Has your organization done business under another name? Yes _____No_____

If yes, state name and address of organization(s) and/or names and addresses of owners or principals.

_____ _____

_____ _____

_____ _____

_____ _____

3. List all principals, owners, partners and stockholders owning more than 10 percent of a corporation.

Name Name

_____ _____

_____ _____

_____ _____

_____ _____

4. State the name of your organization's Responsible Managing Employee or Officer.

Name	State Contractor's License No.	Classification

5. List all jobs for which you were either sued by the owner or you sued the owner within the past ten (10) years. Give name of suit, court and number and disposition thereof.

Name of Suit	Court and Number	Disposition

6. List all jobs for which you asked extra compensation of more than 25 percent of the original contract price.

Name of Owner	Address	Result

B. Experience

List all of the jobs in which your organization has been involved during the last five years where the predominant type of construction is similar to this job.

1. Project Completion Date[(1)] _____

Value of Contract[(2)] _____

General Description of Work[(3)] _____

Name and Address of Owner _____

_____

Party to Contact _____

Phone Number _____

State whether organization was prime, joint venture, sub or other: _____

2. Project Completion Date _____

Value of Contract _____

General Description of Work _____

Name and Address of Owner _____

_____

Party to Contact _____

Phone Number _____

State whether organization was prime, joint venture, sub or other:_____

(1) Project Completion Date - If current, state current; if incomplete, state incomplete.
(2) Value of Contract is the total amount of money paid for your work, including all settlements or judgments.
(3) General Description of Work should indicate the predominant type of construction; i.e., water pipeline, paving, earthwork, sewer, pump plant, etc.

3. Project Completion Date_____

Value of Contract _____

General Description of Work_____

Name and Address of Owner_____

_____

Party to Contact _____ Phone Number _____

State whether organization was prime, joint venture, sub or other: _____

Project Completion Date_____

4. Value of Contract _____

General Description of Work _____

Name and Address of Owner _____

_____

Party to Contact _____ Phone Number _____

State whether organization was prime, joint venture, sub or other: _____

5. Project Completion Date_____

Value of Contract _____

General Description of Work _____

Name and Address of Owner _____

Party to Contact _____ Phone Number _____

State whether organization was prime, joint venture, sub or other: _____

PART II - CONTRACTOR'S STATE LICENSE

1. List all Contractor's State Licenses issued to your organization or to any of your principals.

Name of License Holder	Position in Organization	License No.	Classification	Date of Expiration

2. Has your organization or any of the license holders in your organization been refused the issuance of a State Contractor's License or been disciplined by the State Contractor's Board? Yes ( ) No ( )

If yes, please explain.

_____

_____

PART III – CONTRACTOR'S SAFETY RECORD

1. List your firm's experience modification rate (EMR) for the last 3 years. The EMR is available from your Worker's Compensation Insurance firm. This is only required from Firms with Worker's Compensation Insurance premiums in excess of $50,000.

Year	EMR	Year	EMR	Year	EMR
_____		_____		_____	

2. List your firm's Recordable Incident Rate (RIR) for the last 3 years. Incident Rate information is available from your OSHA 200/300 Log and from your insurance carrier.

$$\frac{\text{Total number of recordable incidents x 200,000}}{\text{Total employee hours worked}} = \text{RIR}$$

Year	RIR	Year	RIR	Year	RIR
_____		_____		_____	

3. List your firm's Lost Time Incident Rate (LTIR) for the last 3 years. Incident Rate information is available on your OSHA 200/300 Log and from your insurance carrier.

$$\frac{\text{Total number of lost time incidents x 200,000}}{\text{Total employee hours worked}} = \text{LTIR}$$

Year	LTIR	Year	LTIR	Year	LTIR
_____		_____		_____	

Casitas has established the following minimum requirements for this project:

EMR – None greater than 1.2 over the last 3 years

RIR - None greater than 9 over the last 3 years

LTIR – None greater than 4 .5 over the last 3 years

4. Do you have a written safety program that includes hazardous communications? _____

5. Do you have a substance abuse policy? _____

6. Do all new employees complete safety orientation before performing any work activities? _____

7. Do you conduct jobsite safety inspections? _____

8. Do you conduct and document post accident investigations? _____

PART IV – FINANCIAL CONDITION (This portion only needs to be completed if requested by Casitas after the bid opening)

1. Submit your firm's most recent audited financial statement or financial data or other information and references sufficiently comprehensive to permit an appraisal of your current financial condition.

2. Submit your firm's most recent balance sheet and profit and loss statement.

I certify under penalty of perjury that the foregoing is true and correct.

Name of Organization: _____

By: _____

Title: _____

Date: _____

NONCOLLUSION DECLARATION
(MUST BE SUBMITTED WITH BID)

The undersigned declares:

I am the _____ of _____,
(Title) (Company)
the party making the foregoing bid. The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____,
(Date)

at _____, _____.
(City) (State)

_____

NOTICE TO PROCEED

To: _____ Date: _____

_____

_____

Project: **La Conchita Valves and Appurtenances Replacement Specification No. 18 – 403**

In accordance with Section 4 of the Special Conditions of the Contract Specifications, you are hereby notified to commence work on or before _____ and to complete all work within _____working days (including materials procurement) of the work start date, excluding the dates outlined therein.

CASITAS MUNICIPAL WATER DISTRICT

By : _____

Title: Julia Aranda P.E., Engineering Manager

ACCEPTANCE OF NOTICE

Receipt of above Notice to Proceed is hereby acknowledged by _____

on _____, 2018.

CONTRACTOR

By: _____

Title: _____

SPECIFICATIONS
Part B - General Conditions

1. Definitions.

1.1 Whenever the words defined in this article occur in these Specifications, or in any other contract document, they shall have the meaning here defined:

1.2 The word "specifications" shall include these General Conditions, the Special Conditions and the applicable portions of the Standard Specifications. The form of these Specifications is intended to provide for all of the work performed for Casitas Municipal Water District.

1.3 The word "District" shall mean the Casitas Municipal Water District.

1.4 The word "Board" shall mean the Board of Directors of the Casitas Municipal Water District.

1.5 The words "General Manager" shall mean the person holding the position or acting in the capacity of General Manager of the Casitas Municipal Water District.

1.6 The word "Engineer" shall mean the General Manager, or his duly authorized representative.

1.7 The word "Contractor" shall mean the Contractor in the agreement for the construction of the work and/or the furnishing of materials and/or equipment herein specified, the legal representative, or the agent of said party.

1.8 The word "Subcontractor" shall mean one who, as a subcontractor, performs at the site of the work some part of the Contractor's obligation, the legal representative, or the agent therefor.

1.9 The words "Standard Specifications" shall mean the provisions of the latest edition of the Standard Specifications for Public Works Construction (SSPWC) with all supplements, prepared and promulgated by the Southern California Chapters of the American Public Works Associated and Associated General Contractors of America. Part one of the SSPWC is hereby deleted.

1.10 The term “R & R” shall mean remove and replace.

1.11 The term “O.F.C.I.” shall mean Owner Furnished and Contractor Installed.

2. Contract Documents.

2.1 The Notice Inviting Bids, Instructions to Bidders, Proposal Bonds, Specifications and Drawings, with the Agreement, supplemental notices, Notice to Proceed, permits and change orders shall be considered as incorporated in the contract. The contract documents are complementary, and what is called for in one shall be as binding as if called for by all. The intent of the contract documents is to provide for the execution and completion of a finished piece of work. The Contractor shall provide all labor and services and furnish all materials and equipment as necessary, except those items definitely stipulated in the

Specifications or Drawings to be furnished by the District. Anything shown in the Drawings and not the Specifications, or in the Specifications and not the Drawings, shall be performed by the Contractor as though shown in both the Drawings and the Specifications.

2.2 The Drawings and the Specifications show conditions as they exist, to the best knowledge and belief of the District. The Contractor shall not be relieved of any liability or responsibility under this contract, and the district or any of its officers shall not be liable for any loss sustained by the Contractor because of any variation between conditions as shown on the Drawings and the actual conditions revealed during the progress of the work, except as provided in Section 4215 of the Government Code.

3. Precedence of Contract Documents.

3.1 Should conflicts occur between Contract Documents, the document highest in precedence shall control. The precedence shall be:

3.11 Permits from other agencies as may be required by law.
3.12 Proposal.
3.13 Special Conditions and Measurement and Payment.
3.14 Technical Conditions.
3.15 General Conditions
3.16 Contract Drawings.
3.17 Standard Plans.
3.18 Standard Specifications.
3.19 Reference Specifications.

3.12 Change orders, supplemental agreements and approved revisions to plans and specifications will take precedence over documents listed above. Detailed plans shall have precedence over general plans.

4. Indemnification of District.

Contractor shall indemnify and hold harmless and defend the United States Bureau of Reclamation, the District, their directors, employees, agents or volunteers, and each of them from and against:

4.1 Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind and nature whatsoever for, but not limited to, injury to or death of any person including District and/or Contractor, or any directors, officers, employees, agents or volunteers of District or Contractor, and damages to or destruction of property of any person, including but not limited to, District and/or Contractor and their directors, officers, employees, agents or volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement, however caused, regardless of any negligence of District or its directors, officers, employees, agents or volunteers, except the sole negligence or willful misconduct or active negligence of District or its directors, officers, employees, agents or volunteers.

4.2 Any and all actions, proceedings, damages, costs expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor.

Contractor shall defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against District or District's directors, officers, employees, agents or volunteers.

Contractor shall pay and satisfy any judgment, award or decree that may be rendered against District or its directors, officers, employees, agents or volunteers, in any such suit, action or other legal proceeding.

Contractor shall reimburse District and its directors, officers, employees, agents and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.

Contractor agrees to carry insurance for this purpose as set out in the specifications.

5. Insurance.

5.1 Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:

5.11 Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:

5.111 Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 0001).

5.112 Insurance Services Office Form Number CA 0001 (ed. 1/87) covering Automobile Liability, Code 1 (any auto).

5.12 The Contractor shall maintain limits no less than the following:

5.121 General Liability. One million dollars ($1,000,000) per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the project/location (with the ISO CG 2501 or insurers equivalent endorsement provided to the district) or the general aggregate limit shall be twice the required occurrence limit.

5.122 Automobile Liability. One million dollars ($1,000,000 per accident for bodily injury and property damage combine single limit.

5.13 The general liability and automobile liability policies are to contain, or be endorsed to contain the following provisions:

5.131 The United States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractors, products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the United States Bureau of Reclamation, Casitas Municipal Water District, its directors, officers, employees, agents and volunteers.

5.132 For any claims related to this project, the Contractor's insurance shall be primary insurance as respects the United States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees, agents and volunteers. Any insurance or self-insurance maintained by the United States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees, agents and volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

5.133 Any failure to comply with reporting or other provisions of the policies including breaches of warrantees shall not affect coverage provided to the Unites States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees, agents and volunteers.

5.134 The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5.135 Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior to written notice by certified mail, return receipt requested, has been given to Casitas Municipal Water District.

5.136 Such liability insurance shall indemnify the Contractor and his subcontractors against loss from liability imposed by law upon, or assumed under contract by, the Contractor or his subcontractors for damages on account of such bodily injury (including death), property damage, personal injury and completed operations and products liability. Such insurance shall be provided on a policy written by underwriters through an agency satisfactory to the District (see Section 4-08.05), which includes a cross-liability clause, and covers bodily injury and property damage liability, owned and non-owned vehicles and equipment, blanket contractual liability and completed operations liability. Such liability insurance shall include explosion, collapse, underground excavation and removal of lateral support. The United States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees agents and volunteers shall be named as additional primary insured on any such policies. An additional insured endorsement (ISO CG 2010 or equivalent) (modified

to include provisions 2-5 above) and a certificate of insurance (Accord Form 25-S or equivalent), shall be provided to the District.

5.14 Any deductible or self-insured retention 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 as respects the United States Bureau of Reclamation, Casitas Municipal Water District, their directors, officers, employees, agents and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

5.15 Insurance is to be placed with insurers having a current A.M. Best's rating of no less than A:VII or equivalent.

5.16 The Contractor shall not commence work under this contract, nor allow any subcontractor to commence work on this subcontract, until he has secured all insurance required under the section and has filed with the District, certificates of insurance in the amounts specified. Such certificates shall contain a provision that they may not be called without at least thirty (30) days' written notice to the District.

5.2 **Worker's Compensation Insurance**.

5.21 By his signature hereunder, Contractor certifies that he is aware of the provisions of Section 3700 of the Labor Code which require 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 he will comply with such provisions before commencing the performance of the work of this contract.

5.22 The Contractor shall maintain, and shall cause all subcontractors he may employ to maintain adequate workers compensation insurance under the laws of the State of California for all labor employed by them, directly or indirectly, in the execution of the work. The Contractor and all subcontractors shall file with the District certification of such workers compensation insurance prior to beginning construction.

5.3 **Evidences and Cancellation of Insurance**.

5.31 Prior to execution of the contract, the Contractor shall file with the District evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. Such evidence shall include the ISO CG 2010 (or insurer's equivalent) signed by the insurer's representative and certificate of insurance (Accord Form 25-S or equivalent). All evidence of insurance shall be certified by a properly authorized officer, agent or qualified representative of the insurer and shall certify the names of the insured, any additional primary insurers, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, the expiration date, and that the insurer will give by certified mail, written notice to the District at least thirty (30) days prior to the effective date of any cancellation, lapse or material change in the policy.

5.32 The Contractor shall, upon demand of the District, deliver to the District all such policy or policies of insurance and the receipts for payment or premiums thereon; and should the Contractor neglect to obtain and maintain in force any such insurance or deliver such policy or policies and receipts to the

District, then is shall be lawful for the District to obtain and maintain such insurance, and the Contractor hereby appoints the District his true and lawful attorney-in-fact to do all things necessary for this purpose. All money paid by the District for insurance premiums under the provisions of this article shall be charged to the Contractor.

6. Bonds.

6.1 Payment Bond. The successful bidder shall file with the District a surety bond to be approved by the District in a sum of not less than one hundred percent (100%) of the total amount payable by the terms of the contract, conditional as provided by Section 3247 of the Civil Code.

6.2 Performance Bond.

6.21 The successful bidder shall also file with the District a surety bond, to be approved by the District in a sum of not less than one hundred percent (100%) of the total amount payable by the terms and conditions of the Contract. Pursuant to Public Contract Code Section 22300, at the request and expense of the Contractor, securities equivalent to the amounts withheld by the District to ensure performance under this contract, shall be deposited with the District. The District shall pay such monies to the Contractor upon satisfactory completion of the contract. Securities eligible for investment under this section shall include those listed in Government Code Section 16430, or bank or savings and loan certificates of deposit. The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon. If the securities to be deposited by the Contractor pursuant to this provision are in registered form, the registration shall be transferred to the District.

6.22 Maintenance and Guarantee. The Contractor hereby guarantees that the entire work constructed by him under the Contract will meet fully all requirements thereof as to quality of workmanship and of materials furnished by him. The Contractor hereby agrees to make, at his own expense, any repairs or replacement made necessary by defects in material or workmanship supplied by him that becomes evident within one year after the date of final payment, and to restore to full compliance with the requirements of these Specifications, any part of the work which, during said one year period, is found to be deficient with respect to any provision of the Specifications. The Contractor shall make all repairs and replacement promptly upon receipt of written orders from the Engineer to do so. If the Contractor fails to make the repairs and replacements promptly, the District may do the work and the Contractor and his Surety shall be liable to the District for the cost thereof.

6.3 Each of said bonds shall be executed by the Contractor and a corporate surety licensed in the State of California. If the amount payable under terms of the Contract exceeds the original bid because of additional quantities and/or the issuance or change orders, said surety shall be required to cover the additional amount.

7. Additional Surety.

If, during the continuance of the Contract, any of the sureties upon the faithful performance bond, in the opinion of the Engineer, are or become insufficient, he may require additional sufficient sureties, which the Contractor shall furnish to the satisfaction of the Engineer within 15 days after notice, and in default thereof, the contract may be suspended and the work completed as provided in Section 21 hereof.

8. Assignment Forbidden.

The Contractor shall not assign, transfer, convey or otherwise dispose of this Contract, nor of his right, title or interest in any part thereof, nor any of the monies to become due and payable under the Contract, in any manner without the previous consent in writing of the Engineer. If the Contractor shall, without such written consent, assign, transfer, convey or otherwise dispose of any part of this Contract, or of any of the monies to become due and payable under the Contract, the District may, at its option, terminate the Contract according to Section 21 of these General Conditions. The District shall thereupon be relieved from all liability to the Contractor, and to his assignee or transferee.

9. Time and Order of Work.

The Contractor shall at all times employ such personnel, and provide such services, materials and equipment as will be sufficient, in the opinion of the Engineer, to complete the work or any separable portions thereof according to a progress schedule, and within the time limit fixed by the Contract. If the Contractor should fail to maintain adequate progress, he may be required to employ additional personnel, and provide additional services, materials and equipment, and to modify his plans and procedure in such manner as to ensure completion of the work within the time limit fixed by the Contract. This provision shall not be the exclusive remedy of the District.

10. Protests.

If the Contractor considers any of the work demanded of him to be outside the requirements of the Contract, or if he considers any order or ruling of the Engineer or any duly authorized representative to be unfair, he shall immediately ask for written instructions or divisions, whereupon he shall proceed without delay to perform the work or conform to the order or ruling; but unless the Contractor finds such instructions or divisions satisfactory, he shall, within ten (10) days after receipt of same, file a written protest with the Engineer, stating clearly and in detail his objections and the reasons therefor. Except for such grounds for protest or objections as are made of record in the manner specified and within the time stated herein, the Contractor hereby waives all grounds for protests or objections to the order, rulings, instructions, or decisions of the Engineer, and hereby agrees that as to all matters not included in such protest, the order, instructions and decisions of the Engineer shall be final and conclusive.

11. Authority of the Engineer.

The work shall be observed by the Engineer to determine that the work is being completed according to the plan, specifications and design and planning concepts. The Contractor shall be responsible for the supervision of construction processes, site condition, operation, equipment, personnel and the maintenance of a safe place to work or any safety in, on or about the work site until such time as the District files a Notice of Completion. The Engineer, however, reserves the right to determine the adequacy of the

Contractor's method, plant, and appurtenance to determine in all cases the amount, quality, acceptability and fitness of the work and material to be provided under the Contract, to determine all questions in relation to said work and construction thereof, and to decide in all cases any question which may arise concerning the fulfillment of this Contract by the Contractor. Should any discrepancy appear or any misunderstanding arising as the import of anything contained in the Specifications or Drawings, the matter shall be referred to other Engineer and his decision shall be binding on the Contractor. Any differences or conflicts which may arise between the Contractor and other contractors performing work for the District shall be adjusted to the satisfaction of the Engineer.

12. Right of Way and Encroachment.

12.1 Except as otherwise stated in the Special Conditions, the right of way for the work to be constructed under these Specifications will be provided by the District. This shall not be interpreted as giving the Contractor exclusive occupancy of the right of way provided. When the work to be performed is located within State Highway, County or Southern Pacific Railroad rights of way, or within a water course which is under the jurisdiction of the Ventura County Flood Control District, the Contractor will be required to obtain construction permits from those agencies in his own name.

12.2 Right of way to be furnished by the District for construction operations and other purposes will be specifically shown on the Drawings or provided for in the Detailed Specifications. Should the Contractor find it necessary to use any additional lands during the construction of the work, he shall provide for the use of such lands at his own expense.

13. Errors or Discrepancies Noted by Contractor.

13.1 If the Contractor, either before commencing work or during the work, finds any discrepancy between these Specifications and Drawings, or between either of them an the physical conditions at the site of the work, or finds any error or omission in any of the Drawings or in any survey, he shall promptly notify the Engineer in writing of such discrepancy, error, or omission. If the Contractor observes that any drawings or specifications are at variance with any applicable law, ordinance, regulations, order or degree, he shall promptly notify the Engineer, in writing, of such conflict.

13.2 The Engineer, upon receipt of any such notice, shall promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work doe by the Contractor, either directly or indirectly after his discovery of such error, discrepancy or conflict, will be at his own risk and he shall bear all costs arising therefrom.

14. Extra Work.

14.1 If, during the performance of the Contract, it shall, in the opinion of the Engineer, become necessary or desirable, for the proper completion of the contract, to order work done or materials or equipment furnished which, in the opinion of the Engineer, are not susceptible of classification under the bid items, the Contractor shall do and perform such work and furnish such materials and equipment as extra work, as hereinafter provided. All extra work shall be ordered in writing before it is started. No extra work shall be paid for unless ordered in writing.

14.2 Extra work will ordinarily be paid for at a lump sum or unit price agreed upon in writing by the Engineer and the Contractor before the extra work shall be ordered.

14.3 When the price of the extra work cannot be agreed upon, the District will pay for the extra work based on the accumulation of costs as provided in sections 4.4 through 4.11. The failure of the Contractor to comply with the requirements of this section shall deem the Engineer to establish costs as the Engineer deems reasonable.

14.4 At the close of each working day, the Contractor shall submit a daily report to the Engineer, on forms approved by the District, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day, and for other services and expenditures when authorized. An attempt shall be made to reconcile the report daily, and it shall be signed by the Engineer and the Contractor. In case of disagreement, pertinent notes shall be entered by each party to explain points which cannot be resolved immediately. Each party shall retain a signed copy of the report. Reports by subcontractors or others shall be submitted through the prime contractor. Said reports shall contain the following information:

14.4.1 The names of workers, classification and hours worked;

14.4.2 A description and the amount of materials used;

14.4.3 The type of equipment, size, identification number and hours of operation, including loading and transportation if available;

14.4.4 Other services and expenditures shall be described in such detail as the District may require.

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

14.6 The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available and delivered to the job site in the entities involved, plus sales tax, freight and delivery. The District reserves the right to approve material sources of supply, or to supply materials to the Contractor if necessary for the progress of the work. No markup shall be applied to any material provided by the District.

14.7 No payment will be made for the use of tools which have a replacement value of $100 or less. Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental agencies or distributors, at the time the work is performed. If local rental costs are unavailable, the Contractor shall submit his costs to operate the equipment compiled

and signed by a Certified Public Accountant. The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance and all incidentals. Necessary loading and transportation costs for equipment used on the extra work shall be included. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the District than holding it at the work site, it shall be returned, unless the Contractor elects to keep it at the work site at no expense to the District. All equipment shall be acceptable to the Engineer, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer's ratings and manufacturer's approved modifications shall be used to classify equipment, and it shall be powered by a unit of at least the minimum rating recommended by the manufacturer. The reported rental time of the equipment already at the job site shall be the duration of its use on the extra work, plus the time required to move it from its previous site and back or to a closer site.

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

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

14.10 The following percentage shall be added to the Contractor's costs and shall constitute the markup for all overhead and profits:

Labor	10%
Materials	10%
Equipment Rental	10%
Other Items and Expenditures	10%

To the sum of the costs and markups provided for in this subsection, one percent (1%) shall be added as compensation for bond and liability insurance.

14.11 When all or any part of the extra work is performed by any of the Contractor's subcontractors, the markups established in Subsection 14.10 shall be applied to the subcontractor's actual cost of such work, to which a markup of five percent (5%) on the subcontracted portion of the extra work may be added by the prime contractor.

14.111 Any extra work performed hereunder shall be subject to all of the provisions of the Contract and the Contractor's sureties shall be bound with reference thereto as under the original Contract.

15. Changed Conditions.

15.1 The Contractor shall notify the Engineer in writing of the following work site conditions, hereinafter called changed conditions, promptly upon their discovery and before they are disturbed:

15.1.1 Subsurface or latent physical conditions differing materially from those represented in the Contract; and

15.1.2 Unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the character of the work being performed.

15.1.3 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.

15.2 The Engineer will promptly investigate conditions when notified of any conditions which appear to be changed conditions. If the Engineer determines that the conditions are changed conditions and that they will materially increase or decrease the costs of any portion of the work, a change order will be issued adjusting the compensation for such portion of the work. If the Engineer determines that conditions of which he/she has been notified by the Contractor do not justify an adjustment in compensation, the Contractor will be so advised in writing. Should the Contractor disagree with such determination, he may submit a protest to the Engineer, as provided in Section 10 of these General Conditions.

15.3 If the Engineer determines that the conditions are changed conditions and that they will materially affect the performance time, the Contractor, upon submitting a written request, may be granted an extension of time subject to the provisions of Section 22.

15.4 The Contractor's failure to give notice of changed conditions promptly upon their discovery and before they are distributed shall constitute a waiver of all claims in connection therewith.

16. Disputed Work.

16.1 If unable to reach agreement under any of the foregoing procedures, the District may direct the Contractor to proceed with the work. Payment shall be as later determined by arbitration, if District and Contractor agree thereto, or as fixed in a court of law.

16.2 Although not to be construed as proceeding under extra work provisions, the Contractor shall keep and furnish records of disputed work according to Section 14.

17. Legal Action by Contractor.

17.1 No legal action shall be commenced against the District concerning the Contract until any dispute or decision of the Engineer has been appealed and denied by the District's Board of Directors. The Board's refusal to consider or failure to consider a written appeal within thirty (30) calendar days after receipt shall be deemed denial of such appeal.

17.2 Prior to submitting any appeal to the Board, the Contractor shall exhaust his administrative remedies by attempting to resolve his dispute with the District's staff in the following sequence:

Construction Inspector
District Engineering
General Manager
Board of Directors

17.3 Should any of the listed persons fail to consider a request by the Contractor for reconsideration of a decision within three (3) working days after receiving written request to do so, the Contractor may proceed directly to the next person in the list. At the option of the District, the person to whom the request for reconsideration is directed may elect to take such request to a higher level and the Contractor's request shall be deemed to be properly submitted to such higher level.

17.4 Nothing in this subsection shall be considered as relieving the Contractor from his duties required by the Contract documents.

18. Changes.

18.1 If either the Engineer or the Contractor, because of conditions which develop during the progress of the work, finds it impracticable to comply strictly with these Specifications, the Engineer may prescribe a modification of requirements or methods of work. For such proposes, the Engineer may, any time during the life of the Contract, by written order, make such changes, as he shall find necessary, in the design, engineer, grade, form, location, dimensions, plan, or material of any part of the work or equipment to be furnished. If such changes increase or diminish the quantity of work to be done, they shall not constitute the basis for a claim for damages or anticipated profits in the work that may be dispensed with; provided that if such changes or alterations render useless any work already done or materials already furnished or used in the work, the Engineer shall make reasonable allowance therefore, which action shall be binding upon both parties.

18.2 In case of increasing or decreasing of work, the total amount of work actually done or materials or equipment furnished shall be paid for according to the unit price established for such work under the contract, wherever such unit price has been established. In the event no prices are named in the Contract but cover such changes or alterations, the cost of such changes shall be determined as provided in Section 14.

19. Discovery of an Unknown Utility.

19.1 The Contractor's attention is directed to Section 4215 of the Government Code which provides that the district assumes the responsibility for the removal, relocation or protection of the existing utilities located on the site of any construction project if such utilities are not identified by the District in the plans and specifications made a part hereof.

19.2 If the Contractor, while performing the Contract, discovers utility facilities not identified by the District in the Contract plans and specifications, the Contractor shall immediately notify the District.

The Contractor shall not be assessed liquidated damages for delay in completion of the project, which such delay is caused by the failure of the District or the owner of the utility to provide for removal or relocation of the exiting utility facilities.

19.3 In the event that the discovery of said utility facilities may cause extra work, the Contractor is required to obtain written authorization to change or modify the work according to Sections 14 and 18 of these General Conditions, entitled "Extra Work" and "Changes," respectively.

19.4 The Contractor's failure to give said notice promptly upon discovery of an unknown utility or the Contractor's failure to obtain written approval for any work concerning the relocation, protection and/or removal of the said unknown utility or for any work relative to the modification of any portion of the work prior to the beginning of any of said work, shall constitute a waiver of any rights to any claim in connection therewith.

20. Termination of Contract.

20.1 General.

If, at any time before completion of work under the contract, it shall be found by the District that reasons beyond the control of the parties hereto render it impossible, or against the best interest of the District, to complete the work contracted to be done; or if the work shall have been prevented or suspended by injunction issued by a court of competent jurisdiction nor by any other order of constituted authority for a period in excess of 30 consecutive days; the District, by written thirty (30) day notice to the Contractor, may discontinue the work and terminate the contract; or, in the event the entire work shall have been suspended by the District, through no fault of the Contractor, in writing, the Contract shall be discontinued. Upon the service of notice of termination, the Contractor shall discontinue the work in such manner, sequence, and at such times as the Engineer may direct, continuing and doing, after said notice, only such work and only until such time or times as the Engineer may direct. Such work shall be paid for as extra work according to Section 14 of these General Conditions. The Contractor shall have no claim for damages for such discontinuance or termination of the Contract, nor shall the Contractor have any claim for anticipated profits on the work thus dispensed with, nor any other claim; except: (1) for the work actually performed between the date of the notice of termination and the time of complete discontinuance; and (2) for any liquidated damages accruing up to the date of said notice of termination according to the provisions of the Special Conditions.

20.2 Consumable Supplies.

In the event of discontinuance and termination of the contract, the District may, and at the request of the Contractor shall, purchase from the Contractor all consumable supplies of the Contractor on hand, or in transit, or on definite commitment which, in the opinion of the Engineer, are suitable and required, except for such discontinuance and termination, to complete the work, and the District shall pay the Contractor for such consumable supplies the prices paid therefor by the Contractor.

20.3 Completion of Contract.

In the event that the work shall be discontinued and the Contract terminated, the satisfactory completion of such work, as the Engineer may thereafter direct, and satisfactory compliance with the terms of said order shall be deemed the completion of the work specified in the Contract; and the final estimate shall be the amount of work completed to the time of such discontinuance and termination, with such other sums as may be due the Contractor according to the provisions of this section.

21. Suspension of Contract.

21.1 If the work to be done under the Contract shall be abandoned by the Contractor, or if the Contractor shall make a general assignment for the benefit of his creditors or be adjudicated as bankrupt, or if a receiver of his property or business be appointed by a court of competent jurisdiction, or if this Contract shall be assigned by him otherwise than hereinbefore specified, or if at any time the Engineer shall be of the opinion that the performance of the contract is unnecessarily or unreasonably delayed, or that the Contractor is willfully violating any of the conditions of the Contract, or is executing the same in bad faith or not according to the terms thereof, or if the work be not fully completed within the time named in the Contract for its completion or within the time to which the completion of the Contract may have been extended as hereinafter provided, the Board may, by written notice, instruct the Contractor to discontinue all work, or any part thereof, under this Contract.

21.2 When such written notice is served upon the Contractor, he shall immediately discontinue the work or such part thereof as covered by the notice, and shall not resume the same by written notice from the Board, in which case work shall be resumed in ten (10) days. In any such case, the District may take charge of the work and complete it by a new contract or by force account and charge the expense of completion by either method to the Contractor. In so doing, the District may take possession of and use any of the materials, plans, tools, equipment, supplies and property of every kind provided by the Contractor for the purpose of his work. Any such charges shall be deducted from such monies as may be due or may at any time hereafter become due the Contractor under this contract or at any part thereof. In case such expense shall exceed the amount which would have been due the contractor under the Contract if the same had been completed by him, he shall pay the amount of such excess to the District; and in case such expense shall be less than the amount which would have been payable under this contract if the same had been completed by the Contractor, he shall have no claim to the difference except to such extent as may be necessary, in the opinion of the Engineer, to reimburse the Contractor or the Contractor's sureties for any expense properly incurred for plans, equipment, materials, supplies and labor devoted to the prosecution of the work, of which the District shall have received the benefit which shall not have been otherwise paid for by the District. In computing such expense the salvage value of such plans and equipment, at completion of the work, shall be deducted from the depreciated value thereof at the time taken over by the District and the difference shall be considered the expense. All necessary estimate and appraisals shall be made by the Engineer.

21.3 When any particular part of the work is being carried on by the District, by Contract or otherwise, under the provisions of this section, the Contractor shall continue the remainder of the work in conformity with the terms of the Contract, and in such a manner as to nowise hinder or interfere with the persons or workers employed, as provided above, by the District, to do any part of the work, or to complete the same under the provisions of this section.

22. Extension of Time of Completion.

22.1 If the work shall be delayed in consequence of suspension by the District except as provided in Section 21 or of failure by the District to provide right of way, or of any other act or omission of the District, or by strikes, acts of God, delay of delivery or properly ordered materials for which a delivery time has not been stated in the Proposal, or other unforeseeable causes beyond the control and without the fault or negligence of the Contractor or his subcontractors, the Contractor shall be entitled to so much additional time wherein to perform and complete the contract on his part as the Engineer shall certify in writing to be just.

22.2 Application for extension of time must be made to the Engineer, in writing, stating cause, within the ten (10) days immediately following the end of such delay.

22.3 Permitting the Contractor to continue and finish the work, or any part of it, after the date to which the time fixed for its completion may have been extended, shall in no way operate as a waiver on the part of the District of any of its rights under this Contract.

22.4 The Contractor shall receive no compensation on account of any suspension of the work either in whole or in part or for any delay or hindrance herein mentioned except as provided in the Special Conditions.

22.5 No extension of time shall be made for ordinary delays and accidents and the occurrence of such shall not relieve the Contractor from the necessity of maintaining the required progress. In the case of an extension of time by the Engineer for completion of the contract as provided for in these Specifications, a revised schedule of progress may be prescribed according to such extension of time.

23. Failure to Complete on Time.

23.1 The Contractor shall pay for each and every calendar day that he shall be in default in completing the whole work to be done under this contract, the sum named in these conditions, which sum is by the execution of this agreement mutually agreed upon as liquidated damages which the District shall suffer by reason of such default. The District shall have the right to deduct the amount of such damages from any monies due or to become due the Contractor under this Contract.

23.2 The Contractor shall not be assessed liquidated damages for failure to complete the work on time due to any of the causes stated in Section 22.1.

24. Liquidated Damages.

24.1 Pursuant to Section 23 of these General Conditions, failure of the Contractor to complete the work within the time allowed will result in damages being sustained by the District. Such damages are, and will continue to be, impractical and extremely difficult to determine. For each consecutive calendar day in excess of the time specified for completion of the work (as adjusted by change order), the Contractor shall pay the District, or have withheld from monies due it, the sum of $500, except as otherwise specified in Part C or the Agreement.

24.2 Execution of the Contract under these Specifications shall constitute agreement by the District and Contractor that $500 per day, except as otherwise specified in Part C or the Agreement, is the minimum value of the costs and actual damage caused by failure of the Contractor to complete the work within the allotted time, that such sum is liquidated damages and shall not be construed as a penalty, and that such sum may be deducted from payments due the Contractor if such delay occurs.

25. Contractor's Responsibility.

25.1 The Contractor shall be responsible for safe and efficient execution of the work to secure the safety of the workers, the quality of the work and the stipulated rate of progress.

25.2 The Contractor shall bear all losses resulting to him no account of the amount or character of the work, or from any unforeseen obstruction or difficulties which may be encountered, or because of weather, floods, or other causes, except as follows:

25.2.1 The Contractor shall not be responsible for the cost of repairing or restoring damage to the work which damage was caused by an act of God, as defined in Public Contract Code Section 7105, and shall be the basis for determining the extent of the District's liability, if any.

25.2.2 It shall be the responsibility of the Contractor to take all reasonable and adequate measures to protect the work from damage and/or to minimize any damage to the work.

25.2.3 The District reserves the right to make changes in the plans and Specifications applicable to the portion of the work to be restored. The District reserves the right to terminate the Contract and relieve the Contractor of further obligations to perform the work. In the event that the work damaged is to be repaired or restored either, in kind or changed by the engineer, a contract change order will be provided according to Sections 14 and 18 of the General Conditions of this Specification. The change order may provide for the Contractor to perform any work deemed by the Engineer as necessary to put the project in satisfactory condition for the termination of all work.

25.2.4 The District may require the Contractor to submit as a separate bid item the insurance premium covering the cost of work destroyed in whole or in part by an "Act of God," as defined in Public Contract Code 7105 and provide such insurance to indemnify the District for any damage to the work caused by an "Act of God," and to rebuild said work with the proceeds of said insurance. If the District elects to do so, said insurance shall be in lieu of the provision of the Public Contract Code 7105.

25.3 The Contractor shall be responsible for all material, except defective material, furnished by the District, and for the care of all work until its completion and final acceptance, and he shall at his own expense replace damaged, lost or stolen material and repair damaged parts of the work, or the same may be done at his expense by the District.

25.4 During the progress of the work, the Contractor shall keep the premises occupied by him in a neat and clean condition. When the work is completed he will be required to remove all debris caused by him in his operations, repair all damage to existing improvements done by him or his employees and leave the site of the work in a neat condition. In the event of his failure to do so, the same may be done at his expense by the District.

25.5 The Contractor shall be responsible for all damage or injury which may be caused on any property by trespass of the Contractor's employees during their employment, whether the said trespass was committed with or without the consent or knowledge of the Contractor.

25.6 The Contractor shall provide at his own expense, all necessary water, telephone, and power required for his operations under the Contract, except as provided for in the Special Conditions.

25.7 The Contractor shall so conduct his operations as not to close or obstruct any portion of any highway, road, or street, or prevent in any way free access to fire hydrants until permission to do so has been obtained from the proper authorities.

25.8 The Contractor shall be responsible for determining the nature and extent of any simultaneous, collateral, and essential work by others. The Contractor shall coordinate his operation and cooperate with others to minimize interferences, conflicts, and/or any other related conduct during the construction of the work.

26. Shop Drawings.

26.1 Drawings and prints of articles, machinery, or fabricated materials entering into permanent construction which are required to be furnished by the Contractor and for which detailed drawings are not furnished by the District, the Contractor shall submit five (5) copies for approval, three (3) of which will be returned to the Contractor for his distribution, the two (2) other copies shall become the property of the District. The District shall approve such drawings or return them to the Contractor with requirements for approval within ten (10) days after the date of submission.

26.2 Approval by the District on items called for under these Specifications does not relieve the Contractor from the responsibility for errors, omissions or deviations from the Contract documents unless such deviations were specifically called to the attention of the Engineer in the letter of transmittal submitted with the material for approval.

26.3 If the Contractor objects to any conditions imposed by the District in granting said approvals, he shall immediately give the District written notification.

27. Trench Shoring Plans.

27.1 In compliance with Section 6705 of the Labor Code, the Contractor, at his sole expense, shall be required to submit detailed shoring plans for review by the District's Engineer for all construction projects and/or any related modifications, revision or changes thereto, which are in excess of $25,000, for the excavation of any trench, trenches, or other excavation five (5) feet or more in depth.

27.2 Shoring plans shall show the details of the shoring, bracing, sloping and all other provisions to be made for the workers' protection from the hazard of caving ground during the excavation of any trench, trenches, or other excavation.

27.3 Such shoring plans shall be prepared by a qualified civil or structural engineer registered in the State of California in the event that such plans vary or deviate, in any manner, from the shoring system standards as outlined in the State Construction Safety Orders issued by the Division of Industrial Safety, State of California.

27.4 The Contractor shall submit the shoring plans to the Division of Industrial Safety, State of California, for its approval.

27.5 The Contractor shall be required to submit the shoring plans within fifteen (15) days after notification of an award of a contract has been sent.

28. Safety Permit.

28.1 In compliance with Section 6424 of the Labor Code, the Contractor, at his sole expense, shall be required to obtain a permit from the Division of Industrial Safety for the excavation of any trench, trenches, or other excavation five (5) feet or more in depth, prior to beginning any excavation work that is not covered by Section 6422 of the Labor Code.

28.2 A copy of all permits issued and the related construction safety orders approved by the Division of Industrial Safety shall be filed with the District within fifteen (15) days after notification of the award of a contract, or within three (3) days after issuance of the permit, and prior to the beginning of the excavation of any trench, trenches, or other excavation five (5) feet or more in depth.

28.3 Additional permits may be required for each modification, revision or change in the work.

28.4 Safety permits required by Section 6424 of the Labor Code shall be in addition to all other permits required.

29. Personal Attention.

The Contractor shall give his personal attention constantly to the faithful prosecution of the work, and shall be present, either in person or by a duly authorized and competent representative, on the site of the work continually during its progress, to receive directions or instructions from the Engineer. Whenever the Contractor is not present on any part of the work where it may be desired to give directions, orders my be given by the Engineer, and shall be received and obeyed by the superintendent or foreman who may have charge of the particular part of the work in reference to which orders are given.

30. Laws, Regulations and Permits.

30.1 The contractor shall give all notices required by law and comply with all laws, ordinances, rules and regulations pertaining to the conduct of the work. The contractor shall be liable for all violations of the law in connection with the work furnished by the contractor. If the contractor observes that the drawings or specifications are at variance with any law or ordinance, rule or regulation, he shall promptly

notify the engineer in writing and any necessary changes shall be made by written instruction or change order. If the contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations and without giving notice to the engineer, the contractor shall bear all costs arising therefrom.

30.2 The Contractor shall submit a certification that they are in compliance with the Civil Rights Act of 1964 as amended by the Equal Employment Opportunity Act of 1972, the California Fair Employment Practice Act of 1959, as amended, California Labor Code Section 1777.5 and Section 1735 and any other applicable Federal and State laws and regulations hereinafter enacted. Certification of Compliance with Executive Order 11246, as amended, will be required when applicable. Such certification shall be on forms satisfactory to the District.

30.3 The following are exempted from the above provisions in relation to affirmative action efforts:

30.3.1 Contractors, subcontractors and suppliers who have a paid work force of less than fifteen (15) persons.

30.3.2 Contracts and subcontracts which do not exceed $10,000.00.

30.3.3 Contracts and subcontracts which are deemed by the Board to be an "Emergency" nature or an apparent "Sole Source" purchase.

30.3.4 Exemptions may be denied by the Board pursuant to a finding by the District that the exemption is having an adverse effect on the purpose of these Specifications. Additional exemptions may be granted by the Board for reasons of a similar finding.

30.4 The Contractor shall only use equipment that complies with California air quality regulations and the Ventura Air Pollution Control District regulations.

31. Sales and/or Use Taxes.

Except as may be otherwise specifically provided herein, all sales and/or use taxes assessed by Federal, State or local authorities on materials used or furnished by the Contractor in performing the work hereunder shall be paid by the Contractor.

32. Construction Schedule.

Prior to commencing the work, the Contractor shall submit a detailed construction schedule. At the beginning of each month as may be required by the Engineer, the Contractor shall submit an updated construction schedule. Said construction schedule shall show the order in which the Contractor proposes to complete the work, the dates when the various parts of the work are to begin and the estimated dates of completion. The detailed schedule shall be a modified bar type and shall show each principal item of work or activity.

33. Inspection.

33.1 All materials furnished and all work done under these Specifications shall be subject to rigid inspection. The Contractor shall furnish the Engineer every reasonable facility for ascertaining whether the work is in accordance with the requirements and intent of these Specifications.

33.2 Work done in the absence of prescribed inspection may be required to be removed and replaced under the proper inspection. The entire cost of removal and replacement, including the cost of all materials which may be furnished by the District and used in the work removed, shall be borne by the Contractor, irrespective of whether the work removed is found to be defective.

33.3 Work covered up without the authority of the Engineer shall, upon order of the Engineer, be uncovered to the extent required, and the Contractor shall bear the entire cost of performing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, as directed and approved by the Engineer.

33.4 Nothing in these Specifications shall be construed to mean that the District will provide continuous inspection. The Contractor shall cooperate and coordinate his activities in order that he work can be inspected to the satisfaction of the Engineer.

33.5 The Contractor shall keep the Engineer informed, a reasonable time in advance, of the times and places at which he intends to do work, so that the inspection and the necessary measurements may be made with a minimum of inconvenience to the Engineer, or delay to the Contractor.

34. Construction Staking.

34.1 The Engineer will provide only minimal construction staking, the extent of which will be described in the Special Conditions hereof. The Contractor shall be required to provide all other additional staking and/or measurements necessary for the proper execution of the work.

34.2 The Contractor shall notify the Engineer in writing at least five (5) working days before the time the Contractor will require the construction staking.

34.3 The Contractor shall be required to preserve all bench marks, monuments, survey marks and construction stakes, and in case of their removal or destruction caused by the Contractor's activities, the Contractor shall be liable of the cost of their replacement.

35. Construction Interferences.

35.1 Insofar as practicable during the progress of the work, the Contractor shall not disturb, but shall support and protect against injury, and maintain in good operating condition at his own expense, all subsurface, surface and overhead utilities, structures and other facilities as are encountered in the prosecution of the work.

35.2 In the event that subsurface, surface, or overhead utilities, structures or other facilities are required to be disturbed or removed out permit the construction of the work, the Contractor shall not do any work that would affect such utilities, structures or facilities, or enter upon the right of way or other lands

appurtenant thereto until notified by the Engineer that authority has been obtained to do so. The Engineer will make all necessary arrangements with the owner or other utilities for their relocation and reconnection, without cost to the Contractor, including the reconnection of services and the resurfacing of trenches required for said location; provided such arrangements shall not relieve the Contractor of his responsibilities as outlined in Section 2(b) of these General Conditions, nor the responsibility of proper care and protection of any utilities, structures or facilities encountered because of such varying conditions. The Contractor shall coordinate his operations with those of the owner or owners concerned with the disturbance or removal of facilities to minimize the inconvenience imposed on all affected parties.

35.3 Except as provided in Section 4215 of the Government Code and in the event the Contractor disturbs, disconnects or damages any subsurface, surface, or overhead utility, structure or other facility prior to the making of necessary arrangements by the Engineer with the owner thereof, he shall immediately give to the owner notice of said disturbance, disconnection, or damage, and the Contractor shall assume all responsibility connected therewith, event in the even such damage occurs after backfilling or is not discovered until after completion of backfilling, and the provisions of this subsection shall continue in force until the termination of the guarantee period provided.

35.4 All facilities removed shall be reconstructed as promptly as is possible in its original or other authorized location, and in a condition at least as good as when removed and subject to the inspection of the owner or of the governing body having jurisdiction.

35.5 During the performance of the work under these Specifications, the owners or agencies in control of any of the facilities affected by the work shall have the right to enter, when necessary, upon the project right of way, or upon any street or other public way affected by the Contractor's operations, or any portion thereof, for the purpose of maintaining service and of making changes in or repairs to said facilities.

35.6 The District reserves the right during the progress of the work and upon determination of the actual position of the existing utilities, structures, and other facilities, to make changes in the grade or alignment, or both, of the District's facilities wherever by so doing the necessity for relocation as provided herein of such utility, structures, or other facility will be avoided; provided that such changes shall not entitle the Contractor to additional compensation other than according to the prices named in the Bidding Sheet for the respective contract items.

35.7 In the event the Contractor discovers a substructure as defined in Section 4215 of the Government Code and not identified by the District on the contract plans and Specifications, the Contractor shall be required to notify the District in writing. In the event that such discovery may cause extra work, the Contractor shall be required to obtain written authorization to change or modify the work according to Sections 14 and 18 of these General Conditions of the Specifications.

35.8 Whether the Contractor is entitled to any additional compensation for any work hereinbefore described in Section 36 of these General Conditions shall be governed by the applicable portions of Section 4215 of the Government Code or amendments thereto.

35.9 The Contractor shall make every effort to protect and preserve all trees encountered in the work. Any trees which unreasonably interfere with the work shall, with the approval of the Engineer, be removed by the Contractor. The cost of the removal shall be borne by the Contractor.

36. Materials, Workmanship, and Tests.

The Contractor shall submit samples, specimens, or test pieces of such materials to be furnished or used in the work as the Engineer shall require. All materials must be new and must be of the specified quality and equal to approved samples. The Contractor shall furnish, without cost to the District, such quantities of construction materials as may be required for test purposes, and shall place at the Engineer's disposal all available facilities for and cooperate with him in the sampling and testing of all materials and workmanship. All work shall be done and completed in a thorough workmanlike manner, notwithstanding any omission from these Specifications or the Drawings.

37. Certification of Materials and Equipment

37.1 All materials and equipment furnished by the Contractor shall be according to these Specifications. Any time when requested by the Engineer, the Contractor shall furnish written certification from the manufacturer of the various materials and equipment that such materials and equipment do meet all of the requirements of these Specifications. When requested by the Engineer, such certification shall be furnished to the District before payment to the Contractor, for the material and/or equipment in question, will be made.

37.2 Where reference is made in these Specifications to a specification or test designation of the American Water Works Association, the American Society for Testing and Materials, the American Association of State Highway Officials, Federal Specifications, or any other recognized national organization, and the number or other identification accompanying the test designation representing the year of adoption of latest revision of the test is omitted, it shall mean the test method in effect on the date of the Notice Inviting Bids for the work.

38. Defective Work or Materials.

38.1 The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his contract as herein prescribed, and defective work shall be made good, and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously inspected by the Engineer and accepted or estimated for payment. If the work, or any part thereof, shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect without compensation in a manner satisfactory to the Engineer and shall be charged for any excess material furnished by the District.

38.2 If any materials furnished and brought upon the ground by the Contractor for use in the work, or selected for the same by him, shall be condemned by the Engineer as unsuitable or not in conformity with the Specifications, the Contractor shall forthwith discard such materials and remove them to a satisfactory distance from the vicinity of the work.

38.3 If the Contractor shall fail or neglect to make ordered repairs of defective work or to remove condemned materials from the work within ten (10) days after the service by the Engineer of an order to do so, the Engineer acting on behalf of the District may make the ordered repairs or remove the condemned materials and deduct the cost thereof from any monies due the Contractor.

39. Use of "Or Equal."

39.1 Any material or article of equipment designated by manufacturer's name, trade name, catalog reference or brand and qualified by "or equal" shall be understood to be a standard of quality and performance. Articles of other make will be acceptable provided they are, in the opinion of the Engineer, of equal quality and/or capable of equal performance. Names, brands and characteristics of proposed substitute materials shall be submitted to the Engineer for approval and no such substitute materials shall be purchased or delivered to the project until the Engineer's approval, in writing, has been obtained.

39.2 The Contractor may be required to obtain certification from a qualified testing laboratory approved by the Engineer that such proposed substitute materials meet the minimum requirements in the Specifications, and/or that such proposed substitute materials are of equal quality and performance of the material or article designated in the Specifications. Such certification shall be required prior to obtaining the Engineer's approval, and shall be at the sole expense of the Contractor.

40. Property Rights in Materials.

40.1 Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, or after payment has been made for the value of unused material delivered to the site of the work as provided for in Sections 45, 58 through 65 inclusive hereof. All such materials attached or affixed or unused shall become the property of the District.

40.2 The District reserves the right to use any or all of the completed facilities either after said facilities are connected to the existing facilities or otherwise completed by the Contractor as set forth in Section 45 hereof and prior to acceptance of the work by the Board.

41. Title to Materials Found on the Work.

Except as may otherwise be provided in these Specifications, the right to the use of all soil, stone, gravel, sand and all other materials and equipment developed or obtained in the excavation or other operations by the Contractor or any subcontractor or any of their employees, and the right to use and/or dispose of the same, are hereby expressly reserved by the District and neither the Contractor nor any subcontractor, nor any of their employees shall have any right, title or interest in or to any part thereof nor shall they, nor any of them, assert or make any claim thereto. The Contractor shall be permitted to use in the work without charge any such materials which meet the requirements of these Specifications.

42. Patents and Copyrights.

The Contractor shall hold and save the District, its officers, agents and employees, harmless from liability of any nature and kind, including costs and expense, for or because of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliances,

manufactured, furnished, or used by him in the performance of this contract, including their use by the District, unless otherwise specifically stipulated in this contract.

43. Responsibility for Safe Storage.

The Contractor shall be responsible for the safe storage of the material furnished by or to him and accepted by him and intended for the work until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times.

44. Completion.

When in the opinion of the Contractor, the work under this contract has been fully completed according to the plans and Specifications, he shall notify the Engineer. Upon such notification, the Engineer shall, within a reasonable time, make a field inspection of the work and shall satisfy himself by examination and such tests as may be necessary that the work has been fully and properly completed according to the plans and Specifications. If any deficiencies are found, the Engineer shall notify the Contractor of the measures to be taken to correct them. When all deficiencies, if any, are corrected to the satisfaction of the Engineer, the work shall be deemed completed and the date of such completion shall be used in computing the Liquidated Damages, if any, as set forth in Section 24.

45. Final Cleanup.

Upon completion of the work and before the final inspection and estimate is prepared, the Contractor shall, at his own expense, dispose of and remove from the vicinity of the work, all rubbish, unused materials and other items used under his direction during construction and perform cleanup to the satisfaction of the Engineer.

46. Responsibility for a Safe Place to Work.

46.1 The Contractor's attention is directed to Section 4 of these General Conditions entitled, "Indemnification of District."

46.2 The Contractor shall be responsible for the maintenance of a safe place to work and any safety in or about the work site. The Contractor shall be required to conform to all of the applicable Construction Safety Orders issued by the Division of Industrial Safety of the State of California.

46.3 The contractor shall execute and maintain his work so as to avoid injury or damage to any person or property. The contractor shall comply with the requirement s of the specifications relating to safety measures applicable in particular operations or kinds of work.

46.4 In carrying out his work, the contractor shall at all times, exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed, and be in compliance with all federal, state and local statutory and regulatory requirements including State of California, Division of Industrial Safety (Cal/OSHA) regulations. Safety precautions as applicable shall include, but not be limited to, adequate life protection, and life-saving equipment; adequate illumination for underground and night operations; instructions in accident prevention for all employees such as machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space

procedures, trenching and shoring, and other safety devices, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; and adequate facilities for the proper inspection and maintenance of all safety measures.

46.5 The names and telephone numbers of at least two medical doctors practicing in the vicinity and the telephone number of the local emergency response services shall be prominently displayed adjacent to telephones at the project site.

47. Public Convenience and Safety.

47.1 The Contractor shall provide for the protection of the traveling public. The Contractor shall be required to furnish and maintain safety devices and other measures required for the public safety, which devices and measures shall conform to the requirements of Section 21406 of the Vehicle Code, any sign manual and current standard specifications of the Division of Highways. The Contractor shall conduct his operation to avoid unnecessary interference with the flow of traffic along highways, streets, roads, etc., used for vehicular traffic. Where any highway, street, road, etc., used for vehicular traffic is required to be kept open, the Contractor shall be required to furnish and maintain warning signs, lights, barricades, flagmen and other safety devices and measures necessary to provide adequate protection of the traveling public. Such protection shall be at the sole expense of the Contractor. Any highway, street maintenance or repair work required by local authorities concerning necessary operation under this contract shall be performed by the Contractor at his sole expense.

47.2 Vehicular access to any driveway shall be maintained to the property line unless necessary construction precludes such access for reasonable periods of time.

47.3 Vehicular and pedestrian access to any fire hydrant shall be maintained at all times during the construction of the work.

48. Safety, Sanitary and Medical Requirements.

48.1 The Contractor, his employees and the subcontractors, if any, and their employees shall promptly and fully carry out the existing safety, sanitary and medical requirements as may from time to time be prescribed by the District to the end that proper work shall be conserved and safeguarded. In case such regulations and orders are not observed by the Contractor, they may be enforced by the Engineer at the Contractor's expense.

48.2 Contractor shall notify District in writing within twenty-four (24) hours should an employee, officer or agent of Contractor or subcontractor incur personal injury while present on District properties or employed by District. District shall be furnished copies of all medical reports or accident reports filed or required by any local state or federal agency or regulatory body.

49. Character of Workers.

49.1 None but skilled workers shall be employed on work requiring special qualifications. All equipment operators, pipelayers and jointers shall be well qualified and experienced in their work. All welding, however minor, shall be done by competent, certified welders, who have been qualified under

Section IX of the ASME Boiler and Pressure Vessel Code, API Publication 1104 or such other standard as may be satisfactory to the Engineer. The Engineer shall have the right any time to call for and witness the making of test specimens by any welding operator according to these standards, and the expense of such tests shall be borne by the Contractor. When required in writing by the Engineer, the Contractor, or any subcontractor shall discharge any person who is, in the opinion of the Engineer, incompetent, unfaithful, disorderly or otherwise unsatisfactory, and shall not again employ such discharged person on the work except with the consent of the Engineer. Such discharge shall not be the basis of any claim for compensation or damages against the District or any of its officers.

49.2 Enforcement of Order. The Contractor shall be responsible for maintaining good order at the site where work is performed under this contract and to that end shall employ such watchmen or other persons as may be required. Unauthorized persons shall be excluded from the site of the work. The Contractor shall not sell, nor shall he permit or suffer the introduction or use of, intoxicating liquors or narcotics upon the work embraced in these Specifications or upon any of the grounds occupied or controlled by him in connection with such works.

50. Subcontracts.

50.1 Subcontracts will be permitted subject to the following provisions. No subcontract will be permitted which has the effect of avoiding the residence or wage requirements or any other provisions of the main contract. Individual subcontractors or members of contracting or subcontracting organizations personally engaged upon the work shall be subject to all the requirements of these specifications applicable to employees working for wages, including but not limited to, wages, hours of work, character of workers and certified payrolls.

50.2 Reference is hereby made to the provisions of the Subletting and Subcontracting Fair Practices Act, Public Contract Code Section 4100, commencing with Section 4100, also known as the "Subletting and Subcontracting Fair Practices Act," which is incorporated herein and made a part hereof by reference, and the Contractor is bound thereby and shall be subject to the consequences named in Sections 4110 and 4111 of said Act in event of his violation thereof. Each bidder shall, in his bid or offer, set forth: (1) The name and the location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement in an amount in excess of one-half of one percent of the Contractor's total bid or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the prime contractor's total bid; and (2) The portion of the work which will be done by each such subcontractor under said Act. The Contractor shall list only one subcontractor for each such portion as defined by the Contractor in his bid. If the Contractor fails to specify a subcontractor or if the Contractor specifies more than one subcontractor for the same one-half of one percent of the Contractor's total bid, the Contractor agrees that he is fully qualified to perform that portion himself, and that he shall perform that portion himself.

51. Access to the Site and Haul Routes.

51.1 The Contractor shall make his own investigation of the condition of available public or private roads or other access, and of clearances, restrictions, bridge load limits, bond requirements, and other limitations that affect or may affect transportation and ingress and egress at the job site. The unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of work. It shall be the Contractor's own responsibility to construct and maintain, at his own expense and at his own risk, any haul roads, access roads, bridges, or drainage structures required for construction operations.

51.2 The use of existing roads (public or private) shall be at the Contractor's own expense and risk. It shall be the Contractor's responsibility to anticipate and meet all conditions properly imposed upon the use of existing roads by those having jurisdiction thereover, including (without limitation of the generality of the foregoing) seasonal or other limitations or restrictions, the payment of excess size and weight fees, and the posting of bonds conditioned upon repair of road damage caused by contract-generated traffic.

51.3 The hauling of sand, gravel, asphalt or other intra job hauling, over public highways, roads or bridges, shall be in compliance with the applicable regulations and shall be such as to minimize interference with or congestion of local traffic.

51.4 The cost of all work described in this paragraph shall be included in the prices bid in the schedule for other items of work.

52. Irregular Hours.

52.1 When any work is to be performed at a time other than regular working hours Monday through Friday, the Engineer shall be given advance notice. In the event of Saturday and/or Sunday work, the approval of the Engineer shall be required before such work will be allowed. All costs for inspection attributed to irregular working hours shall be borne by the Contractor and shall be deducted from the contract amount. Irregular working hours shall be defined as follows, except for certain specialized jobs and circumstances:

52.1.1 Before 8:00 a.m. Monday through Friday.

52.1.2 After 4:30 p.m. Monday through Friday.

52.1.3 Anytime Saturday, Sunday, or District's Holidays.

52.2 The Contractor will be exempt from this provision only for such work as required by the Specifications to be completed at other than working hours.

53. Eight-hour Law.

In accordance with the provisions of Articles 1 and 3 of Chapter 1, Part 7, Division 2 of the Labor Code of the State of California eight (8) hours constitute a legal day's work. The Contractor shall forfeit, as a penalty to the District, $25.00 for each worker employed in the execution of the contract by the Contractor

or any subcontractor under him: for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of the Labor Code, and in particular, Sections 1810 to 1815 thereof, inclusive, except that work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay as provided in said Section 1815. The Contractor and each subcontractor shall keep accurate records showing the name of and schedule of hours worked by each worker employed by him concerning the contract. The records shall be kept open at all reasonable hours to inspection by the District and the Division of Labor Law Enforcement.

54. Payment of Wages.

The issuance as payment for wages of any evidence of indebtedness is prohibited unless the same is negotiable and payable on demand without discount. Wages must be paid at least semi-monthly on regular pay days established in advance, and shall include all amounts for labor or services performed by employees of every description as required under the provisions of the California Labor Code.

55. Prevailing Rate of Per Diem Wages.

Pursuant to the provisions of Articles 1 and 2 of Chapter 1, Part 7, Division 2 of the Labor Code of the State of California, not less than the general prevailing rate of per diem wages and not less than the general prevailing rate of per diem wages for legal holiday and overtime work for each craft or type of worker needed to execute the work contemplated under this contract, as determined by the District and as set forth in the schedule of such wages currently on file in the District office, shall be paid to all workers employed on such work by the Contractor or by any subcontractor doing or contracting to do any part of said work. The Contractor shall comply with Labor Code Section 1775. According to said Section 1775, the Contractor shall forfeit, as a penalty to the District, $25 for each calendar day, or portion thereof, for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed for any work done under the contract by him or by any subcontractor under him in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. In addition to said penalty and pursuant to said Section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor. The Contractor and each subcontractor shall keep accurate records showing the name of and schedule of hours worked by each worker employed by him in connection with the contract. The records shall be kept open at all reasonable hours to inspection of the District and the Division of Labor Law Enforcement.

56. Unpaid Claims.

If, upon or before the completion of the work herein agreed to be performed or at any time prior to the expiration of the period within which claims may be filed as prescribed by Section 3184 of the Civil Code, any person or persons shall bring against the District or against any agent or agents thereof any action to enforce such claim, the District shall, until the discharge thereof, withhold from the moneys under its control so much of said moneys due or to become due the Contractor under this contract as shall be sufficient to satisfy and discharge the amount in such notice or under such action claimed to be due, together

with the costs thereof; provided, that if the District shall in its discretion permit the Contractor to file such additional bond as is authorized by Section 3196 of the Civil Code, in a penal sum equal to one and one-fourth times the amount of said claim, said moneys shall not thereafter be withheld due to such claim.

57. Monthly Cost Estimates - Progress and Final Progress Payment.

57.1 The Contractor shall submit, by the third calendar day of each month on a form acceptable to the District, his estimate of the amount and value of all acceptable work and any extra work or changes approved by the District, up to the last day of the preceding calendar month, for the District's approval; and the Contractor will request a progress payment for the work completed thereof.

57.2 A deduction of five (5) percent shall be made from the total thus computed, and from the remainder there shall be further deducted any amounts due the District from the Contractor for supplies or materials furnished or services rendered and any other amounts that may be due the District under the terms of the contract. From the balance thus determined shall be deducted the amount of all previous payments and the remainder shall constitute the progress payment for that month. Such progress estimates shall not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one method and partly by the other, and it shall be sufficient if they are approximate only.

57.3 Pursuant to Public Contract Code Section 22300, at the request and expense of the Contractor, securities equivalent to the amounts, if any, withheld by the District to ensure performance under this contract shall be deposited with the District. The District shall pay such moneys to the Contractor upon satisfactory completion of the contract. Securities eligible for investment under this section shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit. The Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

If the securities to be deposited by the Contractor pursuant to this provision are in registered form, the registration shall be transferred to the District.

57.4 The Engineer shall approve the amount and value of all acceptable work and any extra work or changes approved by the District. Upon mutual agreement thereto, the Engineer will forward the approved estimate to the Administrative Services Manager for payment of the progress or final progress payment within ten (10) days thereafter.

57.5 In the event that the Contractor and the District cannot mutually agree as to the amount and value of any item of work in the progress payment, the District will authorize payment of that portion of the progress and final progress payment to which the Contractor and the District have mutually agreed.

57.6 The Contractor shall file with the District, within five (5) calendar days after the Engineer has issued written notice of the disputed items to the Contractor, a written statement setting forth in complete detail the basis for his disagreement, including, but not limited to, any amount or value in disagreement or dispute.

57.7 Upon receipt of the Contractor's written statement, the General Manager shall investigate and consider the items of disagreement or dispute and render a decision thereon within a reasonable time, which decision shall be conclusive.

57.8 In the event that the Contractor disagrees with the General Manager's decision, the Contractor's cost to the Contract for the delay in receiving the disputed balance of any progress or final progress payment, may be an item for arbitration according to Section 65 of the General Conditions.

57.9 In the event the contract or any part thereof shall be suspended as provided in Section 21, the retained percentage as provided in Section 58(b) shall become the sole and absolute property of the District to the extent necessary to repay the District any excess in the cost of the work above the contract price. After issuance of notice to discontinue work, no payment upon progress estimates or otherwise shall thereafter be made to the Contractor for the work covered by said notice until completion of work and final settlement.

57.10 The making of an estimate and payment in accordance therewith shall not preclude the District from demanding and recovering from the Contractor such damages as it may be entitled to under the contract because of his failure to comply with the Specifications.

58. Final Cost Statement.

58.1 Final Cost Statement is a document which summarizes all of the Contractor's earnings under this contract and any amounts due the District from the Contractor, and from which the final payment is made.

58.2 Upon completion of all of the work to be performed under this contract as set forth in Section 45, the Contractor shall submit for approval by the District in a form satisfactory to the District the amount and value of all acceptable work, and all extra work or changes approved by the District.

58.3 The Engineer shall approve the amount and value of all acceptable work and any extra work or changes approved by the District. Upon mutual agreement thereof, this District will prepare the Final Cost Statement document which shall be submitted to the Contractor for his acceptance and signature.

58.4 Upon endorsement by the Contractor of the Final Cost Statement, the District shall accept the work and authorize the final payment according to Sections 61 and 62 hereof.

59. Disputed Final Payment.

59.1 In the event that the Contractor and the District cannot mutually agree as to the amount and value of the work, as set forth in this Final Cost Statement, the District will prepare the Final Cost Statement based upon the Engineer's determination of the amount and value of the work to which this Contractor may be entitled. Upon receipt of this Final Cost Statement, the Contractor shall file with the District within five (5) calendar days thereafter, a written statement setting forth in complete detail the basis for his disagreement, including, but not limited to, any amount or value in disagreement or dispute.

59.2 The Board reserves the right to accept the work and file the necessary Notice of Completion.

59.3 The Board shall investigate and consider the items of disagreement or dispute and render its decision thereon as to the amount due the Contractor within a reasonable time.

59.4 The District will authorize payment of that portion of the Final Cost Statement to which the Contractor and the District have mutually agreed according to Section 58 hereof. Reference is made to Section 64 of these General Conditions.

60. Acceptance.

Upon endorsement by the Contractor of the final cost statement, the Engineer shall prepare a memorandum of completion to advise the Board that the work has been satisfactorily completed and is ready for acceptance. At its next succeeding meeting, the Board shall consider acceptance of the work, and upon acceptance, shall authorize payment to the Contractor.

61. Final Payment.

61.1 At the end of thirty-five (35) days after filing the notice of completion, as set forth above, the total balance due the Contractor, or in case of a dispute, any portion of the total balance which has been mutually agreed is not in dispute, if unencumbered, or any part thereof unencumbered, shall be paid provided that a guarantee bond shall have been filed with the District.

61.2 For the purposes of this section, unencumbered balance means that portion over and above the face amount of all the stop notices on file with the District plus 25 percent of the face amount for potential interest and the cost of litigation as provided for in the Civil Code Section 3186-7.

62. Final Payment Terminates Liability.

62.1 The acceptance by the Contractor of the final payment aforesaid shall be a release to the District and its agents from all claim liability to the Contractor for anything done related to the work or for any act or neglect of the District related to the work, except the claim against the District for the remainder, if any, of the amounts kept or retained as hereinbefore provided.

62.2 No agent of the District shall be personally responsible for any liability arising under the contract. No claim shall be made or filed, and neither the District nor any of its agents shall be liable for, or held to pay any money, except as specifically provided in the contract.

63. Releases.

63.1 Prior to payment of the final progress payment, the District may require the Contractor to obtain releases from each of the subs, material suppliers, equipment rental firms and employees, whether or not any have filed a preliminary notice with District, who have performed any work for the Contractor under this contract for which any payment may be warranted.

63.2 Releases shall be submitted in a form approved by the District. Conditional releases may be unacceptable and acceptance thereof will be at the discretion of the District.

64. Disputes Settled by Arbitration.

In the event there is a dispute between the parties as to any of the terms and conditions of this agreement, including but not limited to the accounting rendered by the District, and said dispute cannot be resolved according to Section 59 of these General Conditions, the dispute shall be submitted to arbitration before a single arbitrator agreed to by the parties or failing such agreement appointed by the American Arbitration Association and resolved according to Article 1.5 of the Public Contract Code. Regardless of the manner of appointment of said arbitrator, the arbitration shall be conducted according to the then prevailing rules of the American Arbitration Association for commercial arbitration, except that each party shall bear their own costs and attorney's fees which they incur.

64.1 As required under Section 20104, et seq., of the California Public Contract Code (Stats. of 1990), any demand of $375,000 or less, by the Contractor for a time extension, payment of money, or damages arising from the work done by or on behalf of the Contractor pursuant to this Contract; or payment of an amount which is disputed by District shall be processed in accordance with the provisions of said Section 20104, et seq., related to informal conferences, non-binding judicially-supervised mediation, and judicial arbitration.

64.2 A single written claim shall be filed under this Article prior to the date of final payment for all demands resulting out of the Contract.

64.3 Within thirty (30) days of the receipt of the claim, District may request additional documentation supporting the claim or relating to defenses or claims District may have against the Contractor. If the amount of the claim is less than $50,000, the Contractor shall respond to the request for additional information within fifteen (15) days after receipt of the request. The Contractor shall respond to the request within thirty (30) days of receipt if the amount of the claim exceeds $50,000, but is less than $375,000.

64.4 Unless further documentation is requested, District shall respond to the claim within forty-five (45) days if the amount of the claim is less than $50,000, or within sixty (60) days if the amount of the claim is more than $50,000 but less than $375,000. If further documentation is requested, District shall respond within the same amount of time taken by Contractor to respond, or fifteen (15) days, whichever is greater, after receipt of the information if the claim is less than $50,000. If the claim is more than $50,000 but less than $375,000 and further documentation is requested by District, District shall respond within the same amount of time taken by the Contractor to respond or thirty (30) days, whichever is greater.

64.5 If the Contractor disputes District's response, or District fails to respond, the Contractor may demand an informal conference to meet and confer for settlement of the issues in dispute. The demand shall be served on District within fifteen (15) days after the deadline of District to respond or within fifteen (15) days of District's response, whichever occurs first. District shall schedule the meet and confer conference within thirty (30) days of the request.

64.6 If following the meet and confer conference the claim or any portion remains in dispute, the claimant may pursue the remedies authorized by law. For purposes of these provisions, the running of the

period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim until the time the claim is denied, including any period of time utilized by the meet and confer conference.

REV: 07/13

END OF PART B

PART C

SPECIAL CONDITIONS

1. Requirements.

The work to be performed under this contract shall consist of furnishing all plans, tools, materials, supplies and manufactured articles and for furnishing all transportation, services, including fuel, power and water, and essential communications and the performance of all labor, work or other operations required for the fulfillment of the contract in strict accordance with the specifications, schedules and drawings, all of which are made a part hereof, and including such detail sketches as may be furnished by the Engineer from time to time during the construction in explanation of said drawings. The work shall be complete, and work, materials and services not expressly called for in the specifications or not shown on the drawings, which may be necessary for complete and proper construction to carry out the contract in good faith, shall be performed, furnished and installed by the Contractor at no increase in cost to the District.

2. General Description.

Casitas Municipal Water District (District) is soliciting formal bids for a contract for valve and appurtenance replacement work. Work locations are contained within the Casitas Municipal Water District in Ventura County, CA as shown in the Contract Documents. Work may include:

2.1 Provide any and all traffic control in accordance with WATCH requirements.

a. Remove cold mix and/or slurry to required depth and tack coat dugout edges.

2.3 Saw cut pavement to 12-inches minimum outside of top of trench and cold mill to a 1.5-inch depth. Additional grinding beyond this 12-inch minimum may be required by the governing agency with jurisdiction due to a moratorium on recently paved roadways and/or "squaring-off" a trench.

2.4 Backfill shall be slurry Class 60-E-0.7 as shown in detail Plate E-10(a) and (b).

2.5 Tack coat and feather out edges to three inches or better from edges of dig out.

2.6 For street patches and trench/backfill within County of Ventura jurisdiction, provide and install ½- or ¾-inch aggregate asphalt concrete (AC) and backfill standards in accordance with Ventura County Transportation Standards and Plate E-10(a) and (b).

2.7 Finished asphalt surface to be smooth and flush with surrounding surface.

2.8 All hydrant, line, and air relief valve cans shall be completed in accordance with Plate E-4(a) of Ventura County Road Standards.

2.9 For installation of Portland cement concrete (PCC), existing PCC shall be saw cut and removed up to the nearest control joint, and disposed in compliance with all local, state, and federal requirements. PCC to be replaced with 330-AS-23 (560-A-3250). New PCC to be finished to match existing and/or surrounding PCC.

2.10 For removal and replacement of an existing valve only, existing valve shall be removed and replaced with new gate valve, gasket and bolt kit, and protected per contract requirements.

2.11 For removal and replacement of existing valve, hydrant and connecting piping, all is to be removed and replaced with new gate valve, C900 piping, wet barrel 6" hydrant, and all related gaskets and bolt kits.

2.12 For removal and replacement of an air release valve or blow-off valve, remove existing material up to connecting flange and rebuild per the attached contract details.

3. General Sequence of Work.

3.1 Contractor will notify District Engineer of start date and general plan or order of work to be completed. A pre-construction meeting shall be held by the District Engineer for contract work and field verification of all final installation locations under contract.

3.2 An overall shutdown plan shall be provided by the Contractor and approved by the District in order to minimum customer outages.

3.3 District Inspector will verify all work is completed in a manner consistent with the governing agency standards and will verify measurement of work.

3.5 Contractor submits a monthly progress payment.

4. Beginning and Completion of the Work.

The Contractor shall begin the work within fourteen calendar days after the date on the Notice to Proceed. Work shall be performed on **Mondays through Fridays** unless otherwise approved by the District. All work shall be performed between the hours of **8:00 a.m. and 4:30 p.m. No work shall occur on District observed holidays**. The Contractor shall notify the District Inspector of work dates two days in advance of work start. Time extensions for the project shall be granted with written permission from the District Engineer based on unreasonable weather conditions. **Extension of work will be granted only for unfavorable weather conditions or natural disasters.**

5. Contract Drawings.

When deemed necessary by the District Engineer, additional detailed drawings will be furnished during the progress of work. The drawings included in the contract are identified as follows:

Sheet #	Title	Drawing
1.	Cover Sheet	Cover
2.	Existing Facilities Map	Exhibit A
3.	Valves and Appurtenances Location Map	Exhibit B
4.	Trench Bedding and Backfill in Existing Pavement	Plate E-10(a-b)
5.	Raising Existing Utility Cover	Plate E-4(a)
6.	Typical Thrust Block and Typical End	SD-2
7.	Typical Mainline Valve and Anchor	SD-3
8.	Typical Fire Hydrant Wet Barrel Type - Modified	SD-9
9.	Typical Meter Service Plan and Profile	SD-11
10.	Typical Meter Service Copper Pipe Material List	SD-12
11.	Typical Guard Post – Modified	SD-13

6. Permits.

All work shall be conducted under Encroachment Permits obtained by the District from the governing agency whose right-of-way is encroached upon (Appendix A). The Contractor is responsible for complying with all applicable conditions listed on the governing agency encroachment permit respective of where the work is being performed. The Contractor, at their sole expense, shall be required to obtain all other permits and/or licenses as required, including any duplicate permits required by the permitting agencies.

7. Access to the Site and Haul Routes.

7.1 Contractor shall include complete mobilization in the unit price items for mobilization. No additional compensation shall be granted for location of contract work.

7.2 The Contractor shall make his or her own investigation of the condition of the available public or private roads or other access, and of clearances, restrictions, bridge load limits, bond requirements and other limitation which affect or may affect transportation and ingress and egress at the job site. The unavailability of transportation facilities or limitation thereon shall not become a basis for claims for damages or extension of time for completion of work. It shall be the Contractor's responsibility to construct and maintain, at Contractor’s own expense and at Contractor’s own risk, any haul roads, access roads, bridges or drainage structures required by construction operations.

7.3 Existing Public or Private Roads. The use of existing roads shall be at the Contractor's own expense and risk. It shall be the Contractor's responsibility to anticipate and meet all conditions properly imposed upon the use of existing roads by those having jurisdiction there over, including (without limitation of the generality of the foregoing) seasonal or other limitations or restrictions, the payment of excess size and weight fees, and the posting of bonds conditioned upon repair of road damage caused by contract-generated traffic. It shall be the Contractor's responsibility to satisfy all lawful demands for repair of damage to existing roads caused by contract-generated traffic and barricade public access to project sites.

7.4 Haul Routes. The hauling of sand, gravel, earth materials or other intra-job hauling over public highways, roads or bridges shall be in compliance with the applicable local regulations and shall be such as to minimize interference with or congestion of local traffic.

7.5 The Contractor shall provide worker training and follow-up reminders about traffic safety issues and restrictions to all employees and representatives from firms traveling to the work site. Contractor shall promptly take corrective action, including forbidding the offending party from the work site, against parties found to be speeding on roads leading to the job site.

7.6 Cost. The cost of all work described in this paragraph shall be included in the prices bid in the schedule for other items of work.

8. Water and Power.

The Contractor will be required to make arrangements for water and power the Contractor may require during construction of the project. If water is obtained from existing District facilities, the water will be furnished free of charge, but Contractor shall install and subsequently remove at Contractor’s expense, all temporary facilities required to obtain and use the water.

9. Safety.

9.1 The Contractor shall execute and maintain Contractor’s work so as to avoid injury or damage to any person or property. The Contractor shall comply with the requirements of the specifications relating to safety measures applicable in particular operations or kinds of work.

9.2 In carrying out the Contractor’s work, the Contractor shall at all times, exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed, and be in compliance with all federal, state and local statutory and regulatory requirements including State of California, Division of Industrial Safety (Cal/OSHA) regulations. Safety precautions as applicable shall include, but not be limited to, adequate life protection, and lifesaving equipment; adequate illumination for underground and night operations; instructions in accident prevention for all employees; such machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, and other safety devises, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; traffic control per County of Ventura requirements; and adequate facilities for the proper inspection and maintenance of all safety measures.

9.3 The name and telephone number of at least one medical provider in the vicinity and the telephone number of the local ambulance service shall be prominently displayed adjacent to the work area.

9.4 Contractor shall insure all Contractor and subcontractor employees adhere to traffic laws. The Contractor shall provide worker training and follow-up reminders about traffic safety issues and restrictions to all employees and representatives from firms traveling to the work locations. Any employee or subcontractor the District receives reports regarding failing to abide the traffic regulations shall be removed from the job and replaced at no cost to the District.

10. Public Access.

Contractor shall prioritize the vehicular ingress/egress of residents and visitors to maintain effective traffic control. Traffic control and equipment must be staged in a manner that will minimize impacts to the flow of traffic. Contractor shall maintain vehicle and pedestrian access for all access roads at all times.

END OF PART C

PART D

MEASUREMENT AND PAYMENT

1. General. This section defines rate schedule item prices and the manner in which they will be used to determine measurement and payment for all items included in the bid sheet.

2. Unbalanced Prices. Proposed rate schedule item prices which are so unbalanced as to be detrimental to the District's interests may be rejected or cause rejection of the Bidder's entire bid at the discretion of the District.

3. Costs Included. Each proposed bid schedule item price shall cover all costs and charges, including, without limitation, the costs of materials, fabrication, delivery, installation or application, supervision, bond and insurance charges, overhead, profit and taxes. Lump sum prices shall be the exact amount to be applied for the work actually provided for the purpose of establishing the payment due the Contractor.

4. Term of Prices. Bid schedule item prices accepted by the District shall be held good and in effect until the work is completed and accepted by the District unless modified by change order.

5. Measurement and Payment.

5.01 This section defines the manner and method of measurement and payment for all items included in the Proposal and as amended by change order.

5.02 Compensation for all plant, equipment, tools, materials, labor, service, safety, permits, and all other items required to complete the work in conformity with the contract documents will be included in the payment provided in this section unless specifically excluded. No other compensation will be made except for the items listed on the bid sheet. Work for which no separate payment has been provided will be considered as a subsidiary obligation of the Contractor and the cost therefor shall be included in the applicable contract price for the item to which the work applies. All measurements of the work done will be made by the Engineer.

Bid Schedule Item No. 1 – Mobilization/Demobilization of all contract work.

Payment for mobilization at 60% shall be made at the time of the first progress payment after the Contractor has purchased bonds and insurance and established a Contractor's site office with telephone service and a temporary field office for the Engineer and Agency's Inspector. The remainder of 40% shall be paid at the time of last progress payment after all cleanup and demobilization have been completed.

General Work

Bid Schedule Item No. 2 –Remove, Replace, and Relocate Hydrant #1000067.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000067, breakaway spool, bolt kits and gaskets and raise to grade with a spool kit. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, breakaway spool, bolt kits and gaskets in the same

location as the original. Contractor shall also remove and replace bent 6-inch bollard. **Contractor shall also install hydrant spool kit (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 3 – Remove, Replace, and Relocate Hydrant #1000068.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000068 and raise to grade upon relocation. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, approximately 8 feet of C900 piping through asphalt, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets in a location approximately 2 feet west of the original location. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. **The work also includes installation of a 6-inch double flanged gate valve (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 4 – Remove, Replace, and Relocate Hydrant #1000069.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000069 and raise to grade upon relocation. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, approximately 10 feet of C900 piping through asphalt, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets in a location approximately 1 ½ feet west of the original location. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. **The work also includes installation of a 6-inch double flanged gate valve (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 5 – Remove, Replace, and Relocate Hydrant #1000070.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000070 and associated bollards. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, approximately 8 feet of C900 piping partially through asphalt, 6-inch tapping sleeve, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets in a location approximately 10 feet west of the original location. The tie-in shall occur to an existing 6-inch C900 pipeline. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. Contractor to also provide blind flange and new bolt kit and gasket for removed gate valve. **The work also includes installation of a 6-inch double flanged gate valve (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 6 – Remove, Replace, and Relocate Hydrant #1000071.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000071 and associated bollards. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, approximately 25 feet of C900 piping through asphalt, 6-inch tapping sleeve, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets in a location approximately 25 feet west of the existing 6-inch C900 mainline. The tie-in shall occur to an existing 6-inch C900 pipeline. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. Contractor to also provide blind

flange and new bolt kit and gasket for removed gate valve. **The work also includes installation of a 6-inch double flanged gate valve (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 7 – Remove, Replace, and Relocate Hydrant #1000072.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000072 and raise to grade upon relocation. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, approximately 11 feet of C900 piping, 6-inch tapping sleeve, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets in a location approximately 11 feet west of the existing 6-inch C900 mainline. The tie-in shall occur to an existing 6-inch asbestos cement pipeline. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. Contractor to also provide blind flange and new bolt kit and gasket for removed gate valve. **The work also includes installation of a 6-inch double flanged gate valve (O.F.C.I.).** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 8 –Remove, Replace, and Relocate Hydrant #1000964.

This work shall include the cost to remove an existing 6-inch fire hydrant #1000964 and raise to grade. The work includes procurement and installation of a new 6-inch wet barrel fire hydrant, breakaway spool, bolt kits and gaskets in the same location as the original. Contractor shall also replace existing 4-inch bollard with (2) 6-inch bollards. **Contractor shall also install hydrant spool kit (.F.C.I.** Hydrant installation shall conform to modified District Detail SD-9.

Bid Schedule Item No. 9 –Remove and Replace 4-Inch Gate Valve.

This work shall include the cost to remove (5) existing 4-inch mainline gate valves. The work includes installation of 4-inch gate valves and procurement and installation of new bolt kits and gaskets in the same location as the original. Assume all valves are at a depth of 36-inches in asphalt. Valve installations shall conform to modified District Detail SD-3. **Only 4-inch gate valves are O.F.C.I.**

Bid Schedule Item No. 10 –Remove and Replace 6-Inch Mainline Gate Valve.

This work shall include the cost to remove (1) existing 6-inch mainline gate valve. The work includes installation of 6-inch gate valves and procurement and installation of the new bolt kits and gaskets in the same location as the original. Assume all valves are at a depth of 36-inches in asphalt. Valve installations shall conform to modified District Detail SD-3. **Only 6-inch gate valves are (O.F.C.I.).**

Bid Schedule Item No. 11 –Remove and Replace ½-Inch Ball Valve and Associated Valve Box.

This work shall include the cost to replace (1) existing ½-inch ball valve and valve box. The work includes procurement and installation of the new ball valve and valve box in the same location as the original.

Bid Schedule Item No. 12 –Disposal of all Removed Contract Material.

This work shall include the cost to dispose of all contract removed material. The District reserves the right to salvage any material removed by the Contractor.

Miscellaneous Patching & Repairs

Bid Schedule Item No. 13 – Saw cut pavement and cold mill to a 2-inch depth a minimum of 12 inches outside the top of trench (T-Grind).

The unit price shall include all necessary equipment, materials, labor, and miscellaneous items. Measurement shall be based on the cumulative square footage completed for grinding existing AC along the outside top of trench to a width specified by District personnel and/or in accordance with governing agency standards. Unit price includes removal and disposal of AC grindings in compliance with all local, state, and federal requirements. Subsequent AC patch will be based on the unit price for square footage of AC installed.

Bid Schedule Item No. 14 – Saw cut sidewalk and replace.

The unit price shall include all necessary equipment, materials, labor, and miscellaneous items. Measurement shall be based on the cumulative square footage completed in accordance with governing agency standards. Unit price includes removal and disposal of sidewalk in compliance with all local, state, and federal requirements. Subsequent sidewalk patch will be based on the unit price for square footage of concrete installed.

Traffic Control

Bid Schedule Item 15 – Provide and conduct traffic control per WATCH standards.

Certified Flagger/Flashing Arrow Signs and All Required Construction Signs/Traffic Barricades:

The lump sum price shall include all necessary equipment, materials, labor, and miscellaneous items. Flagger must be dedicated solely to traffic control purposes and shall not be pulled to perform other work while an active flagger is required. Traffic control is to be in accordance with the Work Area Traffic Control Handbook (WATCH) minimum recommended channelizer and sign spacing.

Alternative Bid Items

Bid Schedule Item No. 16 – Installation of Angle Meter Stop Systems.

Unit price includes removal and disposal of material in compliance with all local, state, and federal requirements. **The material items listed in District Detail SD-12 are O.F.C.I.** Contractor shall anticipate to include in the unit price the installation and hot tap of a system shown in District Detail SD-12 all at a depth of approximately 30-inches to be installed into an existing 4" asbestos cement pipeline.

Bid Schedule Item No. 17 – Raising of Valve Cans.

Unit price includes removal and disposal of material in compliance with all local, state, and federal requirements. **The valve cans are (O.F.C.I.)** Contractor shall anticipate to include in the unit price the installation of a system to include a Christy valve box and lid. If approved, this work needs to be coordinated with a paving contractor performing work for the County of Ventura between November 1, 2018 and December 15, 2018 in the La Conchita neighborhood.

Bid Schedule Item No. 18 – Removal and Replacement of an Existing Fire Hydrant.

Unit price includes removal and disposal of material in compliance with all local, state, and federal requirements. **The work includes installation only of a new 6-inch wet barrel fire hydrant, 6-inch double flanged gate valve, 10 feet of C900 piping through asphalt, 6-inch C900 tee, breakaway spool, (2) 6-inch bollards, bolt kits and gaskets (O.F.C.I).** The tie-in shall occur to an existing 6-inch C900 pipeline or 4-inch asbestos cement pipeline, whichever price is greater. This work also involves the removal of all existing material to the point of the upstream hydrant gate valve flange. Contractor to also provide blind flange and new bolt kit and gasket for removed gate valve. Hydrant installation shall conform to modified District Detail SD-9.

6. Work Not Listed in the Schedule of Work Items

6.01 The bids for the work are intended to establish a total cost for the work in its entirety. Should the Contractor feel that the cost for the work has not been established by specific items in the Bid Form, include the costs for that work in some related bid item so that the Proposal for the project reflects the total cost for completing the work in its entirety.

END OF PART D

CASITAS MUNICIPAL WATER DISTRICT

LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT

SPECIFICATION NO. 18-403

TABLE OF CONTENTS

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SECTION 01010

SUMMARY OF WORK AND CONTRACT CONSIDERATIONS

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project includes: removal and replacement of existing hydrants and valves; together with associated site work, water systems piping, appurtenances, and demolition. Project earthwork is unbalanced and requires disposal of unsuitable material and importation of suitable material for engineered fill.

1.02 TYPE OF CONTRACT

A. The Work covered by these Contract Documents shall be provided under a single lump sum Contract.

1.03 WORK UNDER OTHER CONTRACTS

A. The County of Ventura is paving the area within this Contract boundary and the Contractor awarded this Contract shall be coordinated with the County's paving work.

1.04 OWNER-FURNISHED AND INSTALLED ITEMS (N.I.C.)

A. Certain items shown or referred to in the Contract Documents are not included in this contract and are marked "Not in Contract" (N.I.C). The Owner will furnish and install N.I.C. items. Contractor shall make required connections between N.I.C. items and mechanical and electrical services provided under this Contract.

B. The Contractor shall cooperate with the Owner's workers and shall provide access to work areas and space to store tools, material and equipment. The Owner shall coordinate his work efforts with those of the Contractor and shall adjust his schedule to accommodate the Contractor's schedule.

1.05 OWNER-FURNISHED CONTRACTOR INSTALLED ITEMS (O.F.C.I.)

A. Certain items required for this project will be furnished by the Owner and installed by the Contractor. Such items are referred to as "Owner-Furnished Contractor Installed (O.F.C.I.)." O.F.C.I. items shall be picked up by the Contractor at *1055 Ventura St, Oak View, CA 93022,* transported to the project site and installed by the Contractor.

B. Contractor's installation of O.F.C.I. items shall include attaching or anchoring items, connecting utilities and controls, lubricating and necessary adjustment, startup, testing, placing items in service. If items are new, Contractor shall turn over operation and maintenance manuals and equipment warranties to Owner.

1.06 CONTRACTOR'S USE OF SITE AND OWNER'S CONTINUED OPERATIONS

A. The Contractor shall confine use of the site for work and storage to the Work Area Limits shown on the contract drawings. The Contractor's use of adjacent lands and

roads for access to move onto and off of the site and for daily access of workers, material and equipment shall be arranged and scheduled to minimize interference with the Owner's continued operations.

B. The Owner intends to continue operation of portions of its existing facility during all or most of the construction period. The Contractor shall plan and schedule its work to minimize impacting the Owner's continued operations and shall, at all times, maintain safe access for the Owner's operating personnel and equipment.

C. The Contractor shall be responsible for maintaining safe emergency exiting for the Owner's and Contractor's personnel in all areas affected by the Contractor's work.

D. If operation of the Owner's existing facility is adversely affected by the Contractor's work, the Owner may suffer a financial loss and may make a claim against the Contractor to recover its loss.

1.07 DOCUMENTING EXISTING

A. Prior to commencing the Work, tour the site with the Owner and the Engineer. Examine and document photographically and in writing the condition of existing buildings, equipment, improvements, and landscape planting on or adjacent to the site. This record shall serve as a basis for determination of subsequent damage due to the Contractor's operations and shall be signed by all parties making the tour.

1.08 SHUTDOWN OF EXISTING UTILITIES, SERVICES OR OPERATIONS

A. Obtain the Engineer's approval at least 7 days prior to the shutdown of any utility, service or operation of any existing facility. Give required notice and make appropriate arrangements with utility owners and other affected parties prior to shutdown of any utility service. Base bids on work performed during normal working hours. The Owner may authorize a Change Order if work must be performed during premium time hours.

B. Schedule utility service or operations shutdowns during normal working hours. Have all required material, equipment and workers on site prior to beginning any work involving a possible shutdown. Perform work as required to reduce shutdown time to the minimum. In some cases, this may require increased numbers of workers and/or premium time night or weekend work.

1.09 SCHEDULE OF VALUES

A. The Contractor's Schedule of Values shall be in a form acceptable to the Engineer and have at least the following level of detail: a separate line item for each technical specification section, for site mobilization, for Construction Scheduling, for bonds and insurance, for final cleanup and for final deliverables. Subdivide final deliverables into: Record Drawings; Operation and Maintenance Manuals with Parts Lists; and Special Guarantees. Include the appropriate specification section and paragraph number for each line item. Subdivide major trades or portions of the work into multiple line items that relate to observable milestones to aid monthly progress evaluations in accordance with the following example:

Concrete Work:

Foundations
Slab on grade
First floor walls and columns
Second floor beams and slabs
Second floor walls and columns, etc.

1.10 APPLICATION FOR PAYMENT

A. Line items on the Application for Payment shall be the same as those used on the Schedule of Values. Applications for Payment shall contain the Contractor's Certification.

1.11 UNIT PRICE WORK

A. When the Contract Documents include Unit Price Work, the Contract Price shall include an amount equal to the sum of Unit Prices bid for each item times the estimated quantity for that item listed on the Bid Form.

B. Unit Prices shall include all of the Contractor's cost including overhead and profit.

1.12 CONTRACT MODIFICATIONS

A. The following documents may be used by the Engineer:
   1. Request for Quotation: Issued by the Engineer, a Request for Quotation is used to describe a proposed change and request a cost quotation from the Contractor but does not authorize a change in the Work or in the Contract Time or Price.
   2. Change Order: Signed by the Engineer signifying its recommendation, and signed by the Contractor and Owner signifying their acceptance, a Change Order changes the Scope of Work and possibly the Contract Price and/or Contract Time.
   3. Work Directive Change: Signed by the Owner (and in some cases by the Contractor) signifying their acceptance and issued by the Engineer, a Work Directive Change is used: (1) to direct the Contractor to do extra work on a cost accounting basis with a fixed maximum sum when the Owner and Contractor have not agreed on the price and time for the change, and (2) to direct the Contractor to do work that the Contractor contends is not included in the contract scope. Work done under case 1 will be converted to a Change Order when the Contractor and Owner agree on the change in price and time. The Contractor may make a claim under General Conditions Article 10 for recovery of cost and time extension for work done under case 2; but if the claim is denied because the work is determined to be included in the contract scope, then the Contract Time and Price will not be changed.
   4. Response to Request for Information: Issued by the Engineer, a Response to Request for Information is used to order or document minor changes in the work consistent with the intent of the Contract Documents and NOT involving a change in price or time. Information issued on a Response to Request for Information shall NOT authorize a change in Contract Price or Contract Time and shall not be considered a Constructive Change Order. If the Contractor considers that a Response to Request for Information would cause a change in Contract Price or Time, it shall notify the Engineer in writing within 15 days of

receipt of the Response to Request for Information and shall not proceed with the work.

5. The Contractor hereby expressly waives any claim or right to make a claim for an increase in contract time or price without written notice to the Engineer of the Contractor's intent to make a claim 5 days prior to proceeding to execute the work or portion thereof giving rise to such claim.
6. The Contractor agrees that it shall not consider any Response to Request for Information, order, instruction, clarification, suggestion or any other communication either written or oral, given intentionally or unintentionally by the Engineer, Owner or any other person as authorization or direction to do any work that would cause a change in Contract Time or Price unless it is a formal written Change Order or Work Directive Change signed by the Owner.

1.13 REGULATORY REQUIREMENTS

A. The latest edition of the requirements in effect at the date of submission of bids shall apply.

B. In cases where the Contract Documents are more restrictive than applicable codes, the Contractor shall comply with the Contract Documents.

1.14 REFERENCE STANDARDS

A. When these specifications state that Work or tests shall conform to specific provisions in a referenced standard, specification, code, recommendation or manual published by an association, organization, society or agency the referenced provisions, as they apply to the Work of the Contractor only shall be considered a part of these specifications as fully as if included in total. When these specifications or applicable codes contain higher or more restrictive requirements than those contained in reference standards these specifications or applicable codes shall govern.

B. The latest edition of a referenced standard published at the time of submission of bids shall apply unless a specific date for the referenced standard is cited in these specifications.

C. General provisions in referenced standards, specifications, manuals or codes shall not change the specific duties and responsibilities between any of the parties involved in this work from those described in the General Conditions. Provisions in referenced standards with regard to measurement and payment shall not apply to this Work unless specifically cited.

1.15 SPECIFICATION LANGUAGE AND STYLE

A. Many parts of the Specifications as well as notes on the Drawings are written in the active voice and are addressed to the Contractor.
   1. When words or phrases requiring an action or performance of a task are used, it means that the Contractor shall provide the action or perform the task. For example: provide, perform, install, furnish, erect, connect, test, operate, adjust or similar words mean that the Contractor shall perform the action or task referred to.

2. When words or phrases requiring selection, acceptance, approval, review, direction, designation or similar actions are referred to, it means that such actions are the Owner's or the Engineer's prerogative and that the Contractor must obtain such action before proceeding.

B. Requirements in the Specifications and Drawings apply to all work of a similar type, kind or class even though the word "all" or "typical" may not be stated.

1.16 DEFINITIONS

A. The following terms, when used in the Contract Documents, shall have the meanings listed:

ACCEPTABLE	"acceptable to the Engineer"
PERFORM	"perform all operations required to complete the work referred to in accordance with the intent of the Contract Documents"
PROVIDE	"furnish and install the work referred to including proper anchorage, connection to required utilities or other work, testing, adjustment and startup ready to put in service and perform the intended function"
REQUIRED	"required by the Contract Documents or required to complete the Work and produce the intended results"
SATISFACTORY	"acceptable to the Engineer"
SHOWN	"as indicated on the Drawings"
SITE	"geographical location of the Project and land within the work area shown on the contract drawings and within which the Work will be installed or built"
SPECIFIED	"as written in the Contract Documents including the Specifications and the Drawings"
SUBMIT	"submit to the Engineer"

1.17 ABBREVIATIONS

A. The following acronyms or abbreviations are used in these specifications for the organizations listed.

Abbreviation	Stands for
AWWA	American Water Works Association
CAL/OSHA	State of California Department of Industrial Relations, Division of Industrial Safety
CAL TRANS	California Department of Transportation
EPA	U.S. Environmental Protection Agency
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act
WQCB	Water Quality Control Board (Regional)

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SECTION 01040

COORDINATION AND PROJECT REQUIREMENTS

1.01 PROJECT COORDINATION

A. Coordinate scheduling, submittals and work of various Sections of the Specifications and subcontractors to assure efficient and orderly sequence of interdependent construction. Provide accommodations for Owner Furnished Contractor Installed items.

1.02 CUTTING, FITTING, AND PATCHING

A. Provide cutting, fitting, or patching required to complete the Work and to make all of its parts fit together properly. Include cutting, fitting, and patching required to:
   1. Fit the several parts together and to integrate with other work.
   2. Uncover work to install or correct ill-timed work.
   3. Provide openings in elements of work for penetrations of mechanical and electrical work.
   4. Remove and replace defective and non-conforming work.
   5. Remove samples of installed work for testing.

B. Request guidance from the Engineer prior to beginning cutting or altering construction, which affects:
   1. Structural integrity of any element.
   2. Functional performance of any element.
   3. Integrity of weather-exposed or moisture-resistant elements.
   4. Efficiency, maintenance, or safety of elements.
   5. Visual qualities of sight-exposed elements.
   6. Work by Owner or separate contractor.

C. Execute cutting and patching using workers that specialize in and are skilled in installing the type of work being cut or patched.

D. Perform work in accordance with the Contract Documents or in the absence of specific requirements comply with best trade practice for the work involved.
   1. Execute work by methods that will avoid damage to other work.
   2. Provide proper support and substrates to receive patching and finishing materials.
   3. Cut concrete materials using masonry saw or core drill. Locate all reinforcing steel, conduits and pipes with electronic detecting devices prior to cutting or core drilling existing concrete.
   4. Replace or patch work with new materials meeting the requirements of these specifications or if not specified matching materials and finishes of existing or adjacent work.
   5. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
   6. Report any hazardous or unsatisfactory conditions to the Engineer.

1.03 ALTERATION PROJECT PROCEDURES

A. Plan, schedule and perform alteration work as required to minimize impacting the Owner's continued operations. See Section 01010 paragraph titled "Contractor's Use of Site and Owner's Continued Operations."

B. Perform cutting fitting and patching in accordance with provisions in other paragraphs of this Section. Where new work abuts or aligns with existing work perform a smooth even transition. When a smooth unnoticeable transition is not feasible cut existing surfaces along a straight line at a natural dividing point and provide a groove or cover plate as recommended by the Engineer.

C. Provide new construction in accordance with the technical specifications or if not specified provide new construction matching adjacent or similar existing work in material and finish.

1.04 CONNECTIONS TO UNDERGROUND UTILITIES, CONDUITS, OR PROCESS PIPING

A. Obtain best available current information on location, identification and marking of existing utilities, piping and conduits and other underground facilities before beginning any excavation. In areas where utilities that participate in Underground Service Alert may occur, call 811 for information at least 48 hours in advance of beginning work. Give District 5 days’ notice before beginning work.

B. The location of existing utilities and underground facilities known to the Design Engineer are shown in their approximate location based on information available at the time of preparing the Drawings. The actual location, size type and number of utilities and underground facilities may differ from that shown and utilities or underground facilities may be present that are not shown.

C. Use extreme care when excavating or working in areas that may contain existing utilities, process piping, conduits or other underground facilities. Use careful potholing, hand digging and probing to determine the exact location of underground installation. Some locations contain multiple pipes or conduits. Prior to performing any subsurface work, investigate, determine and prepare a plan to turn off or disconnect each utility believed to be in the within 100 feet of the subsurface work in the event of an accidental breach of a utility conduit.

D. Where connections to existing utilities or other underground facilities is required or where new piping or conduits may cross or interfere with existing utilities or underground facilities carefully excavate and uncover existing installations to a point 1 foot below the pipe or conduit to determine the actual elevation and alignment. Call the Engineer's attention to differing existing conditions that may require a clarification or change.

E. Shutdown of existing utilities, services or operations shall be done in accordance with Section 01010.

1.05 FIELD ENGINEERING AND LAYOUT

A. Upon submission of Notice of Award, Contractor shall meet the Engineer at the project site to field verify all installation locations based on the requirements of these

Contract Documents.

B. Contractor shall indicate in the field the location for all hydrant and valve relocation locations.

1.06 PRECONSTRUCTION MEETINGS

A. Prior to beginning the Work, the Contractor and its key personnel and Subcontractors including the Contractor's Superintendent, Project Manager, and Field Engineer shall attend a meeting with the District to discuss the following:
   1. Name, Authority, and Responsibilities of Parties Involved
   2. Project Procedures:
      a. Progress meetings
      b. Correspondence
      c. Notification
      d. Submittal of Product Data, Shop Drawing Samples, and Proposed Equivalents
      e. Requests for Information
      f. Response to Requests for Information
      g. Requests for Quotation
      h. Work Directive Change
      i. Change Orders
      j. Engineer's "Items of Concern List"
   3. Temporary Schedule and Contractor's Construction Schedule
   4. Temporary Facilities and Control
   5. Testing During Construction
   6. Contractor’s Coordination
   7. Maintenance of Record Drawings
   8. Owner Provided Items or Work and Owner Furnished Contractor Installed items
   9. Early Beneficial or Partial Occupancy
   10. Final Testing and Startup
   11. Punch Lists and Project Closeout Procedures
   12. Final Deliverables including Record Drawings

1.07 PROGRESS MEETINGS

A. The Engineer will conduct weekly progress meetings with Contractor and Owner at 1055 Ventura Avenue, Oak View, CA 93022. Attendance is required by Contractor's project manager, superintendent and affected Subcontractors and suppliers. The Engineer will prepare, maintain and distribute agenda and dated record of: (1) actions required and taken and (2) decisions needed and made.

B. Agenda:
   1. Review critical items/action list.
   2. Review work progress. Compare actual progress with planned progress shown on Contractors. Discuss Corrective action required. Compare actual and projected progress with Contractor's Construction Schedule, propose methods to correct deficiencies.
   3. Review status of Submittals; review delivery dates and date of need for critical items.
   4. Review coordination problems.
   5. Schedule needed testing and critical inspections.

6. Review critical requirements for each trade or major piece of equipment prior to beginning work or installation.
7. Discuss Contractor Quality Control.
8. Discuss open items on Engineers "Items of Concern List."
9. Discuss impact of proposed changes on progress Schedule.
10. Other business.

1.08 MATERIAL AND EQUIPMENT

A. General:
   1. Verify that products delivered meet requirements of Contract Documents and the requirements for Favorably Reviewed submittals.

B. Compatibility of Equipment and Material:
   1. Similar items, equipment, devices or products furnished under a single specification section shall all be made by the same maker and have interchangeable parts.
   2. In addition, but only if so stated in each affected Specification Section, similar items furnished under two or more Specification Sections shall be made by the same maker and have interchangeable parts.
   3. All similar materials or products that are interrelated or used together in an assembly shall be compatible with each other.

C. Transportation and Handling:
   1. Transport and handle products in accordance with manufacturer's instructions.
   2. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
   3. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. Storage and Protection:
   1. Store and protect products in accordance with manufacturer's instructions. Seals and labels shall be intact and legible.
   2. For exterior storage of fabricated products, place items on sloped supports, aboveground.
   3. Cover products subject to deterioration from moisture, dust, or sunlight with opaque watertight but breathable sheet covering. Provide ventilation to avoid condensation.
   4. Provide offsite storage and protection including insurance coverage when site does not permit onsite storage or protection.
   5. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
   6. Provide facilities, equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
   7. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

E. Installation Standards and Manufacturers' Recommendations:
   1. Install all products and materials in strict compliance with the most restrictive of the following:
      a. The manufacturer's or provider's written instructions or recommendations.

Follow step-by-step installation procedures.
b. Recommendations of referenced trade associations or standards.
c. These specifications and drawings.
2. Where conflicts exist present alternatives with advantages and disadvantages to Engineer for decision.

F. If reference standards or manufacturer's instructions contain provisions that would alter or are at variance with relationships between the parties to the Contract set forth in the Contract Documents, the provisions in the Contract Documents shall take precedence.

1.09 BACKING, SUPPORTS AND FASTENERS

A. Provide backing, supports, bracing, fasteners and other provisions required for the proper support and attachment of all work. Backing, supports, bracing and fasteners shall be sized to resist vertical and horizontal loads.

1.10 SAFETY

A. In accordance with generally accepted construction practice and applicable law, the Contractor shall be solely and exclusively responsible for:
1. Construction means and methods.
2. Safety of employees engaged in the work while on and off the site.
3. Safety of the Owner, the Engineer, the Design Engineer, and others who may visit or be affected by the work.
4. Safety of the work itself including material and equipment to be incorporated therein.
5. Safety of other property at the site or adjacent thereto.
6. Safety programs, equipment and protective devices required to assure the safety of persons and property for whom/which the Contractor is responsible.

B. The duties of the Engineer in conducting review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing, scaffolding or safety measures in, on, or near the construction site.

C. The Contractor is hereby informed that work on this project could be hazardous. The Contractor shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instructions as required to prevent injury to personnel and damage to property, and to comply with all applicable laws and regulations including State OSHA, Federal OSHA, and other regulations referenced in these Contract Documents.

D. The Contractor shall, at all times, maintain the job in a condition that is safe for the Owner, the Engineer and their Consultants to make site visits and to conduct construction reviews. If the Owner or the Engineer cannot allow personnel to visit the job because it is not safe, the Contractor is not providing required safe access to the Work.

E. The Contractor shall prepare a Safety Plan meeting the requirements of applicable regulations. As a minimum, the Contractors Safety Plan shall set forth definite

procedures for informing workers about safety, for instructing workers in safe practices, for assuring that workers are using appropriate safety equipment and safe work practices and for reporting accidents.

1.11 EXCAVATION AND TRENCHING; WORK WITHIN CONFINED SPACES

A. Submit specific plans to the Owner showing details of provisions for worker protection from caving ground in accordance with Section 6705 of the California State Labor Code. The detailed plans shall show the design of shoring, bracing, sloping banks or other provisions and shall be prepared, signed and stamped by a Civil or Structural Engineer licensed in the State in which the Work is performed and retained by the Contractor. The Owner's acceptance of the detailed plans submitted is only an acknowledgment of the submission and does not constitute review or approval of the designs, design assumptions, criteria, completeness, applicability to areas of intended use, or implementation of the plans, which are solely the responsibility of the Contractor and his Registered Engineer.

B. Work Within Confined Spaces: Work within confined spaces is subject to applicable laws, regulations and safety orders including applicable *regulations.*

C. The foregoing provisions do NOT reduce the requirement for the Contractor to maintain safety in ALL operations performed by the Contractor or its Subcontractors.

1.12 CONTRACTOR'S QUALITY CONTROL

A. The Contractor shall be fully responsible for inspecting the work of its suppliers and Subcontractors to assure that the work when completed will comply with the standards for materials and workmanship required by the Contract Documents.

B. Inspections, periodic observations and testing performed by the Owner or the Engineer are for the Owner's benefit and information only and shall not be construed as partial or incremental acceptance of the work and shall not be deemed to establish any duty on the part of the Owner or the Engineer to the Contractor, its subcontractors or suppliers.

C. The Contractor shall:
   1. Monitor quality control over suppliers, manufacturer, products, services, site conditions, and workmanship, to produce work of specified quality.
   2. Comply fully with manufacturer's installation instructions, including performing each step in sequence as recommended by the manufacturer.
   3. Submit a Request for Information to Engineer before proceeding with work when manufacturers' instructions or reference standards conflict with Contract Documents.
   4. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
   5. Perform work by persons specializing in the specific trade and class of work required and qualified to produce workmanship of specified quality.
   6. Secure products in place with positive anchorage devices designed and sized to withstand seismic, static and dynamic loading, vibration, and physical distortion or disfigurement.

D. If reference standards or manufacturers' instructions contain provisions that would alter or are at variance with relationships between the parties to the Contract set forth in the Contract Documents, the provisions in the Contract Documents shall take precedence.

E. The Contractor shall provide assistance required by the Engineer to adequately inspect the Work including ladders, scaffolding, lighting, ventilation and other aids to facilitate access and provide a safe working environment.

1.13 TESTING LABORATORY SERVICES AND CERTIFIED LABORATORY REPORTS

A. Provide testing service in accordance specific requirements contained in each technical specification section. Submit Certified Laboratory Reports required by technical specification sections.

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SECTION 01140

ENVIRONMENTAL PROTECTION

1.01 SCOPE

A. During the progress of the work, keep the work areas occupied by the Contractor in a neat and clean condition and protect the environment both onsite and offsite, throughout and upon completion of the construction project.

1.02 SUBMITTALS

A. Develop an Environmental Protection Plan in detail and submit to the Engineer in the Product Information category within thirty (30) days from the date of the Notice to Proceed. Distribute the favorably reviewed plan to all employees and to all subcontractors and their employees. The Environmental Protection Plan shall include, but not be limited to, the following items:
   1. Copies of required permits.
   2. Proposed sanitary landfill site.
   3. Other proposed disposal sites.
   4. Copies of any agreements with public or private landowners regarding equipment, materials storage, borrow sites, fill sites, or disposal sites. Any such agreement made by the Contractor shall be invalid if its execution causes violation of local or regional grading or land use regulations.
   5. Water pollution control plan.

1.03 MITIGATION OF CONSTRUCTION IMPACTS

A. Requirements: All operations shall comply with all federal, state and local regulations pertaining to water, air, solid waste and noise pollution.

B. Definitions of Contaminants:
   1. Sediment: Soil and other debris that have been eroded and transported by runoff water.
   2. Solid Waste: Rubbish, debris, garbage and other discarded solid materials resulting from construction activities, including a variety of combustible and non-combustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
   3. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalies, herbicides, pesticides, disinfectants, organic chemicals and inorganic wastes. Some of the above may be classified as "hazardous."
   4. Sanitary Wastes:
      a. Sewage: That which is considered as domestic sanitary sewage.
      b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing and consumption of food.
   5. Hazardous Materials: As defined by applicable laws and regulations. Undisclosed hazardous material contamination, if encountered will constitute a changed site condition. The Owner may retain a separate contractor to dispose of undisclosed hazardous material encountered.

C. Protection of Natural Resources:

1. General: It is intended that the natural resources within the project boundaries and outside the limits of permanent work performed under this Contract be preserved in their existing condition or be restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the public roads, easements, and work area limits shown on the Drawings. Return construction areas to their pre-construction elevations except where surface elevations are otherwise noted to be changed. Maintain natural drainage patterns. Conduct construction activities to avoid ponding stagnant water conducive to mosquito breeding.
2. Land Resources: Do not remove, cut, deface, injure or destroy trees or shrubs outside the work area limits. Do not remove, deface, injure or destroy trees within the work area without permission from the Engineer.
    a. Protection: Protect trees that are located near the limits of the Contractor's work areas which may possibly be defaced, bruised or injured or otherwise damaged by the Contractor's operations. No ropes, cables or guys shall be fastened to or attached to any existing nearby trees or shrubs for anchorages unless specifically authorized. Where such special emergency use is permitted, the Contractor shall be responsible for any damage resulting from such use.
    b. Trimming: Trim and seal tree limbs overhanging the line of the work and in danger of being damaged by the Contractor's operations in accordance with recognized standards for such work. Remove other tree limbs under the direction of the Engineer, so that the tree will present a balanced appearance.
    c. Treatment of Roots: Do not cut roots unnecessarily during excavating or trenching operations. Expose major roots encountered in the course of excavation and do not sever. Wrap them in burlap as a protective measure while exposed. Neatly trim all other roots larger than 1 inch in diameter that are severed in the course of excavation at the edge of the excavation or trench and paint them with a heavy coat of an approved tree seal.
    d. Repair or Restoration: Repair or replace any trees or other landscape features scarred or damaged by equipment or construction operations as specified below. The repair and/or restoration plan shall be favorably reviewed prior to its initiation.
    e. Temporary Construction: Obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction as directed by the Engineer. Level all temporary roads, parking areas and any other areas that have become compacted or shaped. Any unpaved areas where vehicles are operated shall receive a suitable surface treatment or shall be periodically wetted down to prevent construction operations from producing dust damage and nuisance to persons and property, at no additional cost to the Owner. Keep haul roads clear at all times of any object that creates an unsafe condition. Promptly remove any contaminants or construction material dropped from construction vehicles. Do not drop mud and debris from construction equipment on public streets. Sweep clean turning areas and pavement entrances as necessary.

3. Water Resources:
    a. Investigate and comply with all applicable federal, state and local regulations concerning the discharge (directly or indirectly) of pollutants to

the underground and natural waters. Exercise every reasonable precaution to protect streams, lakes, reservoirs, bays and coastal waters from pollution with fuels, oils, bitumens, calcium chloride and other harmful materials and conduct and schedule operations so as to avoid or minimize muddying and silting of said streams, lakes, reservoirs, bays and coastal waters.

Water pollution control work is intended to provide prevention control and abatement of water pollution to streams, waterways and other bodies of water, and shall consist of constructing those facilities that may be shown on the Drawings, specified herein or in the Special Provisions, or directed by the Engineer.

In order to provide effective and continuous control of water pollution, it may be necessary for the Contractor to perform the Contract work in small or multiple units, on an out of phase schedule, and with modified construction procedures. The Contractor shall provide temporary water pollution control measures, including but not limited to, dikes, basins, and ditches, and shall apply straw and seed, which become necessary as a result of his operations. The Contractor shall coordinate water pollution control work with all other work done on the Contract.

b. Submit a plan to control water pollution effectively during construction of the Work. Such program shall show the schedule for the erosion control work included in the Contract and for all water pollution control measures, which the Contractor proposes to take in connection with construction of the project to minimize the effects of his operations upon adjacent streams and other bodies of water. The Contractor shall not perform any clearing and grubbing or earthwork on the project, other than that specifically authorized in writing by the Engineer, until such plan has been accepted. The Owner will not be liable to the Contractor for failure to accept all or any portion of an originally submitted or revised water pollution control plan, nor for any delays to the work due to the Contractor's failure to submit an acceptable water pollution control plan.

   The Contractor may request the Engineer to waive the requirement for submission of a written plan for control of water pollution when the nature of the Contractor's operation is such that erosion is not likely to occur. Waiver of this requirement will not relieve the Contractor from responsibility for compliance with the other provisions of this Section. Waiver of the requirement for a written plan for control of water pollution will not preclude requiring submittal of a written plan at a later time if the Engineer deems it necessary because of the effect of the Contractor's operations.

c. If the measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may direct the Contractor to revise his operations and his water pollution control program. Such directions will be in writing and will specify the items of work for which the Contractor's water pollution control measures are inadequate. No further work shall be performed on said items until the water pollution control measures are adequate; and if also required, a revised water pollution control plan has been accepted.

d. Where erosion which will cause water pollution is probable due to the nature of the material or the season of the year, the Contractor's operations shall be so scheduled that permanent erosion control features will be installed concurrently with or immediately following grading operations.

e. Nothing in the terms of the Contract nor in the provisions in this Section shall relieve the Contractor of the responsibility for compliance with applicable statutes relating to prevention or abatement of water pollution.

f. The Contractor shall also conform to the following provisions:

1) Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams and during construction of such barriers, muddying of streams shall be held to a minimum.

2) Removal of material from beneath a flowing stream shall not be commenced until adequate means, such as a bypass channel, are provided to carry the stream free from mud or silt around the removal operations.

3) Should the Contractor's operations require transportation of materials across live streams, such operations shall be conducted without muddying the stream. Mechanized equipment shall not be operated in the stream channels of such live streams except as may be necessary to construct crossings or barriers and fills at channel changes.

4) Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, adequate to prevent muddy water from entering live streams.

5) Oily or greasy substances originating from the Contractor's operations shall not be allowed to enter or be placed where they will later enter a live stream.

6) Portland cement or fresh portland cement concrete shall not be allowed to enter flowing water of streams.

7) When operations are completed, the flow of streams shall be returned as nearly as possible to a meandering thread without creating possible future bank erosion and settling; pond sites shall be graded so they will drain and will blend in with the surrounding terrain.

8) Material derived from roadway work shall not be deposited in a live stream channel where it could be washed away by high stream flows.

9) Where there is possible migration of anadromous fish in streams affected by construction on the project, the Contractor shall conduct his operations so as to allow free passage of such migratory fish.

g. Chlorinated Water: Take special measures to prevent chlorinated water from entering the ground or surface waters. Dechlorinate chlorinated water prior to discharge.

4. Fish and Wildlife Resources: Perform all work and take such steps required to prevent any interference or disturbance to fish and wildlife. The Contractor will not be permitted to alter water flows or otherwise significantly disturb native habitat adjacent to the project area which are critical to fish and wildlife except as may be indicated or specified.

5. Cultural Resources: The project does not pass through any known archaeological sites. However, it is conceivable that unrecorded archaeological sites could be discovered during the construction. In the event that artifacts, human remains, or other cultural resources are discovered during excavations at locations of the Work, the Contractor shall protect the discovered items, notify the Engineer, and comply with applicable law.

6. Revegetation of Disturbed Areas:
    a. Tree and Shrubs Replacement: Replace trees and shrubs damaged by the construction or as noted on the Drawings after completion of earthwork in the area. Plant nursery stock of the same species and variety, in 5-gallon cans on a one-for-one basis. Plant in the early fall. If planting is not feasible in early fall, the Engineer will reschedule the tree planting operations.
    b. Planting of Trees and Shrubs:
        1) Selection: Deliver trees and shrubs to the site in the nursery containers, with the nursery tags identifying the species and variety. The trees and shrubs should be selected for shape and symmetrical branching habit, which at maturity will produce strong, full foliated specimens. The specimens shall have grown in the designated size of container for a sufficient length of time for the root system to hold the earth when taken from the container, but not long enough to become rootbound or cause a "hardening off" of the root system. Specimens which are loose in the root ball will be rejected. Remove all rejected specimens from the site and replace with specimens as specified. Specimens shall be sound, healthy, vigorous and free from insects, pests, plant diseases and injuries.
        2) Protection: Specimens which cannot be planted within one day of delivery shall be properly protected and kept moist to prevent drying.
        3) Planting Procedure: Planting hole shall be twice the width of the root ball and at least one and one-half times the height of the root ball. Fill the planting hole with water and let drain away. Mix excavated soil with a planting mix appropriate for the type and condition of the soil and the species of tree or shrub and place the mixed soil in the planting hole to the depth necessary to bring the root ball slightly higher than the surrounding soil. Remove the specimen from the container carefully so that the root ball remains unbroken. Place in planting hole and fill with mixed soil to one-half the height of the root ball, tamp thoroughly, then water. Set specimens at such a level that after settlement the top of the root ball is level with the surrounding finish grade. Add mixed soil to form watering basin, fill basin twice with water immediately after planting. Water as frequently as required to keep the specimens adequately moist until well established. The Contractor will be responsible for maintaining specimens for a minimum of one year after final acceptance or planting, whichever is later.
        4) Staking: Use 2-inch x 2-inch redwood or cedar stakes of length adequate to support each tree. Drive a stake on each side of each specimen outside of the root ball, to a depth of 3 feet. Support tree to stakes using twisted galvanized wire covered with reinforced rubber hose where in contact with the specimen.
        5) Mulching: Fill all watering basins of trees and shrubs with a layer of mulch not less than 2 inches thick.
7. Noise Control: The following noise control procedures shall be employed:
    a. Maximum Noise Levels within 1,000 Feet of any Residence, Business, or Other Populated Area: Noise levels for trenchers, pavers, graders and trucks shall not exceed 90 dBA at 50 feet as measured under the noisiest

operating conditions. For all other equipment, noise levels shall not exceed 85 dBA at 50 feet.

b. Equipment: Jack hammers shall be equipped with exhaust mufflers and steel muffling sleeves. Air compressors should be of a quiet type such as a "whisperized" compressor.
c. Operations: Keep noisy equipment as far as possible from noise-sensitive site boundaries. Machines should not be left idling. Use electric power in lieu of internal combustion engine power wherever possible. Maintain equipment properly to reduce noise from excessive vibration, faulty mufflers, or other sources. All engines shall have mufflers.
d. Scheduling: Schedule noisy operations so as to minimize their duration at any given location.
e. Monitoring: To determine whether the above noise limits are being met and whether noise barriers are needed, the Contractor shall use a portable sound level meter meeting the requirements of American National Standards Institute Specification S1.4 for Type 2 sound level meters. If non-complying noise levels are found, the Contractor shall be responsible for monitoring and correction of excessive noise levels.

8. Dust Control, Air Pollution and Odor Control: Employ measures to prevent the creation of dust, air pollution and odors.
   a. Unpaved areas where vehicles are operated shall be periodically wetted down or given an equivalent form of treatment, to eliminate dust formation.
   b. Store all volatile liquids, including fuels or solvents in closed containers.
   c. No open burning of debris, lumber or other scrap will be permitted.
   d. Properly maintain equipment to reduce gaseous pollutant emissions.
9. Construction Storage Areas: Contractor is responsible for making arrangements for a storage area.
   a. Store and service equipment at the designated Contractor's storage area where oil wastes shall be collected in containers. Oil wastes shall not be allowed to flow onto the ground or into surface waters. Containers shall be required at the construction site for the disposal of materials such as paint, paint thinner, solvents, motor oil, fuels, resins and other environmentally deleterious substances. No dumping of surplus concrete or grout on the site will be permitted.
10. Sanitation: During the construction period, provide adequate and conveniently located chemical sanitation facilities, properly screened, for use of construction crews. Facilities shall be regularly maintained.
11. Fire Prevention: Take steps to prevent fires including, but not limited to the following:
    a. Provide spark arrestors on all internal combustion engines.
    b. Store and handle flammable liquids in accordance with the Flammable and Combustible Liquids Code, NFPA 30.
    c. Provide fire extinguishers at hazardous locations or operations, such as welding.
12. Erosion and Sediment Transport Control: This project does not meet the requirements for preparation of a SWPPP; however, Contractor shall comply with all applicable regulations and shall:
    a. Discharge construction runoff into small drainages at frequent intervals to avoid buildup of large potentially erosive flows.
    b. Prevent runoff from flowing over unprotected slopes.
    c. Keep disturbed areas to the minimum necessary for construction.
    d. Keep runoff away from disturbed areas during construction.

e. Direct flows over vegetated areas prior to discharge into public storm drainage systems.
f. Trap sediment before it leaves the site, using such techniques as check dams, sediment ponds, or siltation fences.
g. Remove and dispose of all project construction-generated siltation that occurs in offsite retention ponds.
h. Stabilize disturbed areas as quickly as possible.

1.04 DISPOSAL OPERATIONS

A. Solid Waste Management:
1. Supply solid waste transfer containers. Daily remove all debris such as spent air filters, oil cartridges, cans, bottles, combustibles and litter. Take care to prevent trash and papers from blowing onto adjacent property. Encourage personnel to use refuse containers. Convey contents to a sanitary landfill.
2. Washing of concrete containers where wastewater may reach adjacent property or natural water courses will not be permitted. Remove any excess concrete to the sanitary landfill.

B. Chemical Waste and Hazardous Materials Management: Furnish containers for storage of spent chemicals used during construction operations. Dispose of chemicals and hazardous materials in accordance with applicable regulations.

C. Garbage: Store garbage in covered containers, pick up daily and dispose of in a sanitary landfill.

D. Dispose of vegetation, weeds, rubble, and other materials removed by the clearing, stripping and grubbing operations off site at a suitable disposal site in accordance with applicable regulations.

E. Excavated Materials:
1. Native soil complying with the requirements of Section 02302 - Earthwork, may be used for backfill, fill and embankments as allowed by that section.
2. Spoil Material:
a. Remove all material which is excavated in excess of that required for backfill, and such excavated material which is unsuitable for backfill, from the site and dispose of offsite in accordance with applicable regulations at the disposal site indicated in the Environmental Protection Plan. No additional compensation will be paid to the Contractor for such disposal. Include all such costs in the lump sum prices bid for the project. Remove rubbish and materials unsuitable for backfill immediately following excavation. Remove material in excess of that required for backfill immediately following backfill operations.
b. Rubbish shall consist of all materials not classified as suitable materials or rubble and shall include shrubbery, trees, timber, trash and garbage.

END OF SECTION

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SECTION 01300

SUBMITTALS

1.01 SUBMITTAL PROCEDURES

A. Accompany each submittal with a Submittal form which contains the following information:
   1. Contractor's name and the name of Subcontractor or supplier who prepared the submittal.
   2. The project name and identifying number.
   3. Description of the submittal and reference to the Contract requirement or technical specification section and paragraph number being addressed.

B. All submittals may be provided electronically to the Engineer, and will be returned electronically to the Contractor. Follow the procedures described below or in other paragraphs in this Section.
   1. Designation of Superintendent: Include name, address, home telephone number and a brief resume.
   2. List of Subcontractors and Major Suppliers: Include address, telephone number and name of responsible party.
   3. Schedule of Values, in a form acceptable to the Engineer: See Section 01010.
   4. Subcontractors'/Suppliers'/Manufacturers' Affidavits. Submit items specified in the Technical Specifications.
   5. Environmental Protection Plan. Submit for information.

1.02 SCHEDULE OF SUBMITTALS

A. Within 15 days after the Notice to Proceed, provide a Schedule of Submittals showing the date by which each submittal required for Product Review or Product Information will be made. Identify the items that will be included in each submittal (see paragraph 1.05 of this Section) by listing the item or group of items and the Specification Section and paragraph number under which they are specified. Indicate whether the submittal is required for Product Review of Proposed Equivalents, Shop Drawings, Product Data or Samples or required for Product Information only.

1.03 PLAN OF OPERATIONS

A. Before beginning site work, submit a plan showing Contractor's intended use of the site. Show location for Contractor's and Subcontractor's parking. Show location of Contractor's and Subcontractor's work areas and storage areas.

1.04 CONSTRUCTION SCHEDULE

A. Submit for information.

1.05 SHOP DRAWING, PRODUCT DATA AND SAMPLES SUBMITTED FOR PRODUCT REVIEW

A. This paragraph covers submittal of Shop Drawings, Product Data and Samples required for the Engineer's review referred to as Product Review submittals in the Technical Specifications (Division 2 through 17). Submittals required for information only are referred to as Product Information submittals in the Technical Specifications and are covered in paragraph 1.07 of this Section.

B. Number and type of submittals:
   1. Shop Drawings: Submit electronically to the Engineer. Engineer shall return marked submittal electronically to Contractor. The Contractor shall distribute to its superintendent, subcontractors and suppliers.
   2. Product Data: Engineer shall return marked submittal electronically to Contractor. The Contractor shall distribute to its superintendent, subcontractors and suppliers.
   3. Samples: Submit three labeled samples or three sets of samples of manufacturers full range of colors and finishes. Comply with requirements in Technical Specification Sections. One sample will be returned to Contractor.

C. The Contractor shall make all Product Review submittals early enough to allow adequate time for the Engineer's review, for manufacture and for delivery at the construction site without causing delay to the Work. Submittals shall be made early enough to allow for unforeseen delays such as:
   1. Failure to obtain Favorable Review because of inadequate or incomplete submittal or because the item submitted does not meet the requirements of the Contract Documents.
   2. Delays in manufacture.
   3. Delays in delivery.

D. Content of Submittals:
   1. Each submittal shall include all of the items and material required for a complete assembly, system or Specification Section.
   2. Submittals shall contain all of the physical, technical and performance data required by the specifications or necessary to demonstrate conclusively that the items comply with the requirements of the Contract Documents.
   3. Include information on characteristics of electrical or utility service required and verification that requirements have been coordinated with services provided by the Work and by other interconnected elements of the Work.
   4. Provide verification that the physical characteristics of items submitted, including size, configuration, clearances, mounting points, utility connection points and service access points, are suitable for the space provided and are compatible with other interrelated items that are existing or have or will be submitted.
   5. Label each Product Data Submittal, Shop Drawing and Sample with the information required in paragraph 1.01A of this Section. Highlight or mark every page of every copy of all Product Data submittals to show the specific items being submitted and all options included or choices offered.
   6. Additional requirements for Product Review submittals are contained in the Technical Specification sections.

7. Designation of work as "NIC" or "by others," shown on Shop Drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the Shop Drawings.

E. Compatibility of Equipment and Material: Verify that items contained in the same or in different submittals meet the requirements in the paragraph titled "Material and Equipment" in Section 01040 especially the subparagraphs titled "Compatibility of Equipment and Material."

F. The Contractor shall review and stamp submittals prepared by the Contractor or by Subcontractors or suppliers prior to submitting them to the Engineer.

G. Submittals that contain deviations from the requirements of the Contract Documents shall be accompanied by a separate letter explaining the deviations. The Contractor's letter shall:
   1. Cite the specific Contract requirement including the Specification Section and paragraph number for which approval of a deviation is sought.
   2. Describe the proposed alternate material, item or construction and explain its advantages and/or disadvantages to the Owner.
   3. State the reduction in Contract Price if any that is offered to the Owner.

H. Engineer's Review Procedure and Meaning:
   1. The Engineer will stamp and mark each Product Review submittal prior to returning it to the Contractor. The stamp will indicate whether or not the review was favorable and what action is required of the Contractor. Review categories" No Exceptions Taken" and "Make Corrections Noted" both indicate Favorable Review.
   2. The Engineer's Favorable Review is contingent on:
      a. The compatibility of items included in a submittal with other related or interdependent items included in previous or future submittals.
      b. Future submittal of items related to or required to be part of this submittal that were not included with this submittal.
   3. Favorable Review of a submittal does not constitute approval or deletion of items required as part of the submittal but not included with the submittal. Favorable Review of items included in the submittal does not constitute deletion of specified features, options or accessories that were not included in the submittal.
   4. The action required by the Contractor for each category of review is as follows:
      a. **NO EXCEPTIONS TAKEN**. NO RESUBMITTAL REQUIRED.
      b. **MAKE CORRECTIONS NOTED**:
         (1) NO RESUBMITTAL REQUIRED. The Contractor shall make corrections noted prior to manufacture.
         (2) PARTIAL RESUBMITTALS REQUIRED. The Contractor shall submit related accessory or optional items as noted which are required but were not included with the submittal and/or shall resubmit unsatisfactory portions or attributes of items as noted. The Contractor may proceed to manufacture those portions of the submittal that will be unaffected by required resubmittals.
      c. **AMEND AND RESUBMIT**. The Contractor shall amend and resubmit the submittal as noted or required to comply with the Contract Documents.

d. **REJECTED - RESUBMIT**. The item submitted does not comply with the Contract Documents in a major way. Resubmit items that comply with the requirements of the Contract Documents.

5. The letter of transmittal accompanying the returned Product Review submittal may contain numbered notes. Marking a corresponding number on a Shop Drawing or Product Data submittal shall have the same affect as applying the entire note to the submittal.

I. Re-submittals that contain changes that were not requested by the Engineer on the previous submittal shall be accompanied by a letter explaining the change.

J. Favorable Review Required Prior to Proceeding: Do not proceed with manufacture, fabrication, delivery or installation of items prior to obtaining the Engineers Favorable Review of Product Review submittals.

K. Intent and Limitation on Engineer's Review:
1. The Contractor has primary responsibility for submitting and providing work that complies with the requirements of the Contract Documents. That responsibility cannot be delegated in whole or in part to subcontractors or suppliers. Neither the Engineer's Favorable Review nor the Engineer's failure to notice or comment on deficiencies in the Contractor's submittals shall relieve the Contractor from the duty to provide work, which complies with the requirements of the Contract Documents.

1.06 PROPOSED EQUIVALENTS

A. Submit Proposed Equivalent submittal form.

B. Time of Submittal:
1. Submittal of Proposed Equivalents is required within 35 days of the Notice to Proceed. The Engineer may agree to a later submittal date if requested in writing within 35 days of the Notice to Proceed. The request shall identify the item, give the Specification reference, and proposed manufacturer and model number of the item that will be submitted and the proposed submittal date.
2. The Engineer's agreement to a later submittal date shall be in writing and shall not be construed as Favorable Review or acceptance of the manufacturer or item proposed.

C. Content of submittals shall be the same as that required for Product Data, Shop Drawings and Samples submitted for Product Review in another paragraph of this Section. In addition, the Contractor shall provide information on several recent similar installations of the item to verify its suitability. The information shall include the project name and location, the Owner's name, address, telephone number and name of a knowledgeable person to contact for information on performance of the product.

D. If a non-equivalent substitute is submitted for review, it shall be accompanied by a proposed reduction in Contract Price which shall include the increased cost of Engineering service required to evaluate the proposed substitute (which shall be paid to the Owner whether or not the substitute is accepted) plus the greater of 1) the difference in price between the first specified item and the item submitted and 2) the difference in value to the Owner between the two items.

1.07 PRODUCT INFORMATION SUBMITTALS

A. Product Information submittals are required for the Owner's permanent records and will be used for future maintenance, repair, modification or replacement work. Product Information submittals will be examined only to verify that the required submittals have been made; they will NOT be reviewed for compliance with the Contract Documents.

B. Make Product Information submittals prior to delivering material, products or items for which Product Information submittals are required.

C. The Contractor has the sole and exclusive responsibility for furnishing products and work that meets the requirements of the Contract Documents.

D. The Engineer reserves the right to comment on any submittal and to reject any product or work delivered, installed or otherwise at any time that the Engineer become aware that it is defective or does not meet the requirements of the Contract Document.

1.08 OPERATION AND MAINTENANCE MANUALS AND PARTS LISTS

A. Provide operation and maintenance manuals and parts list for all equipment furnished under this contract. Comply with the detailed requirements in Technical Specification sections. Include instructions for delivery, storage, assembly, installation, lubrication, adjusting, startup, operation and maintenance.
   1. For all equipment include:
      a. Startup instructions
      b. Normal operation instructions.
      c. Trouble shooting instructions.
      d. Lubrication instructions.
      e. Maintenance and reinstallation instructions.
      f. Parts identification.
      g. List of spare parts recommended to have on hand.
      h. Operator safety instructions.
   2. For all Electrical Equipment, provide the following additional information:
      a. Equipment ratings.
      b. Calibration curves and rating tables if appropriate.
   3. For Complex Equipment provide in addition:
      a. Alternate specified operating modes.
      b. Emergency shutdown instructions.
      c. Normal shutdown instructions.
      d. Long-term shutdown instructions.
   4. Operation and maintenance manuals for systems composed of separate pieces of equipment shall include a system explanation of items 1, a, b, and c, and 3a through c, as well as the instructions for each separate piece of equipment.

B. Submit at least 15 days prior to Facility Startup specified in Section 01650, paragraph 1.01.

C. Provide the number of copies specified in paragraph 1.01 of this Section. Bind each copy in one or more "D" ring, 8-1/2x11, 3-ring binders with clear view spine and

cover, Avery E-Z –D View Binder; K&M; or equal. Prepare Titles for the spine and cover and a Table of Contents listing each piece of equipment. Organize the contents by Specification Section and paragraph number under which the equipment was specified. Provide labeled tab separators for each major item or group of smaller similar items. When standard manufacturers literature is used highlight or mark all copies to shop specific items and options provided.

1.09 MANUFACTURER'S CERTIFICATES

A. Submit electronically.

B. When specified in Technical Specification section, submit manufacturers' certificate to Engineer for review. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate. Certificates may be recent or previous test results on material or Product, but must be acceptable to the Engineer.

1.10 CONSTRUCTION PHOTOGRAPHS

A. Each month submit photographs to Engineer with Application for Payment.

B. Contractor shall take pre-construction and post-construction photographs to cover the site.

C. Identify photographs with date, time, orientation and project identification.

D. Digital photographs in JPEG format are acceptable.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.01 TEMPORARY CONSTRUCTION

A. The Contractor is solely and exclusively responsible for the design, construction and maintenance of all temporary construction including forms, falsework, shoring, scaffolding, stairs, ladders and all other similar items.

B. Construct adequate and safe forms and falsework, to rigidly support partially completed structures. Provide temporary bridges and decking to maintain vehicular and pedestrian access. Design and construct temporary forms, falsework, bridges and decking in accordance with applicable regulations and codes.

1.02 BARRICADES, FENCES AND ENCLOSURES

A. Barricades: Provide temporary guard rails, ladders, stairs, guards, and barricades to protect persons in accordance with applicable regulations, including California Code of Regulations Title 8 and Cal/OSHA.

1.03 PROTECTION OF INSTALLED WORK

A. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.

B. Provide heavy planking to protect curbs, gutters, culverts, paving and similar surfaces from damage by heavy equipment or vehicles.

1.04 SECURITY

A. Provide security and facilities to protect the Work from unauthorized entry, vandalism, or theft.

1.05 ACCESS ROADS AND PARKING AREAS

A. Provide facilities offsite or on public streets on which parking is permitted by local and state codes and ordinances.

B. Contractor to coordinate access to private property with property owners.

1.06 TEMPORARY CONTROLS

A. Cleaning:
   1. During Construction: Maintain the site and all work in a clean orderly fashion free of waste debris and rubbish. Store debris in covered containers. Pick up and remove debris daily if required, but not less frequently than weekly. Burning debris on site is not permitted. Remove debris from permanently closed spaces prior to enclosing them. Clean mud from vehicles before leaving the site.

2. If work under this Contract creates dusty, dirty or unsightly conditions in adjacent areas, the Contractor shall immediately cleanup the affected areas.
3. Final cleanup is specified in Section 01700.

B. Dust Control: Employ measures to prevent the creation of dust which may produce damage or nuisance to property or persons. Be responsible for all damage resulting from dust produced by construction operations. Periodically wet down unpaved areas where vehicles are operated. See Earthwork specification sections.

C. Erosion and Sediment Control: Employ measures to prevent erosion and trap any sediment created by construction operations before it leaves the site. Prevent sediment from entering streams or other water bodies.

D. Noise Control: Comply with regulations limiting construction noise levels. Use whisper quite air compressors. Use jack hammers with exhaust mufflers. Prevent noise disturbance to the public and adjacent property owners. Employ measures required to limit construction noise.

E. Pest and Rodent Control: Avoid creating conditions conducive to pests and rodents. Comply with regulations governing the use of chemicals to control pests and rodents.

F. Water Control: Maintain excavations free of water.

1.07 PROTECTION OF TREES

A. Remove only those trees designated on the Drawings for removal. Protect all other trees on the site.

B. Protect all trees on the site from damage. Do not cut roots during excavating or trenching operations.

C. Do not attach ropes, cables, guys or braces to trees.

D. Do not trim any trees without the Engineer's authorization.

1.08 TRAFFIC REGULATION

A. Conduct operations so as to offer the least possible obstruction and inconvenience to public traffic. Do not overload or damage paved or improved surfaces, sidewalks, curbs or gutters.

B. Provide temporary barricades, lights, flag persons and other means to safely control pedestrian and vehicular traffic entering and leaving the project site and on the project site.

END OF SECTION

SECTION 01550

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 OBJECTIVES

A. The Contractor shall provide for safe movement of vehicular, bicycle and pedestrian traffic through and around construction operations. Traffic control requirements set forth herein are the minimum requirements imposed. The Contractor shall be solely responsible for providing all protective measures necessary.

B. Proper traffic movement through the work area depends upon the driver controlling and directing his vehicle properly under unexpected situations and pedestrian attention to signs. The means of clarifying such conditions to the public include signs, flaggers, pavement markings, barricades, lights, cones and delineators.

C. No one standard sequence of signs or control devices will suit all conditions, which may result from construction operations. Even for the same work the conditions may vary from hour to hour, requiring adjustment and revision of the traffic control program in effect.

D. The traffic control requirements specified herein are intended to establish general principles to be observed in the control and regulation of traffic through and around construction operations anticipated for this project. All pedestrian and vehicular detours are subject to review by the police chief, sheriff or enforcement officer of the agencies having jurisdiction, and the Contractor shall revise the detours as ordered at no additional cost.

E. Clean up site each day after completing work and remove all traffic hazards. Daily traffic control measures shall continue until cleanup activities have been satisfactorily completed and all of the Contractor's equipment has been removed from the traveled way area.

1.02 DESCRIPTION OF WORK

A. Work Included:
   1. At all times, the Contractor shall provide safe and adequate passage for vehicular and pedestrian traffic through, around and adjacent to all construction operations by use of detours, bridging, backfilling, paving, traffic barriers or other favorably reviewed means.
   2. The Contractor shall establish and maintain detours and conduct his construction operations in such a manner as to minimize hazard, inconvenience and disruption to the public.
   3. Traffic control shall be directed equally to the regulation and protection of pedestrian traffic including pedestrians, bicyclists, joggers, skaters, skateboarders, etc.
   4. The Contractor shall provide for protection of pedestrians and separation of pedestrians from construction operations at all times.

5. The Contractor shall direct, divert and detour traffic through, around and adjacent to construction operations in accordance with the Ventura County requirements.

1.03 REFERENCES

A. Manual of Traffic Controls, California Department of Transportation.

B. State of California, Business, Transportation, and Housing Agency, Department of Transportation 2006 edition Standard Specifications and 2006 edition Standard Plans.

1.04 SUBMITTALS

A. Traffic Control Plan:
1. Contractor shall submit, prior to start of construction operations, a plan, prepared, signed, and sealed by a California licensed civil or traffic engineer to the County of Ventura for approval. Preparation of any additional traffic control plans or detail that may be required by the County of Ventura during the course of the work shall be the Contractor's responsibility. No work shall begin until the plan is approved by the County of Ventura. One copy of the County approved plan will be provided to the District.

PART 2 - PRODUCTS

2.01 CONSTRUCTION SIGNS

A. Construction signs shall conform to the standards of the Manual of Traffic Controls.

B. Temporary warning signs in construction areas shall have a black legend on an orange background. Color for other signs shall follow the standard for all highway signs.

C. All signs used during hours of darkness shall be reflectorized or illuminated.

2.02 OTHER TRAFFIC CONTROL DEVICES

A. General: Traffic control devices shall conform to the standards of the Manual of Traffic Controls.

B. Cones or Delineators:
1. Cones or delineators shall consist of cylindrical or cone shaped plastic devices, which shall be 18 inches to 48 inches in height.
2. Cones or delineators shall have a flexible base of suitable weight, which will ensure stability.
3. Cones used during hours of darkness shall be internally illuminated or reflectorized meeting the requirements of the Manual of Traffic Controls.

C. Barricades:
1. Barricades shall be Type I, Type II or Type III barricades as set forth in the Manual of Traffic Controls.
2. Barricades used during hours of darkness shall be equipped with flashers.

PART 3 - EXECUTION

3.01 DIVERTING PEDESTRIAN TRAFFIC

A. Whenever construction operations obstruct the flow of pedestrian traffic or present a hazard to pedestrians, the Contractor shall take appropriate action to protect and separate pedestrians from the work area.

B. Such action may include placement of barricades between pedestrians and work areas, placement of warning signs, and provision of personnel as required to protect pedestrians as conditions warrant.

3.02 DIVERTING VEHICULAR TRAFFIC

A. Whenever construction operations obstruct the flow of vehicular traffic or present a hazard to vehicles operating in the vicinity of construction operations, the Contractor shall take appropriate action to warn, detour and otherwise protect approaching drivers and vehicles.

3.03 TRAFFIC CONTROL DEVICES

A. General:
   1. Traffic control devices shall be provided in sufficient quantities and types as required to provide safe and adequate traffic control.
   2. During hours of darkness, approved lights and/or flares shall be included, in proper working order, to illuminate signs and hazards and alert approaching traffic.
   3. Barricades shall be furnished and maintained along all open trenches in contact with traffic.
   4. No work may begin on any day or at any time before traffic control devices have been placed, test driven and, if required, adjusted and revised.

B. Placement:
   1. All traffic control devices shall be placed in accordance with the Manual of Traffic Controls and favorably reviewed Traffic Control Plan.
   2. Locations of devices shall be adjusted to suit the conditions and circumstances of each detour situation. In all cases, signs shall be placed to most effectively convey their messages to approaching traffic.

C. Test Drive of Detour:
   1. Immediately after traffic control devices have been placed, the detour shall be test driven by the Engineer and Contractor's representative.
   2. Test drive shall include approach to the detour from each possible direction and traversing full length of each detour route.
   3. The Contractor shall adjust and revise all traffic control devices as determined to be required by test drive through and shall repeat test drive if determined necessary by the Engineer.
   4. The Contractor shall provide additional traffic control devices if required to maintain flow of traffic through construction operation.

D. Maintenance of Devices:

1. The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor's operations exists.
2. The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations.

E. Removal of Devices:
1. Traffic control devices shall remain in place at all times required to alert approaching traffic of upcoming hazards.
2. After hazard has been removed, all traffic control devices shall be removed. Signs shall be removed or their messages covered.

3.04 FLAGGERS

A. General: The Contractor shall employ flaggers:
1. As required for each specific detour.
2. At all locations on a construction site where barricades and warning signs cannot control the moving traffic.

B. Placement: Where flaggers are required, they shall be logically placed in relation to the equipment or operation so as to give adequate warning and shall be placed approximately 100 feet ahead of impact point.

C. Warning Signs:
1. A warning sign shall be placed ahead of the flagger reading: "Flagger Ahead." The distance between the sign and the flagger should be based on the average traffic speed, allowing approximately 50 feet for each 10 miles per hour.
2. During hours of darkness, flagger stations shall be illuminated such that the flagger will be clearly visible to approaching traffic. Lights for illuminating the flagger station shall receive favorable review by the Engineer.

D. Equipment:
1. The flagger shall be provided with and wear a red or orange warning garment when flagging. Flaggers shall be provided with approved hand signs and two way radios for communication.
2. When flagging during hours of darkness, the flagger shall signal with a red light or flare and shall have a belt and suspender harness outside his garment fitted with reflectors or made from reflectorized cloth, unless the garment is well reflectorized in one of these ways.

3.05 EMERGENCY VEHICLE ACCESS THROUGH DETOURS

A. During all detours and/or street closures the Contractor shall provide for movement of emergency vehicles through the work area.

B. It is essential that the Contractor's work and equipment does not impede egress from any fire or police station to other areas of their service area.

3.06 ACCESS TO PRIVATE PROPERTY

A. General: The Contractor shall schedule operations to minimize disruption of access to private property.

B. Notice to Residents: Prior to blocking access to any private driveway or parking lot entrance, the Contractor shall notify the resident or business owner or tenant of pending closure and allow resident to remove vehicles.

C. Nights: During non-working hours no driveway, house, or parking lot shall be denied access to a public roadway.

3.07 NIGHT DETOURS

A. General: The Contractor shall not be permitted to maintain any lane closure or road closure during non-working hours without first obtaining written approval of the Engineer.

B. Restoration of Pavement:
   1. During non-working hours the Contractor shall restore travel lanes to their original alignment and configuration by means of backfilling and temporary pavement or bridging.
   2. The Contractor shall place "ROUGH ROAD" signs conforming to the Manual of Traffic Control at uneven temporary pavement or bridging.

3.08 PARKING RESTRICTIONS

A. General: The Contractor shall post approved "NO PARKING" signs at all locations necessary to establish work areas and detour traffic.

B. Signs:
   1. Signs shall read: "NO PARKING - CONSTRUCTION TOW-AWAY ZONE." Show hours of parking restriction and indicate telephone number of police agency having jurisdiction.
   2. Signs shall be placed at least 24 hours in advance of restriction.

3.09 BRIDGING OVER TRENCHES AND EXCAVATIONS

A. General:
   1. Bridging shall be placed across all trenches and excavations in existing streets and at driveways when work is not in progress.

B. Design of Bridging:
   1. Bridging for vehicular traffic shall be of sufficient width to accommodate the required number of travel lanes.
   2. Bridging shall be designed to support H-20 vehicular traffic.
   3. All bridging shall be set flush with travel surface or a satisfactory transition from travel surface to top of bridging shall be provided.
      a. A satisfactory transition shall mean a change in elevation between the levels of not less than twelve (12) inches horizontal to one (1) inch vertical.
      b. Transition may be accomplished by means of temporary pavement.

3.10 TEMPORARY TRAFFIC LANES

A. Temporary traffic lanes shall be at least 10 feet wide. Provide an additional 2 feet of clearance from curbs. The length of temporary lanes should be limited to the area under construction and the distance necessary to divert traffic.

3.11 STAGING AREAS

A. The Contractor shall provide his own staging areas.

END OF SECTION

SECTION 01650

FACILITY STARTUP

1.01 FACILITY STARTUP

A. Commission all systems and equipment to verify performance, function, and correct operation by performing procedures to activate, startup, adjust, test, and demonstrate that the work is in operating order in accordance with these general requirements of this Section and the detailed requirements of the technical sections under the system or equipment specified.

To ensure that the work is ready for full-time operation the procedures may include verification, balancing, calibration, witness testing, documentation, inspection by equipment manufacturers, and operator training where specified.

B. Notification: Notify the Engineer two days prior to starting each system or piece of equipment.

C. Coordination: During the startup period, coordinate the operation of the equipment with Engineer, subcontractors, Owner's operators, and manufacturer's representatives.

D. Furnish test equipment, measuring devices and supplies required to conduct tests.

E. Maintain the equipment until acceptance. Provide all lubricants, chemicals, and electricity necessary until acceptance.

F. Furnish all expendable supplies, gas, water, etc., required for startup, demonstration and testing and dispose of all waste or used supplies, water, etc.

1.02 SUBMITTALS

A. Startup Plan, Forms, and Schedule: Prepare a facility startup plan and schedule. The plan shall include test methods and procedures and sample forms for recording test data.

B. Submit documentation of tests, balancing reports, and the like.

1.03 INITIAL STARTUP AND OPERATION OF FACILITIES

A. Perform initial lubrication of equipment and have manufacturers check and adjust equipment. Provide all subsequent lubrication and maintenance, and such staff as required for operation until the Owner assumes equipment maintenance responsibility.

END OF SECTION

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SECTION 01700

CONTRACT CLOSEOUT

1.01 FINAL CLEANUP

A. Prior to Final Inspection, clean the entire construction area and all other areas affected by the performance of work under this Contract. Perform cleaning using personnel specializing in and skilled in cleaning and maintenance work. Perform repair work using personnel skilled in executing the type of work being repaired. Perform all work to the highest trade standards applicable to that type of work.
   1. Remove all temporary construction, signs, tools, equipment, excess material and debris.
   2. Remove all lumps, splatters, spots and stains caused by paint, adhesive, asphalt, concrete, mortar, sealant or other foreign material from exposed or finished surfaces. Remove all temporary labels.
   3. Repair, patch or replace new or existing work including pavement, sidewalks, curbs, gutters, catch basins, gratings, manholes, covers, landscaping, plant materials and other items that have been damaged, broken, cracked or chipped as a result of performing this Work.
   4. Sweep clean and wash down all exterior pavement. Remove all hazardous material and material that may cause sediment in drainage systems prior to washdown. Remove all grease and oil stains on pavement caused by Contractor's equipment.

1.02 SEMIFINAL INSPECTION/SUBSTANTIAL COMPLETION

A. When the Contractor considers the Work nearly complete, the Contractor shall review the Contract Documents, inspect the Work, and use the Contractor's action list to prepare a Contractor's Punch List of all deficient or uncompleted items. The Contractor shall complete or correct items on the Punch List. When the Work is Substantially Complete, the Contractor shall notify the Engineer in writing that the Contractor has reviewed the Contract Documents, inspected the Work and believes that the Work is Substantially Complete and ready for Semifinal Inspection.

B. On receipt of the Contractor's Punch List and notice that the work is ready for Semifinal Inspection, the Engineer will inspect the Work. The Engineer may add additional items to the Contractor's Punch List, may find that the work is not ready for inspection, is ready for inspection but not Substantially Complete or that the Work is Substantially Complete. When the Engineer finds the Work is Substantially Complete, it will prepare a Final Punch List and a notice of Substantial Complete, which will state the date of Substantial Completion and the time agreed to by the Owner and the Contractor (not to exceed 30 days) in which the Work shall be fully complete and ready for Final Inspection.

1.04 FINAL INSPECTION, FINAL COMPLETION AND FINAL PAYMENT

A. When the Contractor has completed or corrected all the items on the Engineer's Final Punch List, the Contractor shall give the Engineer written notice that the Work is ready for Final Inspection. When the Engineer finds the Work acceptable and fully complete in accordance with the Contract Documents, and upon receipt of a

final Application for Payment and all final submittals, the Engineer will recommend that the Owner issue a Notice of Final Completion, make Final Payment and Accept the Work stating that to the best of the Engineer's knowledge, information and belief, and on the basis of the Engineer's observations and inspection, the Work has been fully completed in accordance with the terms and conditions of the Contract Documents.

B. Final Submittals include:
   1. Operation and Maintenance Manuals and Parts Lists
   2. Record Drawings
   3. Extra Materials
   4. Special Guarantees
   5. Insurance Certificate showing required continuation of coverage beyond Final Payment.
   6. Release of Liens.
   7. Waiver of Claims by Contractor.
   8. And any other submittals required by the Contract Documents and not previously received.

C. The Owner will record the Notice of Final Completion at the County Recorders Office.

D. The Owner will make Final Payment to the Contractor 40 days after recording the Notice of Final Completion.

1.05 RECORD DRAWINGS

A. The Contractor shall maintain on the jobsite, a complete set of Contract Documents and a complete file of all addenda, contract modifications and favorably reviewed submittals. The Contractor shall prepare a set of Record Drawings concurrently with the construction of the Work and in accordance with the following:
   1. Show the horizontal location of underground utilities measured from permanent visible physical features such as face of building, face of tank, or centerline of manhole.
   2. Comply with detailed requirements in technical specification sections describing the type of information required on Record Drawings. The Contractor's copy of Contract Documents, Contract modifications and Record Drawings shall be available to the Engineer for weekly verification that the records are being currently updated.

B. Submit Record Drawings and obtain acceptance prior to completion.

1.06 EXTRA MATERIALS

A. Deliver specified extra materials and parts to Owner. Itemize all items on a transmittal letter in duplicate and obtain signature of receiving party. Submit copies of signed transmittals for all specified extra materials and parts prior to completion.

1.07 SPECIAL GUARANTEES

A. Contractor is responsible to remedy defects due to faulty workmanship and materials, which appear within one year from the date of Final Completion and acceptance by the Owner.

END OF SECTION

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SECTION 02012

PROTECTING EXISTING UNDERGROUND UTILITIES

1.01 GENERAL

A. Description

1. This section includes materials and procedures for protecting existing underground utilities.

2.01 MATERIALS

A. Replacement in Kind

1. Except as indicated below or as specifically authorized by the Owner’s Inspector, reconstruct utilities with new material of the same size, type, and quality as that removed.

3.01 EXECUTION

A. General

1. Replace in kind street improvements, such as curbs and gutters, barricades, traffic islands, signalization, fences, signs, etc., that are cut, removed, damaged, or otherwise disturbed by the construction.

2. Where utilities are parallel to or cross the construction but do not conflict with the permanent work to be constructed, follow the procedures given below. Notify the utility owner 48 hours in advance of the crossing construction and coordinate the construction schedule with the utility owner's requirements. For utility crossings not shown in the drawings, refer to the General Conditions and the instructions of the Engineer for guidance.

3. Determine the true location and depth of utilities and service connections which may be affected by or affect the work. Determine the type, material, and condition of these utilities. In order to provide sufficient lead time to resolve unforeseen conflicts, order materials and take appropriate measures to ensure that there is no delay in work.

B. Procedures

1. Protect in Place: Protect utilities in place, unless abandoned, and maintain the utility in service, unless otherwise specified in the drawings or in the specifications.

2. Cut and Plug Ends: Cut abandoned utility lines and plug the ends. Cap waterlines with a cast-iron cap or install a 3-foot-long concrete plug. Dispose of the cut pipe as unsuitable material.

C. Remove and Reconstruct: Where so indicated in the drawings or as required by the Agency's Inspector, remove the utility and, after passage, reconstruct it with new materials. Provide temporary service for the disconnected utility.

D. Compaction

1. Utilities Protected in Place: Backfill and compact under and around the utility so that no voids are left.

2. Utilities Reconstructed: Prior to replacement of the utility, backfill the trench and compact to an elevation 1 foot above the top of the ends of the utility.

3. Sand-Cement Slurry: Sand-cement slurry consisting of two sack (Class 60-E-0.7 per Standard Plate E-10b in Appendix) of portland cement per cubic yard of sand is required for locations required in these Contract Documents. Submit specific methods and procedures for review the Engineer prior to construction.

E. Thrust Blocks on Waterlines

1. The Contractor's attention is called to thrust blocks for waterlines throughout the project whose thrust is in the direction of the new excavation and, therefore, may be affected by the construction. These waterlines are owned and operated by the Agency or any other water agency. Protect thrust blocks in place or shore to resist the thrust by a means approved by the Agency's water division superintendent, and reconstruct. If the thrust blocks are exposed or rendered to be ineffective in the opinion of the Agency's Inspector, reconstruct them to bear against firm unexcavated or backfill material.

2. Provide firm support by backfilling that portion of the trench for a distance of 2 feet on each side of the thrust block to be reconstructed from the pipe bedding to the pavement subgrade, with either:

    i. Sand-cement slurry (94 pounds of cement per cubic yard).

    ii. The native material compacted to a relative compaction of 95%.

3. Then excavate the backfill material for construction of the thrust block.

4. Test compaction of the backfill material before pouring any concrete thrust block. Use Class C concrete per Section 03050 for reconstruction.

END OF SECTION

SECTION 02302

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Perform all excavation, shoring, dewatering, backfilling, compaction and grading necessary or required for the construction of the work as covered by these Specifications and indicated on the Drawings. The excavation shall include, without classification, the removal and disposal of all materials of whatever nature encountered, including water and all other obstructions that would interfere with the proper construction and completion of the required work.

1.03 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Submit the following under the Product Information category.
   1. Sheeting and Shoring Plan: Refer to Paragraph 1.08 herein.
   2. Potholing Report as described in Paragraph 3.02.
   3. Samples and Test Results: Furnish, without additional cost to the Owner, such quantities of import materials as may be required by the Engineer for test purposes. Cooperate with the Engineer and furnish necessary facilities for sampling and testing of all materials and workmanship. Submit test results for import materials. Tests shall be performed within 60 days of the submission. All material furnished and all work performed shall be subject to rigid inspection, and no material shall be delivered to the site until it has been favorably reviewed by the Engineer, or used in the construction work until it has been inspected in the field by the Engineer.

1.04 QUALITY ASSURANCE

A. Source Quality Control: Test import materials proposed for use to demonstrate that the materials conform to the specified requirements. Tests shall be performed by an independent testing laboratory.

B. Field Quality Control:
   1. The Owner will:
      a. Review and test materials proposed for use.
      b. Inspect foundations, site grading and borrow operations.
      c. Inspect placement and compaction of fill.
      d. Test soils during placement of fill.
   2. Contractor shall excavate holes for in-place soil sampling. Contractor shall be responsible for costs of additional inspection and re-testing resulting from non-compliance.

C. Testing Methods:
   1. Durability Index: Manual of Test, State of California, Department of Transportation.

2. Specific Gravity: ASTM D854.
3. Laboratory Compaction: ASTM D1557, Method A or C.
4. In-Place Density: ASTM D1556 or ASTM D2922.
5. Particle Size Analysis of Soils: ASTM D422.
6. Plastic Limit and Plasticity Index: ASTM D4318.
7. Soil Classification: ASTM D2487.
8. In-Place Moisture Content: ASTM D3017.

D. Definition:
   1. Relative Compaction: In-place dry density divided by the maximum dry density laboratory compaction express as a percentage.

1.05 EXPLOSIVES

A. The use of explosives will not be permitted on this project.

1.06 SUBSURFACE INVESTIGATIONS

A. The bidders may make subsurface investigations at the site prior to the bidding of the project. Prior to making any drillings or excavations, the bidder shall secure permission from the Owner and property owners if on private property.

1.07 REFERENCE SPECIFICATIONS

A. Whenever the words "Standard Specifications" are referred to, the reference is to the State of California, Department of Transportation, Standard Specifications dated July 2015 (or latest edition).

1.08 ADDITIONAL SAFETY RESPONSIBILITIES

A. The Contractor shall select, install and maintain shoring, sheeting, bracing, and sloping as necessary to maintain safe excavations. The Contractor shall be responsible for ensuring such measures: (1) comply fully with 29 CFR Part 1926 OSHA Subpart P Excavations and Trenches requirements, (2) provide necessary support to the sides of excavations, (3) provide safe access to the Engineer's sampling and testing within the excavation, (4) provide safe access for backfill, compaction, and compaction testings, and (5) otherwise maintain excavations in a safe manner that shall not endanger property, life, health, or the project schedule. All earthwork shall be performed in strict accordance with applicable law, including local ordinances, applicable OSHA, CalOSHA, California Civil Code, and California Department of Industrial Safety requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Crushed Rock: Class 2, 3/4-inch maximum aggregate base, Standard Specifications Section 26.

B. Bedding Materials:
   1. Sand: Standard Specifications, Paragraph 19-3.025B.

2. Permeable Material: Standard Specifications, Paragraph 68-1.025 Class I, Type [A].
3. Pea Gravel: River run, rounded pea gravel with a maximum dimension no larger than 1/2-inch, and with no more than 10% passing the No. 200 sieve. The material shall have a durability index of 40 or higher.

C. Import Backfill: Imported nonexpansive soil with liquid limit no greater than 40% and a plasticity index no greater than 15%, free from clods or rocks larger than 2 inches in greatest dimension, and free from organic material.

D. Native Backfill: Native soil prepared as necessary to be free from clods or rocks larger than 2 inches in greatest dimension, and free from organic material.

E. Impervious Material: Clay with a minimum percentage of material passing the No. 200 sieve of 50%. The material shall be free of organics, rocks, or clods greater than 4 inches in diameter.

F. Water: The water used shall be reasonably free of objectionable quantities of silt, oil, organic matter, alkali, salts and other impurities. Water quality must be acceptable to the Engineer.

G. Aggregate Base: Refer to Section 02700.

H. Warning Tape: 3-inch-wide, inert, fade-resistant plastic film resistant to acids, alkalis, and other components likely to be encountered in soil. Tape shall be blue, imprinted with "CAUTION WATER MAIN BELOW," Griffolyn Terra Tape; or approved equal.

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

PART 3 - EXECUTION

3.01 CONTROL OF WATER

A. All excavations shall be kept free from water and all construction shall be in the dry.
1. It should be presumed that the presence of groundwater will require dewatering operations. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering all excavations. At all times have on the project sufficient pumping equipment for immediate use, including standby pumps for use in case other pumps become inoperable.
2. Provide a sufficient number of pumps so as to hold the groundwater level at an elevation of not less than 1 foot below the lowest elevation of the pipe, [duct] or other material to be placed.
3. Dispose of water in such a manner as to cause no injury or nuisance to public or private property, or be a menace to the public health.

4. The dewatering operation shall be continuous, so that the excavated areas shall be kept free from water during construction, while concrete is setting and achieves full strength, and until backfill has been placed to a sufficient height to anchor the work against possible flotation.
5. Continue dewatering during backfilling operations such that the groundwater is at least 1 foot below the level of the compaction effort at all times. No compaction of saturated materials will be allowed.
6. Dewatering devices must be adequately filtered to prevent the removal of fines from the soil.
7. The Contractor shall be responsible for any damage to the foundations or any other parts of existing structures or of the new work caused by failure of any part of the Contractor's protective works. After temporary protective works are no longer needed for dewatering purposes, they shall be removed by the Contractor.
8. If pumping is required on a 24-hour basis, requiring engine drives, then engines shall be equipped in a manner to keep noise to a minimum. Refer to Section 01140 for noise control requirements.
9. Prevent disposal of sediments from the soils to adjacent lands or waterways by employing whatever methods are necessary, including settling basins.

B. The Contractor shall be responsible for furnishing temporary drainage facilities to convey and dispose of surface water falling on or passing over the site.

3.02 EXISTING UTILITIES

A. General: The known existing buried utilities and pipelines except building connections are shown on the Drawings in their approximate location. The Contractor shall exercise care in avoiding damage to all utilities as he will be held responsible for their repair if damaged. There is no guarantee that all utilities or obstructions are shown, or that locations indicated are accurate. Utilities are piping, conduits, wire, cable, ducts, manholes, pull boxes and the like, located at the project site and adjoining said site and along the pipeline right-of-way.

B. Check on Locations (Potholing):
1. Contact all affected utility owners and request them to locate their respective utilities prior to the start of "potholing" procedures. The utility owner shall be given 7 days written notice prior to commencing potholing. If a utility owner is not equipped to locate its utility, the Contractor shall locate it.
2. Clearly paint the location of all affected utility underground pipes, conduits and other utilities on the pavement or identify the location with suitable markers if not on pavement. In addition to the location of metallic pipes and conduits, non-metallic pipe, ducts and conduits shall also be similarly located using surface indicators and detection tape, if present and shall then be similarly marked.
3. After the utility survey is completed, commence "potholing" to determine the actual location and elevation of all utilities where crossings, interferences, or connections to the new pipelines are shown on the Drawings, marked by the utility companies, or indicated by surface signs. Prior to the preparation of piping shop drawings, or the excavating for any new pipelines or structures, the Contractor shall locate and uncover these existing utilities including services and laterals to a point 1 foot below the utility. Submit a report identifying each

underground utility and its depth and station. Any variation in the actual elevations and the indicated elevations shall be brought to the Engineer's attention.

4. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workmen or damage to electrical ducts or conduits. Similar precautions shall be exercised around gas lines, telephone and television cables.
5. Excavations shall have surface dimensions of no more than 18" x 18". Air spades and vacuum excavators shall be used to limit the size of excavations and damage to adjacent facilities. Backfill after completing potholing. In existing streets, pave with 1 inch of cutback.

C. Interferences:
   1. If interferences occur at locations other than shown on the Drawings, the Contractor shall notify the Engineer, and a method for correcting said interferences shall be supplied by the Engineer. Payment for interferences that are not shown on the plans, nor which may be inferred from surface indications, shall be in accordance with the provisions of the Specifications. If the Contractor does not expose all required utilities prior to shop drawing preparation, he shall not be entitled to additional compensation for work necessary to avoid interferences, nor for repair to damaged utilities.
   2. Any necessary relocations of utilities, whether shown on the Drawings or not, shall be coordinated with the affected utility. The Contractor shall perform the relocation only if instructed to do so in writing from the utility and the Engineer.

D. Shutdowns: Program work so that service will be restored in the minimum possible time, and shall cooperate with the utility companies in reducing shutdowns of utility systems to a minimum. **All shutdowns shall be between 8 a.m. and 4:30 p.m. on weekdays, excluding District holidays.**

   1. Disconnections: No utility shall be disconnected without prior written approval from the utility owner. When it is necessary to disconnect a utility, the Contractor shall give the utility owner not less than 72 hours notice when requesting written approval. The Contractor shall program his work so that service will be restored in the minimum possible time.
   2. The Contractor shall submit a shutdown plan which the District shall review and approve prior to mobilization so that customers may be notified.

E. Overhead Facilities: There are existing overhead electric and telephone transmission lines along the pipeline routes. These overhead utilities are not shown on the Drawings. Extreme caution shall be used when working in the vicinity of overhead utilities so as to prevent injury to workmen or damage to the utilities. The Contractor shall be required to comply with the applicable provisions of the California Construction Safety Orders when working anywhere on this project.

F. Existing gas, water, sewer and telephone house laterals are not specifically shown on the Drawings but do exist along the pipeline routes. Protect all service laterals from damage due to construction operations. If any laterals are damaged, notify the Engineer and the affected utility immediately. The cost of repair shall be borne by the Contractor.

3.03 GENERAL CONSTRUCTION REQUIREMENTS

A. Site Access: Access to the site will be over public and private roads. Exercise care in the use of such roads and repair at own expense any damage thereto caused by Contractor's operations. Such repair shall be to the satisfaction of the owner or agency having jurisdiction over the road. Take whatever means are necessary to prevent tracking of mud onto existing roads and shall keep roads free of debris.

B. Traffic Regulation: Provide such flagmen, patrols, pilot cars, drivers, lighted barricades, flares, lights, warning signs, and safety devices as may be required for control of traffic adjacent to all areas of work. A minimum of one lane of traffic shall be kept open at all times on public roads, refer to Section 01550 for Traffic Regulation.

C. Barriers: Barriers shall be placed at each end of all excavations and at such places along excavations as may be necessary to warn all pedestrian and vehicular traffic of such excavations. Lights shall also be placed along excavations from sunset each day to sunrise of the next day until such excavation is entirely restored.

D. Access: Free access must be maintained to all fire hydrants, water valves and meters, and private driveways.

E. Open Trench Limitations: The Engineer shall have the authority to limit the amount of trench to be opened or left open at any one time. In public roads, excavation and pipe laying shall be coordinated to the end that a minimum of interference with public traffic will result. In existing streets, no more than 200 feet of trench shall be open at any time on any single heading. An open trench in existing streets shall be defined as any trench which has not been completely backfilled, satisfactorily compacted, and capped with at least 1-inch of temporary paving (cutback) or first lift of permanent pavement. In the remaining areas of the project, no more than 1,000 feet of trench shall be open at any one time on any single heading

F. Demolition of Pavement: Where trenching or excavation occurs in paved areas, the pavement shall be scored and broken ahead of the trenching or excavation operation. The extent of paving removed shall be limited to the minimum necessary for the excavation.

G. Dust Control: Take proper and efficient steps to control dust.

H. Permits: Refer to General Conditions.

I. Storage of Materials: Excavated materials unsuitable for backfill shall not be stored on existing streets, and shall be disposed of immediately. Neatly place excavated materials far enough from the excavation to prevent stability problems. Keep the materials shaped so as to cause the least possible interference with drainage or the normal use of adjacent properties, structures or roadways.

J. Temporary Pavement: Place temporary pavement or first lift of permanent pavement on trenches in existing streets within 24 hours after the trench has been backfilled. Maintain temporary pavement until permanent pavement is to be placed.

3.04 TRENCH EXCAVATION

A. Excavation for pipe shall be in open cut. The trench shall be as wide as necessary for sheeting and bracing and the proper performance of the work up to the maximum width permitted by the typical cross-sections shown on the Drawings. The sides of the trenches shall be vertical in existing streets. The bottom of the trench shall be constructed to the grades and shapes indicated on the Drawings. Should the Contractor desire to use other equivalent methods, he shall submit his method of construction to the Engineer for favorable review prior to its use.

B. Take care not to overexcavate. Accurately grade the bottom of the trenches to provide uniform bearing and support for each section of the pipe at every point along its entire length, except for the portions of the pipe sections where it is necessary to excavate for bell holes and for the proper sealing of pipe joints, and as hereinafter specified. Dig bell holes and depressions for joints after the trench bottom has been graded, and, in order that the pipe rest on the bedding for as nearly its full length as practicable, bell holes and depressions shall be only of such length, depth and width as required for properly making the joint. Remove stones as necessary to avoid point bearing.

C. Backfill and compact overexcavations to 95% relative compaction with bedding material. There shall be no additional payment to the Contractor for over-excavations not directed by the Engineer. Remove unsatisfactory material encountered below the grades shown as directed by the Engineer and replace with bedding material. Payment for removal and replacement of such unsatisfactory material directed by the Engineer shall be made in accordance with the provisions of these Specifications.

D. Grade trenches so that they are uniformly sloped between the pipe elevations shown on the Drawings. Comply with the minimum and maximum trench widths shown on the Drawings. Notify the Engineer if the trench width exceeds the maximum allowable width for any reason.

E. Provide ladders for access to the trench by construction and inspection personnel.

3.05 BACKFILL AND COMPACTION

A. Place bedding and backfill materials true to the lines, grades, and cross-sections indicated on the Drawings and compacted to the degree specified on the Drawings. Place bedding and backfill materials in horizontal lifts not to exceed 6 inches in thickness measured before compaction. The difference in level on either side of a pipe shall not to exceed 4 inches.

B. Backfill material shall not be placed over the pipe until after it has been inspected by the Engineer.

C. It shall be incumbent upon the Contractor to protect the pipe from damage during the construction period. It shall be his responsibility to repair broken or damaged pipe at no extra cost to the Owner. Tamping of backfill over the pipe shall be done with tampers, vibratory rollers and other machines that will not injure or disturb the pipe. Carefully place backfill around and over the pipe and do not allow it to fall

directly upon the pipe. **Backfill between the bedding zone and subgrade shall be Trench Backfill Slurry Class 60-E-0.7 (100-E-100).**

D. Do not allow construction traffic nor highway traffic over the pipe trench until the trench backfill has been brought back even with existing adjacent grade.

E. Add water to the backfill material or dry the material as necessary to obtain the optimum moisture content for the compaction shown on the Drawings or specified. If the Engineer determines that the nature of the ground in which the trench lies precludes compaction of the backfill to the specified density, the backfill shall be compacted to the maximum practicable density. Employ such means as may be necessary to secure a uniform moisture content throughout the material of each layer being compacted. After the material has been moisture conditioned, compact it with compaction equipment approved by the Engineer to achieve specified compaction. The Contractor shall be responsible for obtaining the densities specified. Should he fail, through negligence or otherwise, to compact to specified density, or to backfill and compact to surface grade, thus permitting saturation of the backfill material from rains or from any other source, the faulty material shall be removed and replaced with approved material which shall be compacted to the specified density at optimum moisture content, and no additional payment will be made for doing such work or removal and replacement.

F. Compaction by flooding, ponding or jetting will not be permitted.

G. For all piping or conduits to be placed in any excavated and backfilled area, such as at manholes or for building connections, the structural backfill shall be first compacted to a level at least 3 feet from the top of the piping or conduit elevation and then retrenched to pipe grade.

3.06 SUPPORT OF EXCAVATIONS

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

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

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

3.07 ROCK SUBGRADE UNDER STRUCTURES

A. Place a 6-inch layer of crushed rock, compacted to 95% relative compaction, under structures.

3.08 FINISH GRADING

A. Except where shown otherwise in the Drawings, restore the finish grade to the original contours and to the original drainage patterns. Grade surfaces to drain away from structures. The finished surfaces shall be smooth and compacted.

3.09 DISPOSAL OF EXCAVATED MATERIAL

A. Dispose of unsuitable material or excavated material in excess of that needed for backfill offsite in accordance with the requirements of these Specifications.

END OF SECTION

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SECTION 02510

WATER SYSTEM PIPING AND ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Furnish and install all piping, including fittings, valves, and accessories as shown on the Drawings, described in the Specifications and as required to completely interconnect all piping for a complete and operable systems.

B. Related Sections:
   1. Section 02302: Earthwork

1.02 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Submit affidavit of compliance with reference standards (e.g. AWWA, ANSI, ASTM, etc.).

C. Submit certified copies of mill test reports for bolts and nuts, including coatings if specified. Provide recertification by an independent domestic testing laboratory for materials originating outside of the United States.

D. Submit manufacturer's data sheet for gaskets supplied showing dimensions and bolting recommendations.

1.03 QUALITY ASSURANCE

A. All materials and equipment furnished under this Section shall: (1) be of a manufacturer who has been regularly engaged in the design and manufacture of the materials and equipment for at least 5 years; and (2) be demonstrated to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by those manufacturers specifically named herein, if an alternate product manufacturer is proposed.

B. Factory Quality Control: The Contractor shall test all products as noted herein and by the reference specifications.

C. Field Quality Control:
   1. The Owner will:
      a. Inspect field welds and test the welds if it is deemed necessary.
      b. Perform bacteriological analysis for pipelines to be disinfected.
   2. The Contractor shall:
      a. Perform leakage tests.
      b. Be responsible for the costs of additional inspection and retesting by the Owner resulting from noncompliance.

1.04 POTHOLING (CHECK ON LOCATIONS)

A. Do not prepare any shop drawings for, or make final order for, or design any pipe materials for any particular section of pipeline until all utilities in that section of pipeline have been exposed, as specified in Section 02302 and until such time as no interferences are found between said existing utilities and the proposed pipeline alignment. If interferences are found in any particular section of pipeline, do not prepare any shop drawings for, or make final order for, or design any pipe materials for that particular section of pipeline until the pipeline alignment has been modified by the Engineer to eliminate all such interferences.

1.05 CONSTRUCTION SCHEDULING/SEQUENCING

A. Construction under this Contract involves expansion and/or modification of the existing water system which must continue to provide service to all buildings during construction.

B. Connections and utilities changes must be programmed to provide the least possible interruptions of service. Prior to any shutdown, all materials, fittings, supports, equipment and tools shall be on the site and all necessary labor scheduled prior to starting any connection work. The Contractor shall notify the Engineer in writing at least 7 days in advance of any required shutdowns so that affected customers may be notified. In general, shutdowns shall not exceed eight and a half hours in duration unless specifically authorized or indicated in the suggested construction sequence. If a shutdown of more than eight and a half hours is required, the Contractor shall first install temporary water service connections to all affected houses and other buildings. All temporary piping shall be disinfected in accordance with Paragraph 3.06 before being put into service.

C. All work under this Contract shall be conducted in a manner which will minimize shutdowns, open roadways, or traffic obstructions caused by the construction. Shutdowns causing damage to adjacent public and private property shall not be permitted, and any damage resulting shall be the sole responsibility of the Contractor.

D. Planned utility service shutdowns shall be accomplished during periods of minimum use. The Contractor shall program his work so that service will be restored in the minimum possible time, and shall cooperate with the Owner in reducing shutdowns of the utility system to a minimum. No utility interruption will be permitted without the prior approval of the Engineer.

PART 2 - PRODUCTS

2.01 GENERAL

A. Pipe and valve sizes are nominal inside diameter unless otherwise noted.

B. All materials delivered to the job site shall be new, free from defects, and marked to identify the material, class, and other appropriate data such as thickness for piping.

C. Acceptance of materials shall be subject to strength and quality testing in addition to inspection of the completed product. Acceptance of installed piping systems shall be based on inspection and leakage and bacteriological tests as specified hereinafter.

D. Form threads by means of rolling, not cutting or grinding.

E. Bolts and Nuts for Flanges for Steel and Ductile-Iron Piping
   1. Bolts and nuts for Class 125 or 150 flanges (including AWWA C207, Class D) located indoors, outdoors above ground, shall be carbon steel, ASTM A307, Grade B, hot-dipped galvanized per ASTM F2329.
   2. Bolts and nuts for buried, submerged, or in vaults Class 125 or 150 flanges shall be Type 316 stainless steel conforming to ASTM A193, Grade B8M for bolts and ASTM A194, Grade 8M for nuts.
   3. Fit shall be Classes 2A and 2B per ASME B1.1 when connecting to cast-iron valves having body bolt holes.
   4. Bolts used in flange insulation kits shall conform to ASTM A193 (Grade B7). Nuts shall conform to ASTM A194 (Grade 2H).
   5. Provide washers for each nut. Washers shall be of the same material as the nuts.

F. Lubricant shall be chloride free and shall be RAMCO TG-50, Anti-Seize by RAMCO, Specialty Lubricants Corporation Husky Lube O'Seal, or equal.

G. Gaskets for flat face and raised face flanges shall be 1/8-inch thick and shall be one of the following nonasbestos materials:
   1. Cloth-inserted rubber with a Shore "A" hardness of 75 to 85. Gaskets shall be suitable for a pressure of 200 psi at a temperature of 180°F. Products: Garlock Style 19 or equal.
   2. Acrylic or aramid fiber bound with nitrile. Products: Garlock "Bluegard," Klinger "Klingersil C4400," or equal. Gaskets shall be suitable for a pressure of 500 psi at a temperature of 400°F.

2.02 PIPING MATERIALS

A. PVC-4 Type V-4 Pipe:
   1. Pipe: Polyvinyl chloride pressure pipe, cast iron pipe outside dimensions. Pipe shall be UL listed or Factory Mutual Approved.
      a. 4- to 12-inch: AWWA C900.
   2. Dimension Ratio: 18 (Pressure Class 150).
   3. Joints:
      a. Unrestrained Joints: Bell and spigot, gasketed; or twin gasket coupling.
      b. Restrained Joints: Bell and spigot (push-on) gasketed, or mechanical joints; both using ductile iron clamp-on restraining devices.
         1) Restraining Devices: Ductile iron with ductile iron Cor-ten rods and bolts. Pressure rating of at least 150 psi. Series 1500 or Series 2800 by EBAA Iron; equivalent by Uni-Flange; or equal for bell and spigot joints. Series 2800PV by EBBA Iron; equivalent by Unif-Flange; or equal for mechanical joints.
         2) Provide restrained joints for all pipe of this type.
         3) Protection for Buried Restraining Devices: Double-wrap with polyethylene encasement, AWWA C105 and tape the edges of the encasement with PVC tape.
   4. Gaskets: SBR rubber or NBR (Nitril or Buna-N)OR Chloroprene.
   5. All transitions from piping to valves, hydrants, spools and/or other appurtenance shall be flanged to match.

2.03 VALVES AND ACCESSORIES

A. General Requirements for Valves:
   1. All valves of each type shall be the product of one manufacturer.
   2. All valves shall be furnished with control assembly, operators, handwheels, levers, or other suitable type wrench including handles as specified herein or as shown on the Drawings.
   3. All threaded stem valves shall open by turning the valve stem counter-clockwise.
   4. The exterior of all valves and valve operators shall be painted with two coats of Tape Coat Mastic; Protecto Wrap CA1180 Mastic; or equal, except where otherwise indicated.

B. Valves and Accessories:
   1. Gate Valves:
      a. Rating: 200 psi water
      b. Type: Resilient seated, non-rising stem, AWWA C509, as modified herein
      c. Connection: Flanged
      d. Stem seal: O-ring
      e. Finish: Fusion epoxy
      f. Manufacturers: AVK Series 45; or approved equal.

2.04 SERVICE CONNECTIONS

A. General: All corporation stops, tapping sleeves or saddles, and service connection accessories shall be the product of one (1) manufacturer.

B. Tapping Sleeves:
   1. Type: Bronze, double-strap, retained o-ring gasket, rolled strap threads, and tapping boss with full length threads.
   2. Pipe Tapping Sleeve for PVC and Asbestos Cement Pipe:
      a. Tapping Sleeves shall be provided where shown on the Drawings/Exhibits. Tapping sleeve shall be suitable for use in service up to 150 psi working pressure and 150°F. Body shall be stainless steel.
      b. Connection: Flanged
      c. Finish: Stainless Steel
      d. Manufacturer: Ford FS300 Series; or approved equal.

2.05 FIRE HYDRANTS

A. General: All fire hydrants and related accessories shall be the product of one (1) manufacturer.

B. All fire hydrants shall each include a fire hydrant assembly cast-iron breakaway spool to be used to adjust lower fire hydrant stem within required distance from finish grade. Cadmium plated breakaway bolts shall be installed on fire hydrant and extension. Bolts to be installed heads up. Only one gasketed flange shall be allowed below the surface. Bury, control valve, tee and breakaway spool shall be lined with epoxy, Scotchkote 206N or 134.

C. The above-ground flange shall be set at 4” minimum and 10” maximum from finish grade.

D. Finish grade of each hydrant location shall be adjusted to match surrounding area so as to avoid pits or hills.

2.06 APPURTENANCES

A. Provide all necessary assembly bolts, washers and nuts, thrust blocks, supports, gaskets, flanges, and all other appurtenant items shown on the Drawings, specified or required for the proper installation and operation of the piping, and devices included in or on the piping, equipment, and piping accessories.

PART 3 - EXECUTION

3.01 PIPING INSTALLATION

A. General Handling and Placing:
   1. Exercise great care to prevent injury to or scoring of the pipe lining and coating, as applicable, during handling, transportation or storage. Handle fusion epoxy coated pipe in accordance with AWWA C213. Pipe shall not be stored on rough ground and rolling of the pipe on the coating will not be permitted. Repair any damaged pipe sections, specials, or fittings or replace at the direction of the Engineer.
   2. Inspect each pipe, fitting, valve and accessory carefully before installation. Inspect the interior and exterior protective coatings and patch all damaged areas in the field or replaced at the direction of the Engineer.
   3. Place or erect all piping to accurate line and grade and backfill, support, hang, or brace against movement as specified or shown on the Drawings, or as required for proper installation. Remove all dirt and foreign matter from the pipe interior prior to installation and thoroughly clean all joints before joining.
   4. Use reducing fittings where any change in pipe size occurs. Bushings shall not be used, unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.
   5. Connections between ferrous and non-ferrous piping and accessories shall be made using a dielectric coupling, union, or flange.

B. General Buried Piping Installation:
   1. Trenching, bedding, and backfill for buried piping shall be as shown on the Drawings and as specified in Section 02302.
   2. Provide each pipe with a firm, uniform bearing for its full length in the trench except at field joints. Do not lay pipe in water or when trench conditions or weather are unsuitable for such work.
   3. Protect buried piping against thrust by use of thrust blocks as shown on Drawing SD-9. Securely brace all exposed free pipe ends. Cap or plug pipe ends that are left for future connections as shown on the Drawings and in a manner favorably reviewed by the Engineer.
   4. Do not pull bell and spigot, gasketed joints more than 75% of the maximum deflection permitted by the pipe manufacturer.
   5. Where piping leaves a structure or concrete encasement, provide a joint capable of angular deflection within 12 inches of the structure for pipes 12-inch and smaller or as shown on the Drawings for larger pipe sizes. Conform to details on the Drawings where such details are shown.
   6. Snake buried PVC pressure pipe from side to side in the trench in long sweeps.

7. Wrap the appurtenance with polyethylene encasement and tape the encasement tightly closed to the pipe.

C. Water Main Installation:
   1. The Contractor is advised that precautions taken to keep the pipeline clean during construction will facilitate achieving the disinfection requirements of this project with a minimum of effort and expense. Compliance with these suggested minimum procedures will not relieve the Contractor of the disinfection requirements.
   2. Prior to installation, thoroughly clean the interior of each length of pipe and each fitting or valve and inspect to ensure that no foreign material remains. Cover both ends with plastic and do not uncover them until just prior to completing the joint.
   3. Whenever pipe laying is discontinued for short periods, or whenever work is stopped at the end of the day, close the open ends of the pipe with watertight plugs or bulkheads.
   4. Provide adequate trench pumping to ensure against groundwater contacting the inside of the pipeline at any time. Do not lower any pipe or fitting into a trench where groundwater is present and may enter the pipe. When necessary, pump the water from trenches and keep the trench dry until the joints have been completed and the open ends of the pipe have been closed with a watertight plug. Do not remove the plug until the trench has again been pumped dry.
   5. Keep new pipe sections clean and dry.
   6. When making the connection between a new pipeline and an existing pipeline, or when repairing a damaged pipe, take the following extra precautions:
      a. Disinfection shall be performed in accordance with AWWA C651.
      b. Clean the exterior of the existing pipeline of all dirt and debris, and spray or swab with a standard 5.25% or stronger chlorine solution (as specified) in the immediate vicinity of the work. Clean equipment and materials, including new pipe and fittings, to be used in making these connections of all dirt and debris and disinfect them. Allow at least 30 minutes contact time for disinfection before the chlorine solution is diluted or rinsed off. Provide sufficient trench pumps to prevent flooding of the trench.
      c. When an old line is opened, either by accident or by design, the excavation may be wet or badly contaminated from groundwater. Apply liberal quantities of standard chlorine solution or tablets to the open trench areas to lessen the danger from such pollution. Tablets are recommended because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation. Scatter liberally around and locate the tablets so that flow entering the work site will contact the disinfecting agent. Trench application should be done very carefully to avoid contact by skin and clothing with chlorine solution. Minimally, safety dictates wearing safety goggles and rain gear.
      d. When excavating a leaking or broken pipeline, "valve-off" the system gradually to less than watertightness. This is to prevent causing areas of zero pressure which would allow entry of foreign material. A flow should be maintained which is slightly less than trench pump capability.

Once the break is exposed and cleaned to disallow site contamination, the valving can then be made watertight.

D. Pipe Welding:
   1. General: Unless specified otherwise, shop and field welding of pipe shall confirm to ANSI B31.1 as amended by this paragraph.
   2. All field and shop welding shall be done by the electric arc process unless otherwise specified. All field welding shall be done in passes not thicker than ¼-inch. Size and type of electrodes, and current and voltages used, shall be subject to the favorable review of the Engineer. Give particular attention to the alignment of edges to be joined, so that complete fusion and penetration will be effected throughout the bottom of the weld. Welds shall contain no valleys or undercuts in the center or edges of the weld. Thoroughly clean each pass, except the final one, of direct, slag, and flux before the succeeding bead is applied.
   3. Clean completed field welds of pipe joints of direct, slag and flux, and then visually inspect. Completely chip out all defects in welds discovered during field inspection in a manner that will permit proper and complete repair by welding subject to the favorable review of the Engineer. Under no circumstances will caulking of defective welds be permitted.
   4. All welding shall be done by experienced, skilled operators familiar with the methods and materials to be used. The Contractor shall furnish all materials required and pay all costs for qualifying welders.
   5. Field welds shall follow as closely as possible to the laying operation. All field welds shall be complete before lining or coating of the joints in steel pipe is begun. Where pipe is fusion epoxy lined and/or coated, follow AWWA C-213 procedures for field welded joints.
   6. A single, continuous, watertight, full fillet weld shall be the minimum required at all field joints. Double-welded joints are required on all piping specifically noted to be double-welded.
   7. See also installation specifics for welding of pipe.

E. Installation Specifics:
   1. Ductile-Iron Pipe:
      a. Buried pipe shall be installed in accordance with AWWA C600.
      b. Support and brace encased pipe to support the pipe and to prevent movement during testing and placement of the concrete encasement. The braces and supports shall be erected of materials and by methods that will prevent any future contact of the pipe with the environment surrounding the encasement.
      c. Wrap buried pipe with 8 mil polyethylene film in accordance with AWWA C105. Continuously seal seams and overlaps with tape. Seal circumferential overlaps with two turns of tape, half lapped. Gather excess polyethylene on top of pipe so as not to block backfill material from getting under bottom of pipe. Use caution so as not to rip or cut the polyethylene film. Seal any rips or cuts in the film with tape.
      d. Wherever the pipeline crosses over or under a sewer main or house service lateral, center a standard length pipe, 18-foot minimum, on said sewer main or lateral so as to have the pipeline joints as far as possible away from the sewer. This may require field cutting of some pipe pieces.

e. Flanged Joints: Flanged joints shall be made up tight with care being taken to avoid undue strain in the flanges, fittings, and other accessories. Bolt holes shall be aligned for each flanged joint. Bolts shall be full-size for bolt holes; use of undersize bolts to make up for misalignment of bolt holes or for any other purpose will not be permitted. Adjoining flange faces shall not be out of parallel to such a degree that the flanged joint cannot be made watertight without over-straining the flange. Replace any flanged pipe or fitting whose dimensions do not allow the making of a proper flanged joint as specified herein by one of proper dimensions. Clean flanges prior to making joints. Buried flanged pipe connections shall be made with the smallest practical “bell” hole. After the joint is completed, take special care to completely fill the “bell” hold under and around the pipe with compacted backfill.

f. Restrained Joints: Install in accordance with manufacturer's instructions. Pull slack out of joint after makeup.

g. Mechanical Grooved Couplings: Install in accordance with the manufacturer’s instructions.

2. Copper Pipe:
   a. Bends shall be made in a manner that does not crimp or flatten pipe.
   b. Dielectric unions shall be installed at connections with ferrous piping.
   c. Pipe shall have joints squarely cut clean, properly fluxed and heated before solder is placed in the joint. Joints must be driven up tight before solder is added. Compression and flared joints shall be made up in accordance with the manufacturer's instructions. Brazing shall be in accordance with ANSI B31.1.
3. Polyvinyl Chloride Pipe: Installation shall conform to AWWA M23, Chapters 6 and 7, as modified herein.

3.02 COUPLING INSTALLATION

A. Flexible Couplings and Flange Coupling Adaptors: Prior to installation, thoroughly clean oil, scale, rust, and dirt from the pipe to provide a clean seat for the gasket. Care shall be taken that the gaskets are wiped clean before they are installed. If necessary, flexible couplings and flanged coupling adapter gaskets may be lubricated with soapy water or manufacturer's standard lubricant before installation on the pipe ends. Install in accordance with the manufacturer's recommendations. Bolts shall be tightened progressively, drawing up bolt on opposite sides a little at a time until all bolts have a uniform tightness. Workers tightening bolts shall be equipped with torque-limiting wrenches or other favorably reviewed type. Anchor studs on restrained flanged coupling adapters shall be installed so as to lock into holes drilled through pipe wall in accordance with manufacturer's recommendation.

B. Tie Rods: Except where double-nutting is required, install the nuts snug. Tighten the nuts gradually and equally at opposite sides of the pipe until snug to prevent misalignment and to ensure that all rods carry equal loads. If double-nutting is required, double-nut each end of each tie rod. The space between the pairs of nuts shall be ½-inch greater than the distance between the lugs. Provide double-nutting at buried locations and where otherwise required on the Drawings.

3.03 INSTALLATION OF VALVES AND ACCESSORIES

A. Wrap buried valve bodies as specified for flexible couplings and flanged coupling adapters.

B. Use reducing fittings where any change in pipe size occurs between valves or accessories and the attached pipeline. Bushings shall not be used, unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.

3.04 FIELD QUALITY CONTROL

A. The Owner will:
   1. Inspect field welds and test the welds if it is deemed necessary.
   2. Perform bacteriological analysis for pipelines to be disinfected.

B. Factory Quality Control: The Contractor shall test all products as required herein and by the reference specifications.

C. The Contractor shall:
   1. Perform leakage tests.
   2. Be responsible for the costs of additional inspection and retesting by the Owner resulting from non-compliance.

3.05 CLEANING

A. Prior to testing, the inside of each completed pipeline shall be thoroughly cleaned of all dirt, loose scale, sand and other foreign material. Cleaning shall be by sweeping, flushing with water internal cleaning device or "pig" or blowing with compressed air, as appropriate for the size and type of pipe. Flushing shall achieve a velocity of at least 3 feet per second. The Contractor shall install temporary strainers, temporarily disconnect equipment or take other appropriate measures to protect equipment while cleaning piping. Cleaning shall be completed after any pipeline repairs.

3.06 FIELD TESTING

A. General: Perform leakage tests on all pipe installed in this project. Furnish all equipment, material, personnel, test media and supplies to perform the tests and make all taps and other necessary temporary connections. The test pressure, allowable leakage and test medium shall be as specified. Test pressure shall be measured at the highest point on the line, except that pressure at lowest point shall not exceed pipe manufacturer’s rated test pressure, unless specifically noted otherwise. Perform leakage tests on all piping at a time agreed upon and in the presence of the Engineer. The Contractor may use water for construction, cleaning, testing and disinfection of the pipelines from the District at a fire hydrants designated by the District. At any connection to the District water system, the Contractor shall provide an air-gap or reduced pressure backflow valve system to prevent backflow into the water source.

B. Buried Piping: Perform the leakage test for buried piping after all pipe is installed and backfilled. However, preliminary tests may be conducted prior to backfill. If preliminary tests are conducted, provide any necessary temporary thrust restraint.

C. Accessories: It is the responsibility of the Contractor to block off or remove equipment, valves, gauges, etc., which are not designed to withstand the full test pressure.

D. Testing Apparatus: Provide pipe taps, nozzles and connections as necessary in piping to permit testing including valves to isolate the new system, addition of test media, and draining lines and disposal of water, as is necessary. Plug these openings in a manner favorably reviewed by the Engineer after use. Provide all required temporary bulkheads.

E. Correction of Defects: If leakage exceeds the allowable, repair or replace the installation and repeat leakage tests as necessary until conformance to the leakage test requirements specified herein have been fulfilled. All visible leaks shall be repaired even if the pipeline passes the allowable leakage test.

F. Reports: Keep records of each piping test, including:
   1. Description and identification of piping tested.
   2. Test pressure.
   3. Date of test.
   4. Witnessing by Contractor and Engineer.
   5. Test evaluation.
   6. Remarks, to include such items as:
      a. Leaks (type, location).
      b. Repairs made on leaks.
   7. Submit test reports to the Engineer.

G. Venting: Where not shown on the Drawings, the Contractor may install valved "TEES" or corporation stops and saddles at high points on piping to permit venting of air. Valves shall be capped after testing is completed.

H. Testing Specifics:
   1. Water Transmission Mains:
      a. Method: AWWA C600, as modified herein.
      b. Duration: Four hours.
      c. Pressure: 150 psi measured at lowest point of section of pipeline being tested.
      d. Medium: Potable water.
      e. Allowable Leakage: Leakage shall be defined as the quantity of test medium that must be added to the section of pipeline being tested to maintain the specified test pressure for the specified test duration. Maximum allowable leakage shall be as specified in AWWA C600.
      f. Presoaking for PCCP and WSP: Fill piping at least 4 hours before beginning test.
   2. Copper, Galvanized Steel, Polyvinyl Chloride, and HDPE Pipe:
      a. Duration: Four hours.
      b. Pressure: 150 psi.
      c. Medium: Water.
      d. Allowable Leakage: None.

3.07 DISINFECTION OF POTABLE WATER SYSTEMS

A. Disinfect all water mains and interconnected piping after testing and before being placed into service to ensure their bacteriological safety. Disinfection shall be accomplished under the supervision of the Contractor by a person skilled and

experienced in the operation of water systems. Following disinfection and flushing, the Owner will take water samples for bacteriological analysis of the water. If the specified bacteriological requirements are not satisfied, the disinfection procedure must be repeated until the requirements are met.

B. Mains:
   1. Standard: AWWA C651 as amended herein.
   2. Forms of Chlorine: Sodium hypochlorite or calcium hypochlorite.
   3. Method: Continuous-Feed.

C. Small Pipelines (less than 3-inch):
   1. Preparation: Provide the system with a 1-inch minimum service cock or valve or other means to inject chlorine solution at a point within 2 or 3 feet of its junction with the supply source. When system is complete thoroughly flush it by fully opening every outlet until clear water flows from all of them.
   2. Disinfecting Agent: Sodium hypochlorite or calcium hypochlorite in sufficient quantities to produce chlorine concentration of at least 50 parts per million in the system.
   3. Disinfecting Procedure:
      a. Connect a hand-operated pump, or other means of injecting the disinfecting agent, to 1-inch minimum service cock or valve or other injection device. Pump must provide a pressure greater than that of supply of system.
      b. With system completely full of water and supply valve open, proceed to adjust every outlet of system so that a trickle of water flows from each.
      c. Inject disinfectant slowly and continuously at an even rate, not in slugs, until a test at each outlet shows a free chlorine residual concentration of at least 50 parts per million.
      d. Close all outlets and valves, including valve connecting to supply line and 1-inch minimum service cock on solution injection connection. Maintain condition for 24 hours. After 24 hours, test for residual chlorine at each outlet. The free residual chlorine concentration indicated should be not less than 10 ppm. If the indicated free chlorine concentration is less than 10 ppm, the disinfection procedure must be repeated until an approved result is obtained.
   4. When the above procedure has been completed to the satisfaction of the Engineer, flush out entire system with fresh water until tests at all outlets show a residual of not more than 0.5 ppm.

D. Chlorine Residual Testing: AWWA C651, Appendix A, DPD Drop Dilution Method, except where otherwise specified. Testing shall be performed by the Contractor.

E. Bacteriological Analyses of Water: After the completion of disinfecting procedure, including the final flushing as described heretofore, the Owner will obtain water samples from this system for bacteriological analyses. Requirements for satisfactory disinfection of water supply are that bacteriological analyses (Heterotrophic plate count) indicate that water samples are negative for coliformnerogenes organisms, and that total plate count is less than 100 bacteria per cubic centimeter. If bacteriological analyses do not satisfy the above requirements, then disinfection procedure must be repeated until these requirements are met.

F. Disposal of Disinfection Solution: Dechlorinate and dispose of disinfection solution in accordance with applicable regulations and Section 01140. Take care to assure that chlorinated water is not spilled in drains.

END OF SECTION

SECTION 02700

PAVING AND SURFACING

PART 1 - GENERAL

1.01 SUMMARY

A. Furnishing all labor, material, equipment, tools, and services required for the placing and compacting of asphalt concrete pavement for airfields, roadways, parking lots, and walkways to the lines, grades, and dimensions shown on the Drawings and as specified herein.
   1. Also included shall be the repair and resurfacing of existing roadway and area paving damaged or removed during construction.

1.02 REFERENCE SPECIFICATIONS

A. Whenever the words "Standard Specifications" are referred to, the reference is to the State of California, Department of Transportation, Standard Specifications dated *2015* (or latest edition).

B. ASTM International (ASTM):
   1. D422 Test Method for Particle-Size Analysis for Soils
   2. D1556 Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
   3. D2027 Specification for Cutback Asphalt (Medium Curing Type)
   4. D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

C. California Department of Transportation (CALTRANS):
   1. California Test 216 Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates
   2. California Test 231 Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates by the Area Concept Utilizing Nuclear Gauges

1.03 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Submit the following under the Product *Information* category.
   1. Samples: Furnish, without additional cost to the Owner, such quantities of construction materials as may be required by the Engineer for test purposes. The Contractor shall cooperate with the Engineer and furnish necessary facilities for sampling and testing of all materials and workmanship. All materials furnished and all work performed shall be subject to rigid inspection, and no materials shall be used in the construction work until it has been inspected by the Engineer.
   2. Submit a signed verification from each source of supply for each construction material employed on this project indicating that the materials meet the Specification requirements.

3. Mix design for asphalt concrete.
4. Submit manufacturer's certification of the actual volatile organic compound (VOC) content for all pavement paints and bituminous pavement sealers proposed for use on this project. Submit certification of the actual VOC content for coatings manufactured after 1 September 1987. For coatings manufactured before 1 September 1987, submit VOC content and date of manufacture. VOC content shall be measured in grams per liter by weight of coating as applied excluding water and color added to the tint base.
5. Submit verification that bituminous pavement sealers and paint products furnished meet applicable Ventura County Air Pollution Control District regulations as to allowable VOC content for the time and place of application and use intended.

1.04 QUALITY ASSURANCE

A. Comply with County of Ventura Public Works Agency requirements. (Please E-10a)

B. All pavement stripe painting shall be performed by competent and experienced Equipment operators and painters using proper equipment, tools, stencils, templates, and shields in a workmanlike manner.

1.05 REGULATORY REQUIREMENTS

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

PART 2 - PRODUCTS

2.01 ASPHALT CONCRETE

A. Asphalt Concrete shall conform to the Contract Details.

2.02 TEMPORARY PAVEMENT (COLD MIX)

A. Temporary pavement shall consist of No. 4 sieve maximum aggregate size, graded in accordance with Section 39 of the Standard Specifications. The aggregate shall be blended with 5-8% SC-800 liquid asphalt.

B. A trough shall be located under the sprays, properly arranged to be swung out of the way after the sprays are operating in a uniform manner at the desired pressure or, in lieu thereof, building paper shall be spread over the treated surface for a sufficient length back so that the sprays are operating properly when the uncovered surface is reached. The building paper shall then be removed and disposed of. If the cutoff is not sufficiently positive, the similar use of paper may be required at the end of the area being covered. The distributor shall be operated in such a manner that liquid asphalt will not be splashed on adjacent guardrails or structures. Any asphalt so splashed may be removed at the expense of and by the Contractor.

PART 3 - EXECUTION

3.01 GENERAL

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

B. Where trenching or other construction activity has resulted in damage to a localized area of pavement, the damaged pavement shall be cut back 6 inches and shall be removed and replaced.

C. Where the damaged area extends over more than 50% of the road width or paved area, as determined by the Engineer, the full pavement width or area shall be cut away, removed and repaired.

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

E. Existing asphalt pavement islands of 50 ft² or less and strips 18 inches or less in width shall be removed and replaced.

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

3.02 PAVEMENT CUTTING

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

B. Construct joints between successive runs vertical and at right angles to the line of the improvement. Exercise care in construction of all joints to ensure that the surface of the pavement is true to grade and cross-section. Lapped joints will not be permitted.

3.03 PRIME COAT APPLICATION

A. Prime Coat: In advance of spreading paving materials, a prime coat of liquid asphalt shall be applied to all base course surface areas to be covered with asphaltic concrete.
   1. Preparation of Base Course: Immediately before applying the prime coat, the area to be surfaced shall be cleaned of all loose material by means of hand brooms.
   2. Application: Liquid asphalt shall be applied by pressure distributors at a temperature between 125 and 200°F. The Engineer reserves the right to require an adjustment of the temperature of the liquid asphalt at the time of placement. The rate of application shall be between 2/10 and 3/10 gallon per square yard. Excess liquid asphalt, which has failed to penetrate the base, shall be covered with fine sand. All loose sand shall be removed from the treated areas before placing any surfacing material thereon. Liquid asphalt shall not be applied when the atmospheric temperature is below 50°F. The

prime coat shall be applied at least 24 hours in advance of paving. Immediately in advance of paving asphalt concrete surfacing, additional prime coats shall be applied, as directed by the Engineer, to areas where the prime coat has been damaged.

3.04 TACK COAT APPLICATION

A. Tack Coat: In advance of spreading bituminous material upon an existing bituminous or portland cement concrete surface, a tack coat shall be applied to all areas to be surfaced and to all vertical surfaces of existing pavement, curb, gutters and construction joints in the surfacing against which additional material is to be placed. When two or more lifts of asphaltic concrete are required, a tack coat shall be applied between each lift.

1. Preparation: Immediately before applying a tack coat, the area to be surfaced shall be cleaned of all loose material.
2. Application: The tack coat shall be applied by means of pressure distributors by pressure hand-spray equipment. The rate of application shall be 1/20 gallon per square yard. Emulsified asphalt shall not be applied when the atmospheric temperature is below 40°F. If emulsified asphalt Type SS-1 is used, it may be diluted with an equal part of water. The rate of application of the dilution shall be such that the rate of application of undiluted emulsion shall be within the tolerances specified.

3.05 PLACEMENT OF ASPHALT CONCRETE

A. Delivery and Spreading: Bituminous mixtures shall be delivered to the roadbed at temperatures specified in the Standard Specifications. Spreading of the mixture shall be in accordance with Section 39 of the Standard Specifications. Paragraph 39-8 does not apply. All loads shall be covered with tarpaulin or other material during transportation. The top layer of asphalt concrete shall not exceed 0.20 feet in compacted thickness. The next lower layer shall not exceed 0.25 feet in compacted thickness, and any lower layers shall not exceed 0.50 feet in compacted thickness.

B. Compaction: Initial or breakdown rolling and the final rolling of the uppermost layer of the asphalt concrete shall be compacted in accordance with Section 39 of the Standard Specifications. Paragraph 39-8 does not apply. Compaction by vehicular traffic shall not be permitted. The Engineer reserves the right to require an adjustment of the temperature of the asphalt concrete at the time of placement.

C. Pavement Thickness: Pavement shall match the existing adjoining pavement in thickness, or as indicated on the Drawings, or as specified, whichever is greater.

D. Joining Pavement: The joints between old and new pavements or between successive days' work shall be carefully made in such manner as to ensure a continuous bond between old and new sections of the course. Edges of existing pavement shall be exposed and cleaned and edges cut to straight, vertical surfaces. All joints shall be painted with a uniform coat of tack coat before the fresh mixture is applied.

E. Protection of Pavement: After final rolling, no vehicular traffic of any kind shall be permitted on the pavement until it has cooled and hardened and in no case less than 6 hours.

3.06 PAVEMENT RESTORATION

A. Final pavement restoration shall be made as soon as practicable after backfilling. In that period of time between backfilling and final pavement restoration, the trench shall be maintained level with the adjacent pavement and shall be covered with a 1-inch minimum layer of cutback. Prior to placing the final pavement, the temporary pavement shall be removed, the aggregate base excavated to the lines indicated on the Drawings, and the existing pavement edges saw cut as herein specified. The final asphalt pavement shall not be placed before the primed aggregate base surface is approved by the Engineer.

END OF SECTION

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SECTION 03050

GENERAL CONCRETE CONSTRUCTION

PART 1 - GENERAL

1.01 SUMMARY

This section includes materials, installation, and testing of formwork, reinforcing steel, joints, concrete, and finishing and curing for general concrete construction.

1.02 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Prepare concrete and mortar mix designs and laboratory 7-day and 28-day compressive tests, or submit test reports of 7- and 28-day compressive tests of the mix where the same mix has been used on two previous projects. Prepare mix designs in accordance with ACI 318, Chapters 4 and 5, except as modified herein. Submit mix design in writing for review by the Owner at least 15 days before placing of any concrete.

C. Submit a report from a testing laboratory verifying that aggregate material contains less than 1% asbestos by weight or volume and conforms to the specified gradations or characteristics.

D. Submit a report from testing laboratory verifying that aggregate is free from any substances that will react with the cement alkalies, as determined by Appendix X-1 of ASTM C33.

PART 2 - PRODUCTS

2.01 FORMWORK

A. Design forms according to ACE 347.

B. Use steel forms, ply form, or smooth-surface plywood ¾-inch minimum thickness for straight surfaces and ½-inch minimum thickness for curved surfaces.

2.02 REINFORCING STEEL

A. Reinforcement shall conform to ASTM A615 or A706, Grade 60.

B. Fabricate reinforcing in accordance with the current edition of the Manual of Standard Practice, published by the Concrete Reinforcing Steel Institute. Bend reinforcing steel cold.

C. Deliver reinforcing steel to the site bundled and with identifying tags.

2.03 TIE WIRE

A. Tie wire shall be 16 gauge minimum, black, soft annealed.

2.04 CEMENT

A. Use domestic portland cement that conforms to ASTM C150 Type II/V. Use Type III cement for high early strength concrete only for special locations and only when reviewed in advance by the Engineer. Use Type I cement for tremie concrete.

B. Use only one brand of cement in any individual structure. Use no cement that has become damaged, partially set, lumpy, or caked. Reject the entire contents of the sack or container that contains such cement. Use no salvaged or reclaimed cement.

C. Maximum tricalcium aluminate shall not exceed 8%. The maximum percent alkalies shall not exceed 0.6%.

2.05 AGGREGATES

A. Aggregates shall be natural rock, sand, or crushed natural rock; shall comply with ASTM C33; and shall contain less than 1% asbestos by weight or volume. Aggregates shall be free from any substances that will react with the cement alkalies, as determined by Appendix X-1 of ASTM C33.

2.06 WATER AND ICE

A. Use water and ice that is clean and free from objectionable quantities of organic matter, alkali, salts, and other impurities that might reduce the strength, durability, or otherwise adversely affect the quality of the concrete. Water shall not contain more than 500 mg/L of chlorides or more than 500 mg/L of sulfate.

2.07 CONCRETE ADMIXTURES

A. Class A concrete shall contain an air-entraining admixture conforming to ASTM C260. Admixtures shall be Master Builders MB-AE 90, Sika AER, or equal.

B. Class A concrete shall contain a water-reducing admixture conforming to ASTM C494, Type A or D. It shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Admixture shall be Master Builders Pozzolith polymer-type normal setting, Plastocrete 161 or Plastiment, Sika Chemical Corporation, or equal.

2.08 CONCRETE MIX DESIGN

A. Conform to ASTM C94, except as modified by these specifications.

B. Air content as determined by ASTM C231 shall be 4% ±1%.

C. Maximum water-cement ratio for Class A concrete = 0.45 by weight.

D. Use Class A concrete as described in the following table:
   1. 28-Day Compressive Strength (in psi)
      a. 4,000
   2. Minimum Cement Content (in lbs per C.Y.)
      a. 564

E. Measure slump in accordance with ASTM C143. Slump shall be as follows:
   1. 4 inches maximum

2. Proportion and produce the concrete to have a maximum slump as shown. A tolerance of up to 1 inch above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

F. Aggregate size shall be 1 inch maximum. Combined aggregate grading shall be 57 per ASTM C33.

G. Mix design for pumped concrete shall produce a plastic and workable mix. The percentage of sand in the mix shall be based on the void content of the coarse aggregate.

PART 3 - EXECUTION

3.01 FORM TOLERANCES

A. Failure of the forms to produce the specified concrete surface and surface tolerance shall be grounds for rejection of the concrete work. Rejected work shall be repaired or replaced at no additional cost to the Owner.

B. Maximum Tolerance: +¼ – ¼ in 10 feet.

C. Where equipment is to be installed, comply with manufacturer's tolerances if more restrictive than above.

3.02 FORM SURFACE PREPARATION

A. Clean form surfaces to be in contact with concrete of foreign material prior to installation.

B. Coat form surfaces in contact with concrete with a release agent prior to form installation.

3.03 FORM REUSE

A. Reuse only forms that provide a uniform surface texture on exposed concrete surfaces. Apply light sanding or other surface treatment between uses for uniform texture. Plug unused tie rod holes with corks, shave flush, and sand the concrete surface side. Do not patch forms other than filling tie rod holes, except in the case of Class II forms. Do not use metal patching discs on Class I forms.

3.04 REMOVAL OF FORMS

A. Forms and shoring for elevated structural slabs or beams shall remain in place until the concrete has reached a compressive strength equal to the specified 28-day compressive strength as determined by test cylinders. Do not remove supports and reshore. The minimum allowable time after the last cast concrete is placed before forms, shoring, or wall bracing may be removed is 24 hours.

B. Do not remove forms from concrete that has been placed with outside air temperature below 50°F without first determining if the concrete has properly set without regard for time. Do not apply heavy loading on green concrete. Immediately after forms are removed, the surface of the concrete shall be carefully

examined and any irregularities in the surface shall be repaired and finished as specified.

3.05 PLACING REINFORCEMENT

A. Place reinforcing steel in accordance with the current edition of Recommended Practice for Placing Reinforcing Bars, published by the Concrete Reinforcing Steel Institute.

B. Place reinforcing in accordance with the following, unless otherwise indicated:
   1. Reinforcement indicated in the drawings is continuous through the structure to the farthest extent possible. Terminate bars and hooks 2 inches clear from faces of concrete.
   2. Splices may be used to provide continuity due to bar length limitations. Minimum length of bars spliced for this reason is 30 feet. Splicing of reinforcement that is detailed to be continuous in the drawings is not permitted.

C. Reinforcing steel, before being positioned and just prior to placing concrete, shall be free from loose mill and rust scale and from any coatings that may destroy or reduce the bond. Clean reinforcing steel by sandblasting or wire brushing and remove mortar, oil, or dirt to remove materials that may reduce the bond.

D. Do not straighten or rebend reinforcing steel in the field unless indicated in the drawings. Do not use reinforcing with bends not shown in the drawings.

E. Position reinforcing steel in accordance with the drawings and secure by using annealed wire ties or clips at intersections and support by concrete or metal supports, spacers, or metal hangers. Do not place metal clips or supports in contact with the forms. Bend tie wires away from the forms to provide the specified concrete coverage. Bars, in addition to those shown in the drawings, which may be found necessary or desirable by the Contractor for the purpose of securing reinforcement in position shall be provided by the Contractor at his own expense.

F. Place reinforcement a minimum of 2 inches clear of any metal pipe or fittings.

G. Secure reinforcing dowels in place prior to placing concrete. Do not press dowels into the concrete after the concrete has been placed.

H. Roll wire mesh used for reinforcement flat before placing concrete. Support and tie wire mesh to prevent movement during concrete placement.

I. Position dowels for masonry walls to occur at reinforced block cells.

3.06 SITE-MIXED CONCRETE

Conform to ACI 304.

3.07 READY-MIXED CONCRETE

Conform to ASTM C94.

3.08 PLACING CONCRETE

Conform to ACI 304.

3.09 PUMPING CONCRETE

Conform to ACI 304.2R-91.

3.10 WEATHER REQUIREMENTS

Conform to ACI 305 for placing during hot weather.

Conform to ACI 306 for placing during cold weather.

3.11 PLACING SLURRY CEMENT BACKFILL

A. Place slurry cement backfill in a uniform manner that will prevent voids in, or segregation of, the backfill. Remove foreign material that falls into the excavation or trench. Do not commence backfilling over or place any material over the slurry cement backfill until at least four hours after placing the slurry cement backfill, except that when concrete sand is used for the aggregate and the in-place material is free draining, backfilling may commence as soon as the surface water is gone.

3.12 CURING CONCRETE

A. Conform to ACI 308.

B. Water cure with burlap mats unless optional curing methods are permitted.

C. Do not use curing compound on surfaces that are to be coated with clear floor hardener in accordance with Section 099000.

D. It is the responsibility of the Contractor to select the appropriate curing method in response to climatical and/or site conditions occurring at the time of concrete placement. Take appropriate measures as described in ACI 305 and 306 for protecting and curing concrete during hot and cold weather.

3.13 REPAIR OF DEFECTS AND CRACKS

A. Do not repair defects until concrete has been evaluated by the Owner's Representative.

B. Surface Defects:
   1. Repair surface defects that are smaller than 1 foot across in any direction and are less than 1/2 inch in depth.
   2. Repair by removing the honeycombed and other defective concrete down to sound concrete, cut or grind edges perpendicular to the surface and at least 3/8 inch deep, abrasive clean and thoroughly dampen the surface, work into the surface an epoxy bonding agent, and fill the hole with one part cement to one part fine sand. Match the finish on the adjacent concrete, and cure as specified.

C. Severe Defects:
   1. Repair severe defects that are larger than surface defects but do not appear to affect the structural integrity of the structure.
   2. Repair by removing the honeycombed and other defective concrete down to sound concrete, make edges of the repair area perpendicular to the surface, as required above, sandblast the sound concrete surface, coat the exposed surfaces with epoxy bonding compound, place nonshrink grout, match the finish on the adjacent concrete, and cure as specified.

D. Repair minor cracks in concrete structures that are wider than 1/10 inch by cutting out a square edged and uniformly aligned joint 3/8 inch wide by 3/4 inch deep, preparing exposed surfaces of the joint, priming the joint, and applying polyurethane joint sealant.

E. If the cracks are major or affect the hydraulic capacity or function of the element, the Owner's Representative may require the concrete to be repaired by epoxy injection.

F. Major Defects and Cracks: If the defects affect the structural integrity of the structure or if patching does not satisfactorily restore quality and appearance to the surface, the Owner’s Representative may require the concrete to be removed and replaced, complete.

END OF SECTION

SECTION 09972

COLD-APPLIED WAX TAPE COATING

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes materials and application of a three-part, cold-applied wax tape coating system for buried piping and valves per NACE RP0375-2018 except as modified herein.

1.02 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Submit manufacturer’s catalog data sheets and application instructions.

1.03 RELATED SECTIONS

A. Section 09974 – Polyethylene Sheet Encasement

PART 2 - PRODUCTS

2.01 PRIMER

A. Primer shall be a blend of petrolatums, plasticizers, and corrosion inhibitors having a paste-like consistency. The primer shall comply with NACE RP0375-2018 and shall have the following properties:
   1. Pour Point: 100°F to 110°F.
   2. Flash Point: 350°F.
   3. Coverage: 1 gallon per 100 square feet.

B. Primer shall be Trenton Wax Tape Primer, Denso Paste Primer, or equal.

2.02 WAX TAPE

A. Wax tape shall consist of a synthetic-fiber felt, saturated with a blend of microcrystalline wax, petrolatums, plasticizers, and corrosion inhibitors, forming a tape coating that is easily formable over irregular surfaces. The tape shall comply with NACE RP0375-2018 and shall have the following properties:
   1. Saturant Pour Point: 115°F to 120°F.
   2. Thickness: 50 to 70 mils.
   3. Tape Width: 6 inches.

B. Wax tapes used for pipe soil-to-air transitions shall be UV light stable so as not to degrade in the presence of sunlight.

C. Wax tape shall be Trenton No. 1 Wax Tape, Denso "Densyl Tape," or equal.

2.03 PLASTIC WRAPPER

A. Wrapper shall be a polyvinylidene chloride plastic with three 50-gauge plies wound together as a single sheet. The wrapper shall have the following properties:
   1. Color: Clear.
   2. Thickness: 1.5 mils.
   3. Tape Width: 6 inches.

B. Plastic wrapper shall be Trenton Poly-Ply, Denso Tape PVC Self-Adhesive, or equal.

PART 3 - EXECUTION

3.01 WAX TAPE COATING APPLICATION

A. Surfaces shall be clean and free of dirt, grease, water, and other foreign material prior to the application of the primer and wax tape.

B. Apply primer by hand or brush to fitting surfaces. Work the primer into crevices and completely cover exposed metal surfaces.

C. Apply the wax tape immediately after the primer application. Work the tape into the crevices around fittings. Apply the wax tape by pressing and molding the tape into conformity with the surface so that it does not bridge over irregular surfaces configurations. Begin wrapping approximately 3 inches behind the area to be wrapped. If starting at a straight edge, wrap the tape spirally around the pipe while touching the end edge before starting the angle to begin the spiral. If the previous roll is headed in a downward direction, tuck the next roll under the previous roll. Stretch each roll tight as wrapping continues to avoid air bubbles.

D. Wrap the wax tape spirally around the pipe and across the fitting and valves. Use a minimum overlap of 50% of the tape width. Apply tape to flanges, mechanical and restrained joint bolts, nuts and glands, and grooved-end couplings to 6 inches beyond each side of the item.

E. Work the tape into the crevices and contours of irregularly shaped surfaces and smooth out so that there is a continuous protective layer with no voids or spaces under the tape.

F. After application, seal the overlap seams of the tape by hand by tapering and pressing the seam, attempting to create a continuous surface. There shall be no air pockets underneath the tape. The tape shall have direct intimate contact with the pipe surface.

G. On vertical sections of the piping, such as at pipe-to-soil transitions, wrap the pipe starting from the bottom and proceeding upward so that downward flowing water and backfill do not catch in a seam.

H. Overwrap the completed wax tape installation with the plastic wrapping material. Wrap spirally around the pipe and across the fitting. Use a minimum overlap of 55% of the tape width and apply two layers or applications of overwrap. Secure plastic wrapper to pipe and valves with adhesive tape.

3.02 APPLICATION OF POLYETHYLENE SHEET COATING TO BURIED PIPING AND VALVES

A. Wrap completed wax tape coating system with polyethylene film per Section 09974 and secure around the adjacent pipe circumference with adhesive tape and fully around valves.

3.03 HANDLING AND INSTALLING WAX-TAPE COATED PIPE AND VALVES

A. Handle pipe and valves in a manner to minimize damage to the coating. Equipment used for the handling of coated pipe shall be designed and constructed to avoid damaging the protective coating system. Inspect supported areas of the pipe prior to installation. Repair damaged areas before installation.

B. The pipeline trench shall be free of rocks, foreign matter, and projections that could damage the coating system.

END OF SECTION

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SECTION 09974

POLYETHYLENE SHEET ENCASEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes materials and installation of a polyethylene sheet encasement for buried steel pipe, fittings, and valves.

1.02 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Submit manufacturer’s catalog literature and product data sheets describing the physical, chemical, and electrical properties of the encasement material.

PART 2 - PRODUCTS

2.01 POLYETHYLENE WRAP

A. The encasement shall consist of low-density polyethylene wrap of at least 8-mil thickness conforming to AWWA C105. Color: Blue.

B. Polyethylene encasement for ductile-iron pipe shall be supplied as a flat tube meeting the dimensions of Table 1 in AWWA C105 and shall be supplied by the ductile-iron pipe manufacturer.

2.02 PLASTIC ADHESIVE TAPE

A. Tape shall consist of polyolefin backing and adhesive which bonds to common pipeline coatings including polyethylene.

B. Minimum Width: 2 inches.

C. Products: Canusa Wrapid Tape; Tapecoat 35; Polyken 934; AA Thread Seal Tape, Inc.; or equal.

PART 3 - EXECUTION

3.01 APPLICATION OF MOLDABLE MASTIC FILLER TO IRREGULAR ADJACENT SURFACES

A. When the adjacent joints are bell-and-spigot or mechanical joints and any associated welding specifications do not require an external full fillet weld, apply a moldable mastic filler (per Section 40052) at the step-down area prior to the application of the sheet encasement and tape.

3.02 APPLYING SHEET COATING TO BURIED PIPING AND FITTINGS

A. Apply wrapping per AWWA C105 as modified herein.

B. Apply a double wrapping.

C. Install the polyethylene to completely encase the pipe and fittings to provide a watertight corrosion barrier. Continuously secure overlaps and ends of sheet and tube with polyethylene tape. Make circumferential seams with two complete wraps, with no exposed edges. Tape longitudinal seams and longitudinal overlaps, extending tape beyond and beneath circumferential seams.

D. Wrap bell-spigot interfaces, restrained joint components, and other irregular surfaces with wax tape or moldable sealant prior to placing polyethylene encasement.

E. Minimize voids beneath polyethylene. Place circumferential or spiral wraps of polyethylene tape at 2-foot intervals along the barrel of the pipe to minimize the space between the pipe and the polyethylene.

F. Overlap adjoining polyethylene tube coatings a minimum of 1 foot and wrap prior to placing concrete anchors, collars, supports, or thrust blocks. Hand wrap the polyethylene sheet, apply two complete wraps with no exposed edges to provide a watertight corrosion barrier, and secure in place with 2-inch-wide plastic adhesive tape.

3.03 APPLYING SHEET COATING TO BURIED VALVES

A. Wrap flanges and other irregular surfaces with wax tape. Press tightly into place leaving no voids underneath and a smooth surface under coating for polyethylene sheet.

B. Wrap with a flat sheet of polyethylene. Place the sheet under the valve and the flanges or joints with the connecting pipe and fold in half. Extend the sheet to the valve stem and secure the sheet in place with 2-inch-wide plastic adhesive tape. Apply a second layer and secure with tape. Make two complete wraps, with no exposed edges, to provide a watertight corrosion barrier. Secure the sheets with tape around the valve stem below the operating nut and around the barrel of the connecting pipe to prevent the entrance of water and soil. Place concrete anchor and support blocks after the wrap has been installed.

3.04 APPLYING SHEET COATING TO BURIED FLEXIBLE PIPE COUPLINGS

A. Wrap irregular surfaces with wax tape. Press tightly into place leaving no voids underneath and a smooth surface under coating for polyethylene sheet.

B. Apply two layers or wraps around the coupling. Overlap the adjoining pipe or fitting a minimum of 1 foot and secure in place with tape. Provide sufficient slack in polyethylene to allow backfill to be placed around fitting without tearing polyethylene. Apply tape around the entire circumference of the overlapped section on the adjoining pipe or fitting in two complete wraps, with no exposed edges, to provide a watertight corrosion barrier.

3.05 REPAIR OF POLYETHYLENE MATERIAL

A. Repair polyethylene material that is damaged during installation. Use polyethylene sheet, place over damaged or torn area, and secure in place with 2-inch-wide plastic adhesive tape.

3.06 BACKFILL FOR POLYETHYLENE-WRAPPED PIPE, VALVES, AND FITTINGS

A. Place sand backfill within 1 foot of the pipe, valves, and fittings wrapped with polyethylene encasement.

3.07 REPAIR OF POLYETHYLENE AT SERVICE TAPS

A. Wrap two or three layers of polyethylene adhesive tape completely around the pipe to cover the area where the tapping machine and chain will be mounted.

B. Mount the tapping machine on the pipe area covered by the polyethylene tape. Then make the tap and install the corporation stop directly through the tape and polyethylene.

C. After making the direct service connection, inspect the entire circumferential area for damage and make repairs.

D. To minimize the possibility of dissimilar metal corrosion at service connections, wrap the corporation stop a minimum clear distance of 3 feet of copper service pipes with polyethylene or dielectric tape.

END OF SECTION

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SECTION 40052

MANUAL, CHECK, AND PROCESS VALVES

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes materials, testing, and installation of manually operated valves, check valves, and process valves including gate, butterfly, ball, and check valves.

1.02 SUBMITTALS

A. Submit shop drawings in accordance with the General Provisions and Section 01300.

B. Submit manufacturer's catalog data and detail construction sheets showing all valve parts. Describe each part by material of construction, specification (such as AISI, ASTM, SAE, or CDA), and grade or type. Identify each valve by tag number to which the catalog data and detail sheets pertain.

C. Show valve dimensions including laying lengths. Show port sizes. Show dimensions and orientation of valve actuators, as installed on the valves. Show location of internal stops for gear actuators. State differential pressure and fluid velocity used to size actuators. For worm-gear actuators, state the radius of the gear sector in contact with the worm and state the handwheel diameter.

D. Submit a report verifying that the valve interior linings and exterior coatings have been tested for holidays and lining thickness. Describe test results and repair procedures for each valve. Do not ship valves to project site until the reports have been returned by the Engineer and marked "Resubmittal not required."

PART 2 - PRODUCTS

2.01 GENERAL

A. Valves are identified in the drawings by size and type.

B. Install valves complete with operating handwheels or levers, chainwheels, extension stems, floor stands, gear actuators, operating nuts, chains, and wrenches required for operation.

2.02 VALVE ACTUATORS

A. Provide lever or wrench actuators for exposed valves 8 inches and smaller.

B. Provide 2-inch AWWA operating nuts for buried and submerged valves.

C. Provide grease case. Gearing shall comply with AWWA C500.

D. Gear actuators shall be enclosed, oil lubricated, with seals provided on shafts to prevent entry of dirt and water into the actuator. Gear actuators for valves located

above ground or in vaults and structures shall have handwheels. The actuators for valves in exposed service shall contain a dial indicating the position of the valve disc or plug. Gear actuators for buried or submerged valves shall have 2-inch-square AWWA operating nuts.

E. For buried or submerged service, provide watertight shaft seals and watertight valve and actuator cover gaskets. Provide totally enclosed actuators designed for buried or submerged service.

F. Traveling nut and worm and gear actuators shall be of the totally enclosed design so proportioned as to permit operation of the valve under full differential pressure rating of the valve with a maximum pull of 80 pounds on the handwheel or crank. Provide stop limiting devices in the actuators in the open and closed positions. Actuators shall be of the self-locking type to prevent the disc or plug from creeping. Design actuator components between the input and the stop-limiting devices to withstand without damage a pull of 200 pounds for handwheel or chainwheel actuators and an input torque of 300 foot-pounds for operating nuts when operating against the stops.

G. Handwheel diameters for traveling nut actuators shall not exceed 8 inches for valves 12 inches and smaller and shall not exceed 12 inches for valves 20 inches and smaller.

H. Self-locking worm gear shall be a one-piece design of gear bronze material (ASTM B427; or ASTM B84, Alloy C86200), accurately machine cut. Actuators for eccentric and lubricated plug valves may use ductile-iron gears provided the gearing is totally enclosed with spring-loaded rubber lip seals on the shafts. The worm shall be hardened alloy steel (ASTM A322, Grade G41500 or G41400; or ASTM A148, Grade 105-85), with thread ground and polished. Support worm-gear shaft at each end by ball or tapered roller bearings. The reduction gearing shall run in a proper lubricant. The handwheel diameter shall be no more than twice the radius of the gear sector in contact with the worm. Worm-gear actuators shall be Limitorque Model HBC, EIM Series W, or equal.

I. Design actuators on buried valves to produce the required torque on the operating nut with a maximum input of 150 foot-pounds.

J. Valve actuators, handwheels, or levers shall open by turning counterclockwise.

2.03 EXTENSION STEMS FOR BURIED AND SUBMERGED VALVE ACTUATORS

A. Where the depth of the valve is such that its centerline is more than 4 feet below grade, provide operating extension stems to bring the operating nut to a point 6 inches below the surface of the ground and/or box cover. Where the valve is submerged, provide operating extension stems to bring the operating nut to 6 inches above the water surface. Extension stems shall be Type 316 stainless steel, solid core, and shall be complete with 2-inch-square operating nut. The connections of the extension stems to the operating nuts and to the valves shall withstand without damage a pull of 300 foot-pounds.

B. Extension stem diameters shall be as tabulated below:

Valve Size (inches)	Minimum Extension Stem Diameter (inches)
2	3/4
3, 4	7/8
6	1
8	1 1/8
10, 12	1 1/4
14	1 3/8
16, 18	1 1/2
20, 24, 30, 36	1 3/4
42, 48, 54	2

2.04 BOLTS AND NUTS FOR FLANGED VALVES

A. Bolts and nuts for Class 125 or 150 flanges (including AWWA C207, Class D) located indoors, outdoors above ground, shall be carbon steel, ASTM A307, Grade B, hot-dipped galvanized per ASTM F2329.

B. Bolts and nuts for buried, submerged, or in vaults Class 125 or 150 flanges shall be Type 316 stainless steel conforming to ASTM A193, Grade B8M for bolts and ASTM A194, Grade 8M for nuts.

C. Fit shall be Classes 2A and 2B per ASME B1.1 when connecting to cast-iron valves having body bolt holes.

D. Bolts used in flange insulation kits shall conform to ASTM A193 (Grade B7). Nuts shall conform to ASTM A194 (Grade 2H).

E. Provide washers for each nut. Washers shall be of the same material as the nuts.

F. Lubricant shall be chloride free and shall be RAMCO TG-50, Anti-Seize by RAMCO, Specialty Lubricants Corporation Husky Lube O'Seal, or equal.

2.05 GASKETS FOR FLANGES

A. Gaskets for flanged end valves shall be as described in Section 02510.

2.06 PACKING, O-RINGS, AND GASKETS

Unless otherwise stated in the detailed valve specifications, packing, O-rings, and gaskets shall be one of the following non-asbestos materials:

A. EPDM.

2.07 RUBBER SEATS

A. Rubber seats shall be made of a rubber compound that is resistant to free chlorine and monochloramine concentrations up to 10 mg/L in the fluid conveyed.

2.08 VALVES

A. Valves shall be as described in Section 02510.

PART 3 - EXECUTION

3.01 JOINTS

A. Bolt holes of flanged valves shall straddle the horizontal and vertical centerlines of the pipe run to which the valves are attached. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. If flanges leak, loosen or remove the nuts and bolts, reseat or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.

B. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.

3.02 INSTALLING EXPOSED VALVES

A. Unless otherwise indicated in the drawings, install valves in horizontal runs of pipe having centerline elevations 4 feet 6 inches or less above the floor with their operating stems vertical. Install valves in horizontal runs of pipe having centerline elevations between 4 feet 6 inches and 6 feet 9 inches above the floor with their operating stems horizontal.

B. Install valves on vertical runs of pipe that are next to walls with their stems horizontal, away from the wall. Valves on vertical runs of pipe that are not located next to walls shall be installed with their stems horizontal, oriented to facilitate valve operation.

3.03 INSTALLING BURIED VALVES

A. Connect the valve, coat the flanges, apply tape wrapping or polyethylene encasement, and place and compact the backfill to the height of the valve stem.

B. Place block pads under the extension pipe to maintain the valve box vertical during backfilling and repaving and to prevent the extension pipe from contacting the valve bonnet.

C. Mount the upper slip pipe of the extension in midposition and secure with backfill around the extension pipe. Pour the concrete ring allowing a depression so the valve box cap will be flush with the pavement surface.

D. In streets without concrete curbs and in open areas, install the valve box as for a paved area with concrete curb except include a marker post. Cut the marker post from 4-inch by 4-inch dense structural grade Douglas fir No. 2 or Southern Pine No. 2 surfaced on four sides to a length of 5 feet. Chamfer the top. Set the post in concrete, 2 feet into the ground, away from traffic, and to the side of the pipeline. Coat with a seal and finish coat of white alkyd exterior paint. On the side facing the valve, letter in black the word "VALVE" and the distance in feet from the marker post to the valve box cap.

3.04 FIELD COATING BURIED VALVES

A. Coat flanges of buried valves and the flanges of the adjacent piping, and the bolts and nuts of flanges and mechanical joints System No. 24.

B. Wrap buried metal valves 6 inches and larger with polyethylene sheet in two layers of polyethylene conforming to AWWA C105, 8 mils in thickness each. Pass the two sheets of polyethylene under the valve and the coated flanges or joints with the connecting pipe and draw the sheets around the valve body, the valve bonnet, and the connecting pipe. Secure the sheets with plastic adhesive tape about the valve stem below the operating nut and about the barrel of the connecting pipe to prevent the entrance of soil. Fold overlaps twice and tape. Backfill the valve with care to avoid damaging the polyethylene.

3.05 VALVE LEAKAGE

A. Valves shall show zero leakage. Repair or replace any leaking valves and retest.

3.06 VALVE FIELD TESTING

A. Operate manual valves through three full cycles of opening and closing. Valves shall operate from full open to full close without sticking or binding. Do not backfill buried valves until after verifying that valves operate from full open to full closed. If valves stick or bind, or do not operate from full open to full closed, repair or replace the valve and repeat the tests.

END OF SECTION

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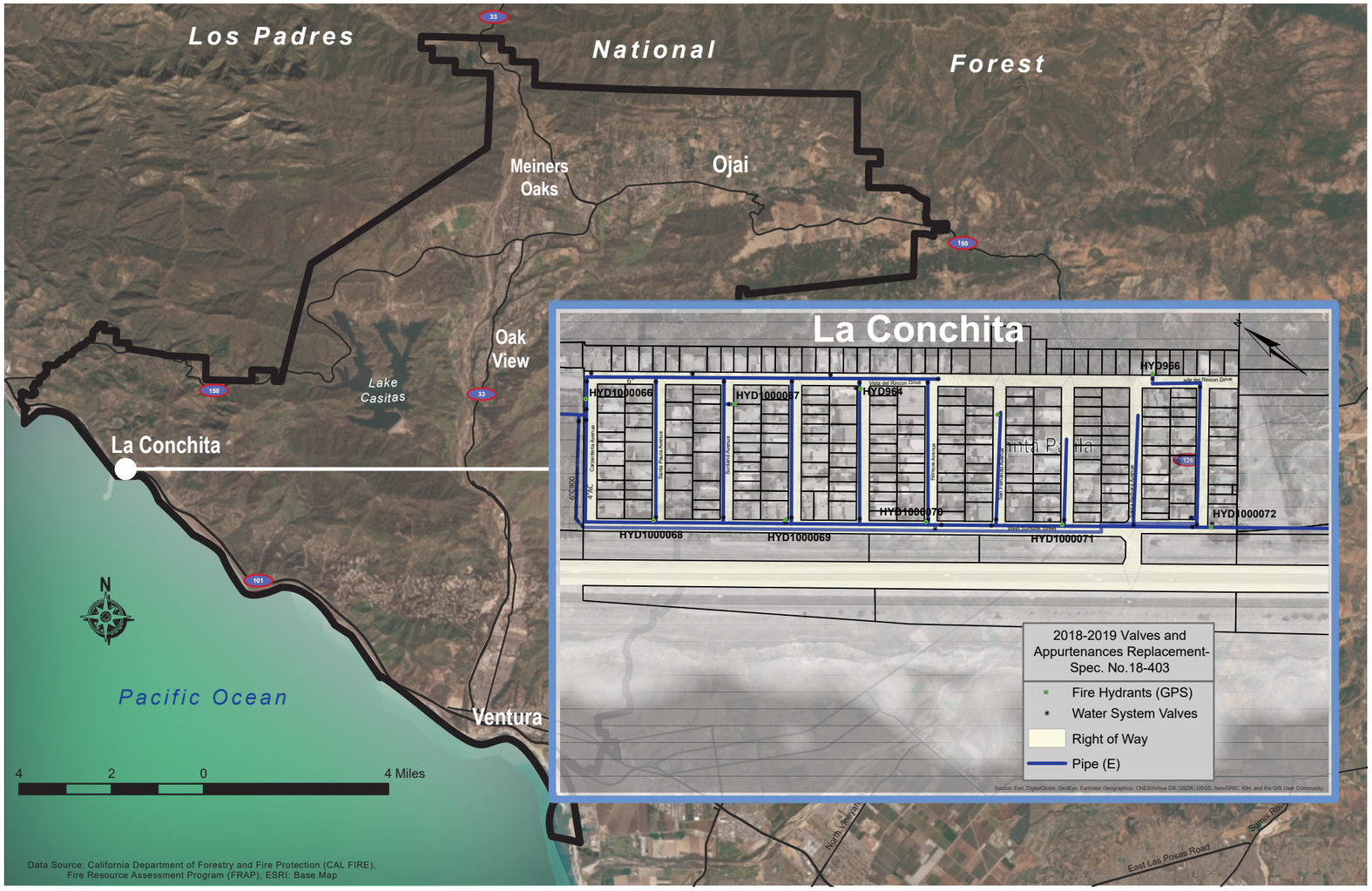
CASITAS Municipal Water District

CONSTRUCTION PLANS FOR

LA CONCHITA VALVES AND APPURTENANCES REPLACEMENT

August 2018

Sheet #	Title	Drawing
1.	Cover Sheet	Cover
2.	Existing Facilities Map	Exhibit A
3.	Valves and Appurtenances Location Map	Exhibit B
4.	Trench Bedding and Backfill in Existing Pavement	Plate E-10(a-b)
5.	Raising Existing Utility Cover	Plate E-4(a)
6.	Typical Thrust Block and Typical End Detail	SD-2
7.	Typical Mainline Valve and Anchor	SD-3
8.	Typical Fire Hydrant Wet Barrel Type - Modified	SD-9
9.	Typical Meter Service Plan and Profile	SD-11
10.	Typical Meter Service Copper Pipe Material List	SD-12
11.	Typical Guard Post - Modified	SD-13



811 Know what's below. Call before you dig.

Specification Number
18-403

Casitas Municipal Water District

1055 N Ventura Ave
Ventura CA 93022
(805) 649-2251
www.casitaswater.org

Sheet Number
SH-01

Designed: Virgil Clary
Drawn: Gustavo Mitro
Approved: julia aranda

La Conchita

Ranch Road

Ocean View Road

6"

Vista del Rincon Drive

Vista del Rincon Drive

Vista del Rincon Drive

HYD1000066

HYD1000067

HYD964

HYD966

6"C900

4"AC

Carpenteria Avenue

Santa Paula Avenue

Sunland Avenue

Oxnard Avenue

Bakersfield Avenue

Fillmore Avenue

San Fernando Avenue

Zelzah Avenue

Santa Barbara Avenue

Ojai Avenue

HYD1000070

HYD1000072

West Surfside Street

HYD1000068

HYD1000069

HYD1000071

PCH

N

2018-2019 Valves and Appurtenances Replacement Specification No.18-403

Water Hydrants (GPS)

Water System Valves

Right of Way

Pipe

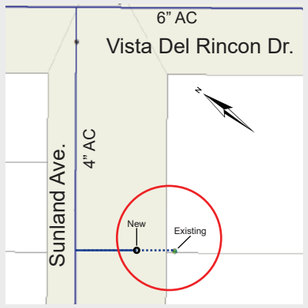
NO SCALE

SH-02

Exhibit A

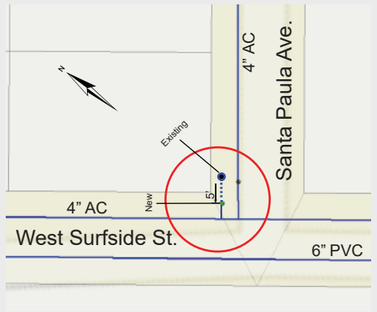
CASITAS Municipal Water District

HYD1000067



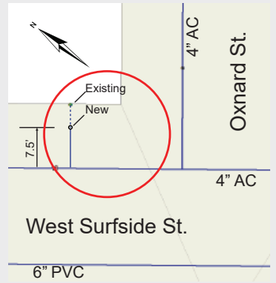
Remove, Replace and Relocate Hydrant

HYD1000068



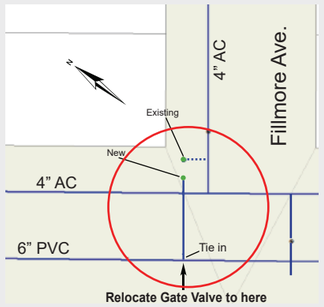
Remove, Replace and Relocate Hydrant

HYD1000069



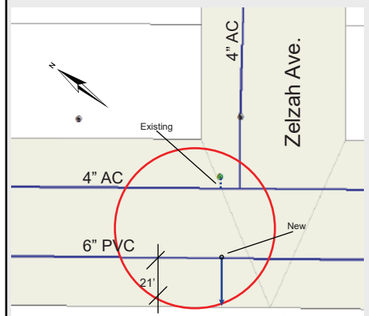
Remove, Replace and Relocate Hydrant

HYD1000070



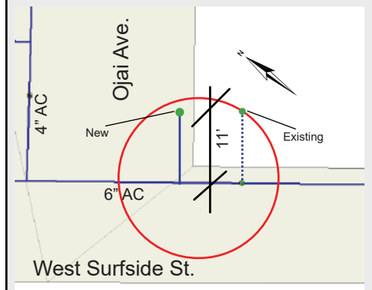
Remove, Replace and Relocate Hydrant

HYD1000071



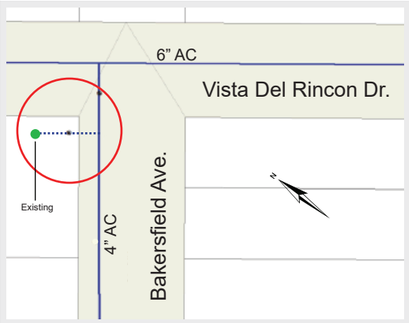
Remove, Replace and Relocate Hydrant

HYD1000072



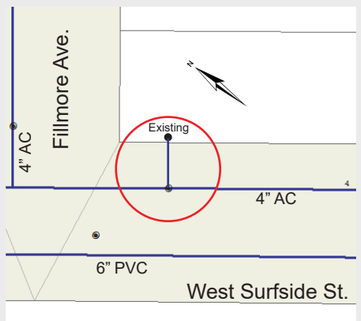
Remove, Replace and Relocate Hydrant

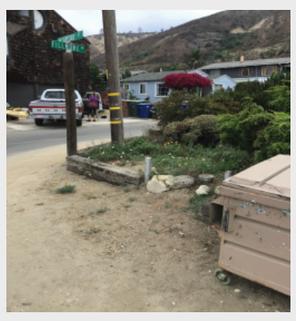
HYD964



Remove and Replace (Raise)

ARV 1/2"





Remove and Replace Box and Ball Valve

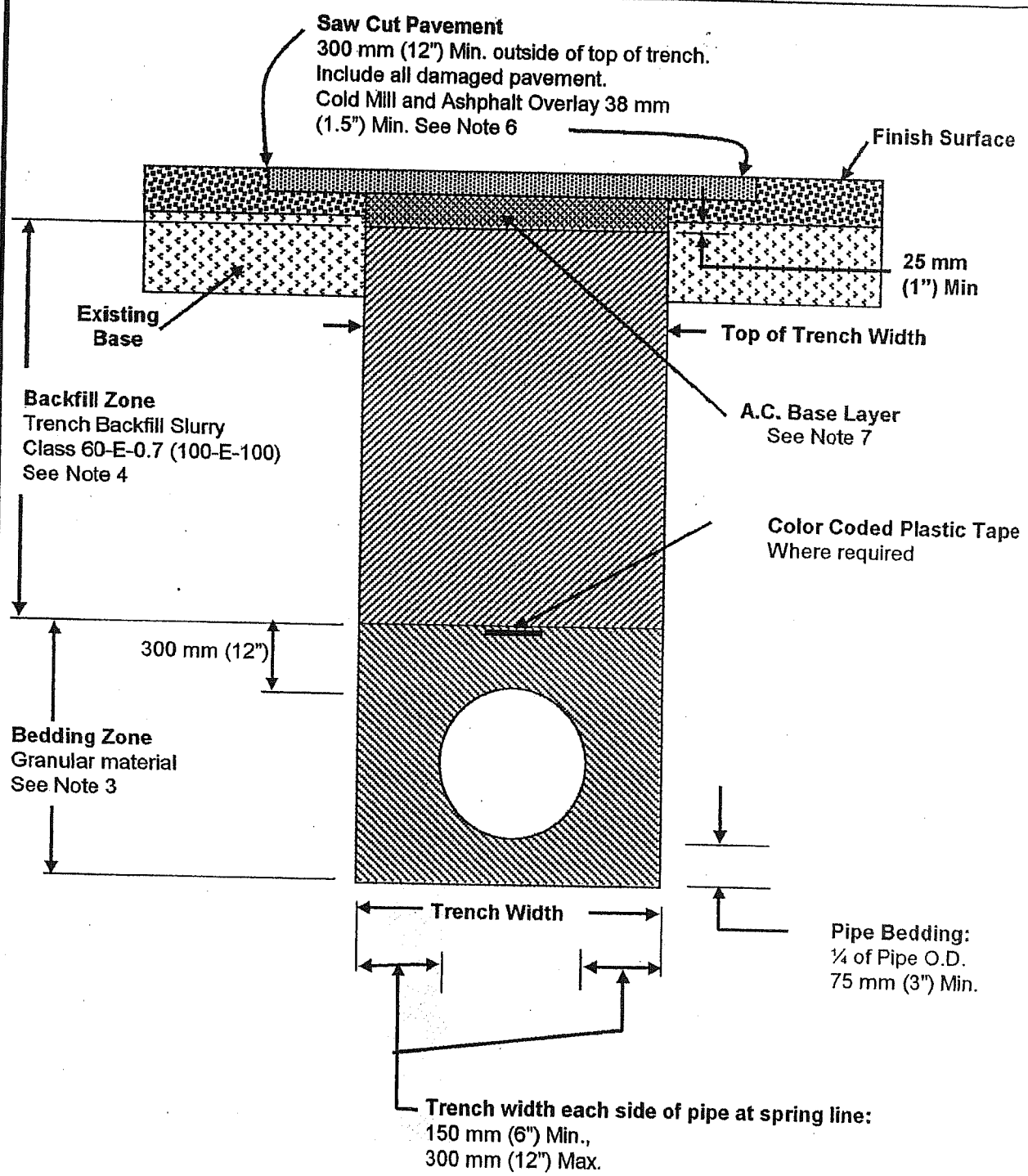
SH-03

Exhibit B

CASITAS Municipal Water District

NO SCALE

SI & (US) UNITS	REVISION: A	PLATE E-10a



ADOPTED BY BOARD OF SUPERVISORS: 06/21/05

APPROVED: Ronald L. Coons
DIRECTOR OF PUBLIC WORKS

RECOMMENDED: Allen T. Pringle
RCE 50408
EXPIRES 06-30-05

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
ROAD STANDARDS

TRENCH BEDDING AND BACKFILL IN EXISTING PAVEMENT

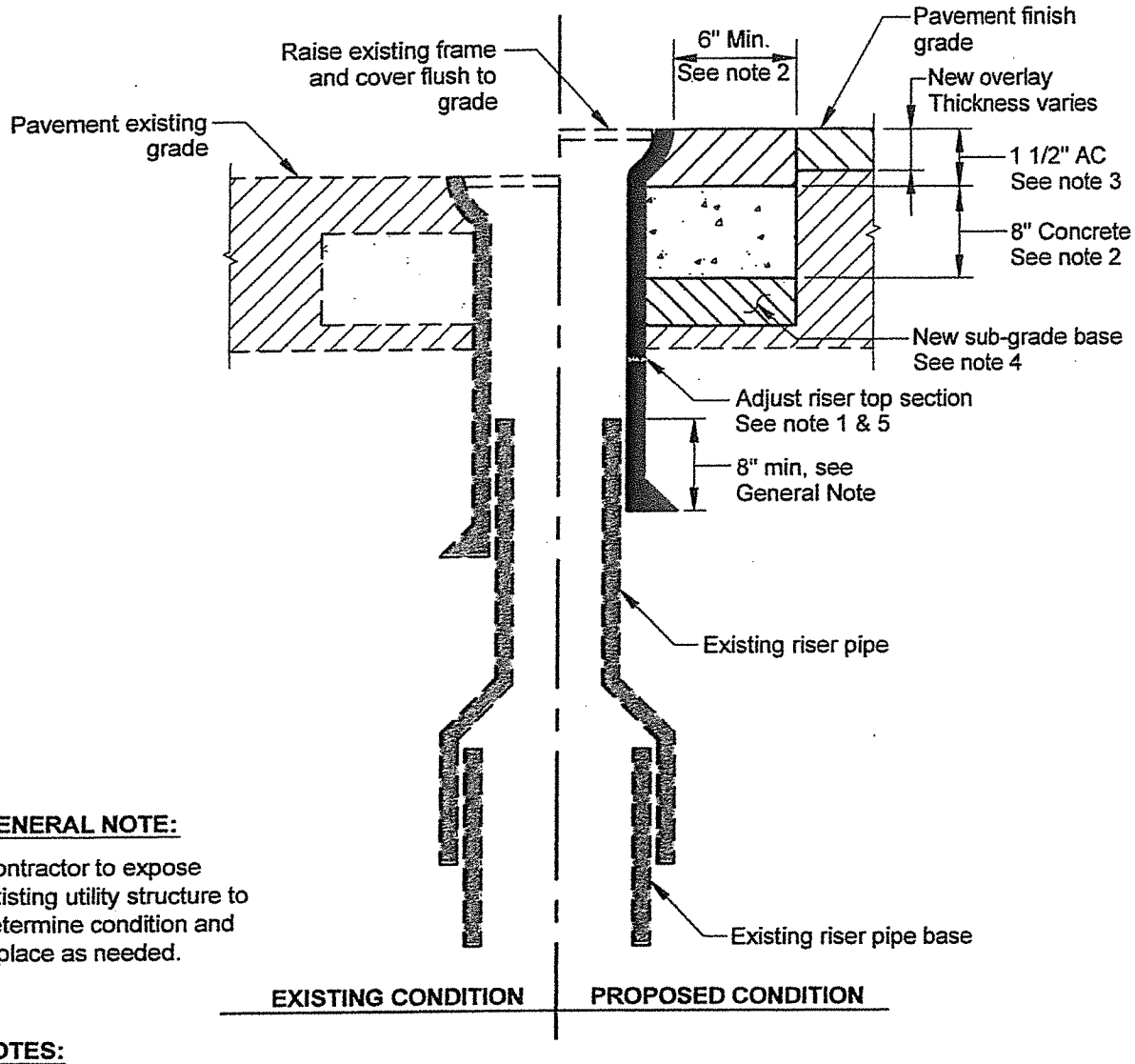
SI & (US) UNITS	REVISION: A	PLATE E-10b

NOTES:

1. Construction shall conform to Standard Land Development Specifications (SLDS) except as noted.
2. Trench width shall be as shown unless otherwise shown on the approved plans.
3. Bedding material shall be granular with 100% passing 19 mm (¾") sieve, 90 to 100% passing the 9.5 mm (3/8") sieve and not more than 4% passing 75 □m (No. 200 sieve).
4. Backfill between the bedding zone and subgrade shall be Trench Backfill Slurry Class 60-E-0.7 (100-E-100). The Director of Public Works may approve the substitution of one of the following:
   a. Controlled Low Strength Material (SLDS 201-6), provided that laboratory control is provided to insure compliance with the specifications.
   b. Non-cementitious backfill, provided that the backfill is tested and certified to meet the approved specifications for the material by an independent testing laboratory (SLDS 306-1.3). A Quality Control Plan shall be submitted for approval.
5. Compaction shall not use flooding, ponding or jetting unless directed by Soils Engr.
6. A.C. Overlay shall be Class III-C2-AR-4000 or III-C2-AR-8000, 38 mm (1.5") min.
7. AC Base Layer
   a. Where existing pavement surface is AC the AC Base Layer thickness shall be equal to or greater than the existing AC thickness plus 25 mm (1") with a minimum of 75 mm (3") and a maximum of 200 mm (8"). For roads where Traffic Index is 7.0 or greater (Plates B-2, B-3 & B-7a), the AC Base layer thickness shall be 100 mm (4") min.
   b. Where existing pavement surface is PCC pavement, saw cut 50 mm (2") into the existing pavement at the outer edge of the trench and break the remaining thickness. Replace the PCC and base to the same depth as the existing pavement. The PCC shall be 330-AS-23 (560-A-3250).

ADOPTED BY BOARD OF SUPERVISORS: 06/21/05 APPROVED: Ronald P. Coons DIRECTOR OF PUBLIC WORKS RECOMMENDED: Alex T. Pringle RCE 50408 EXPIRES 06-30-05	COUNTY OF VENTURA PUBLIC WORKS AGENCY ROAD STANDARDS TRENCH BEDDING AND BACKFILL IN EXISTING PAVEMENT

US UNITS	REVISION: O	PLATE E-4a



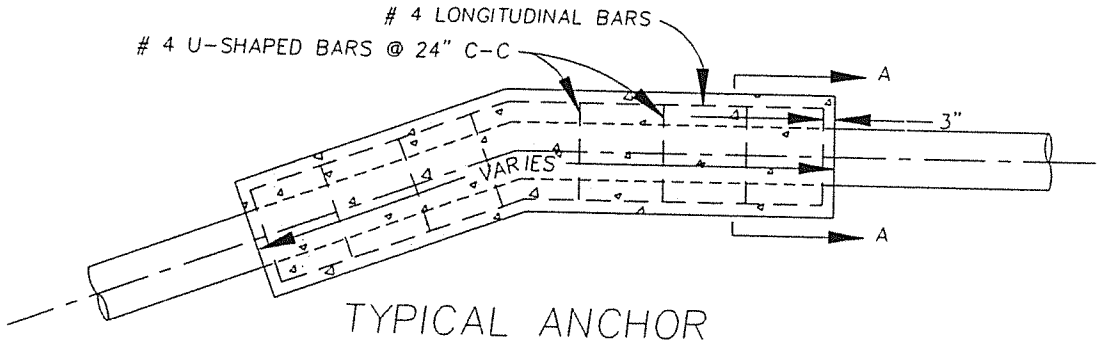
GENERAL NOTE:

Contractor to expose existing utility structure to determine condition and replace as needed.

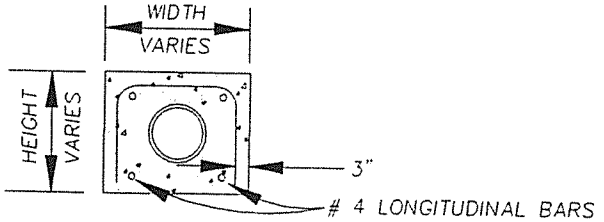
NOTES:

1. All necessary portions of the subgrade base and pavement shall be neatly removed. Utility cover shall be raised and the utility riser top sections set to be backfilled to within 1 1/2 inch of the final grade with portland cement concrete. The remaining 1 1/2 inch shall be backfilled with an asphalt concrete wearing surface mixture to match the project surface course. The material shall be placed and compacted in a workmanlike manner to conform to the appearance of the surrounding pavement.
2. Install concrete collar around utility structure, concrete shall be Class 560-C-3250 with maximum 3 inch slump.
3. Asphalt concrete shall be C2-PG 64-10, placed in accordance with Section 302-5.8 of the SSPWC.
4. Backfill compaction shall be a minimum of 95% prior to placing concrete collar.
5. Existing utility installations that do not meet standards must be constructed in compliance with current standard.

ADOPTED BY BOARD OF SUPERVISORS:	**COUNTY OF VENTURA PUBLIC WORKS AGENCY**
APPROVED: ROAD COMMISSIONER	**ROAD STANDARDS**
RECOMMENDED: RCE 79324	RAISE EXISTING UTILITY COVER



TYPICAL ANCHOR



SECTION A-A

PIPE HAVING MAXIMUM WATER PRESSURE OF 150 P.S.I.

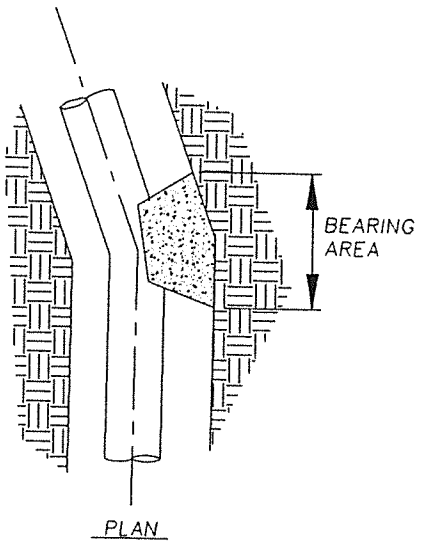
THRUST BLOCK SCHEDULE						
PIPE DIAM.	BEARING AREA IN SQ. FT.					
	BENDS					TEES & DEAD ENDS
	22-1/2°	30°	45°	60°	90°	
6"	4	4	4	6	6	6
8"	4	6	6	9	12	9
10"	4	6	8	12	18	12

12" → 16 sq ft (4'x4')

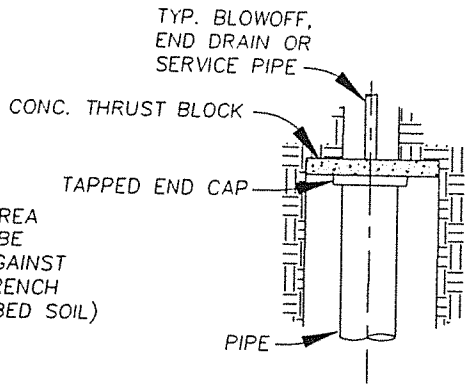
NOTE: MINIMUM BEARING AREA TO BE 4.0 SQ. FT., BEARING AREA SHALL BE APPROXIMATE SHAPE OF A SQUARE.

PIPE HAVING MAXIMUM WATER PRESSURE OF 200 P.S.I.

THRUST BLOCK SCHEDULE						
PIPE DIAM.	BEARING AREA IN SQ. FT.					
	BENDS					TEES & DEAD ENDS
	22-1/2°	30°	45°	60°	90°	
4"	4	4	4	4	6	4
6"	4	4	4	6	9	6
8"	4	6	9	12	16	12



TYPICAL THRUST BLOCK



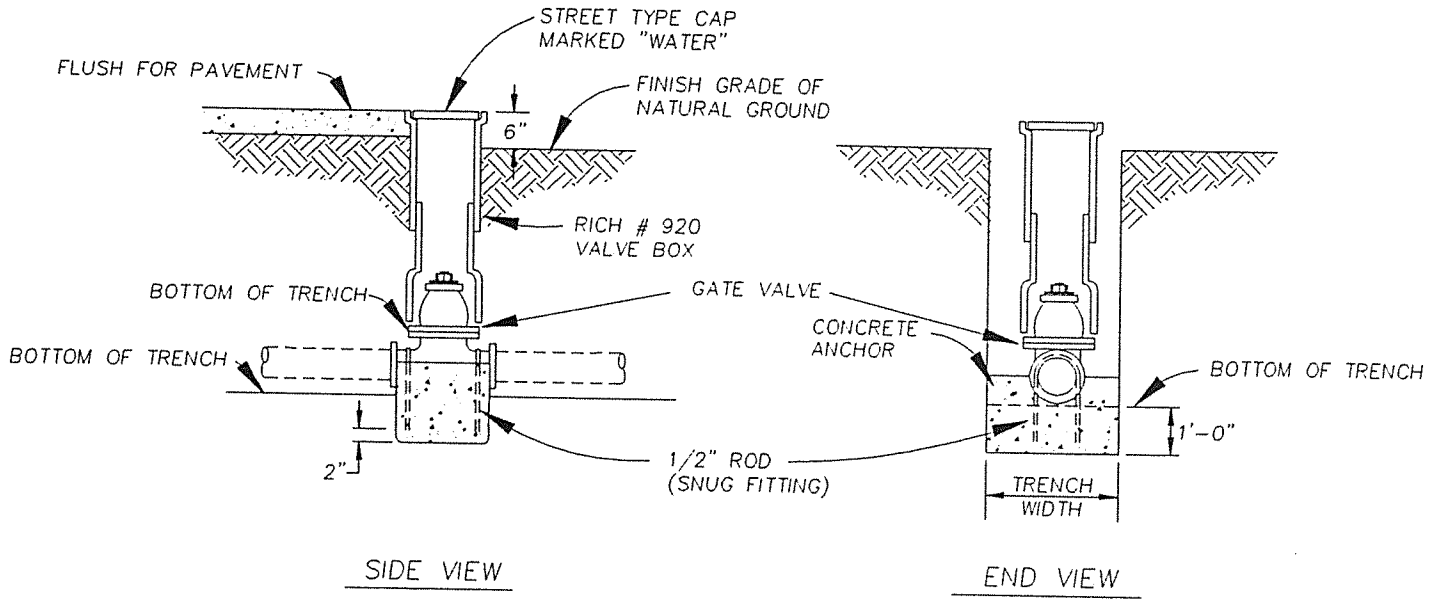
TYPICAL END DETAIL

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

TYPICAL THRUST BLOCK
TYPICAL ANCHOR
DETAIL & SCHEDULE

DRAWN S.E.W.
CHECKED
APPROVED John J. Johnson 10-13-93

SCALE: N.T.S. | DATE: OCT 93' | NO.: SD - 2

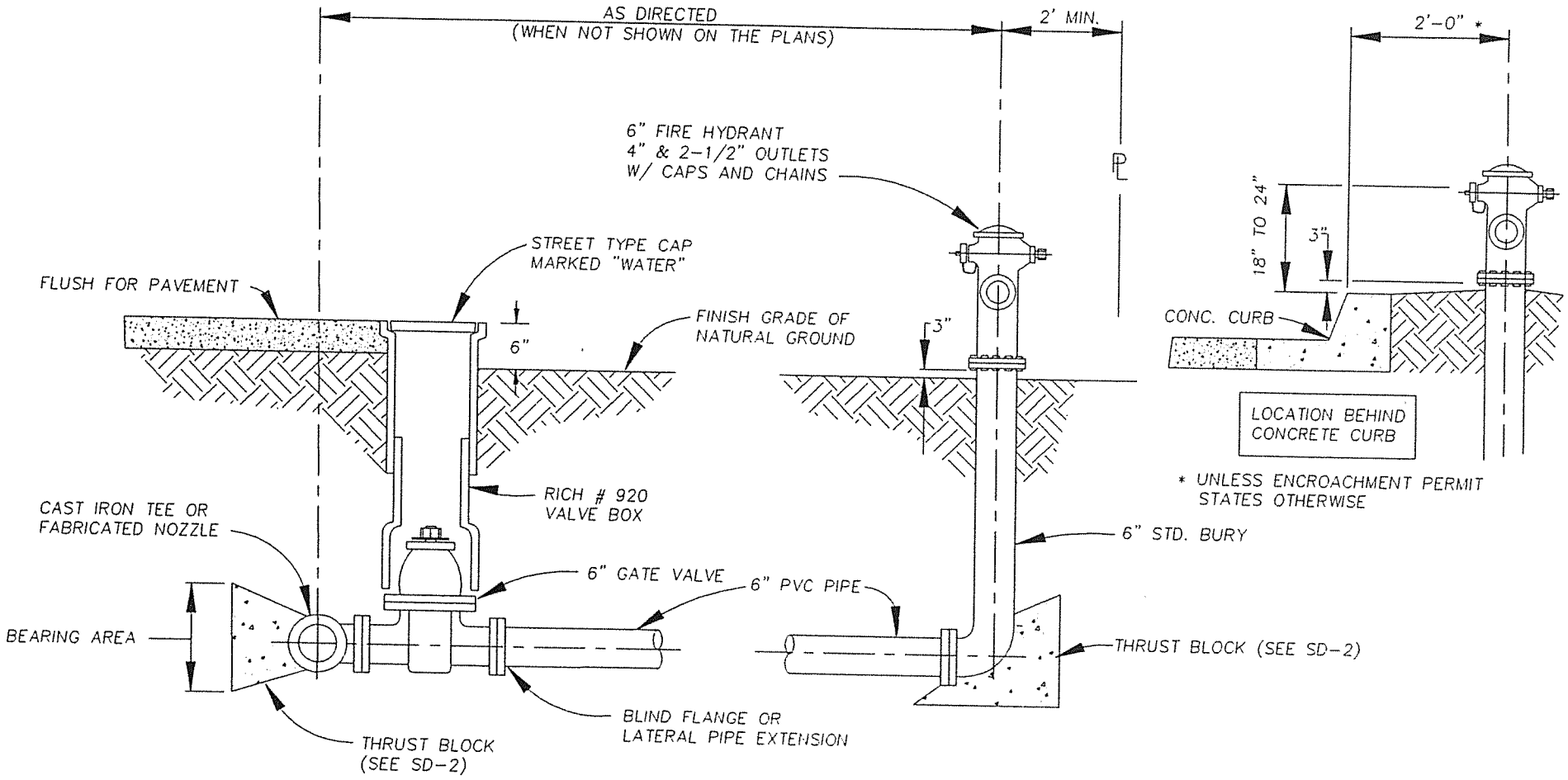


NOTE: REFER TO DISTRICT'S SPECIFICATIONS, APPURTENANT STRUCTURES, FOR MATERIAL SPECIFICATIONS.

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

TYPICAL MAINLINE VALVE
AND ANCHOR

DRAWN S.E.W.
CHECKED
APPROVED John J. Johnson 10-18-93
SCALE: N.T.S.
DATE: OCT 93'
NO.: SD - 3



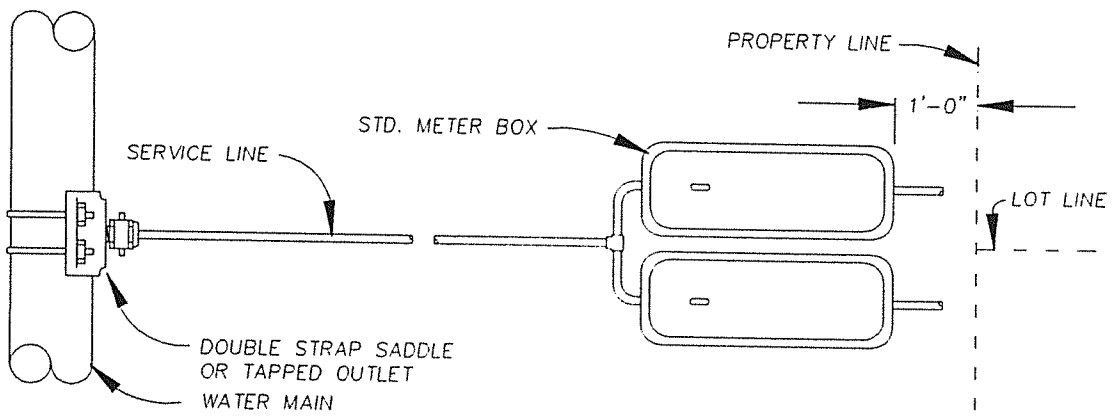
NOTES:

1. A MINIMUM OF TWO GUARD POSTS ARE REQUIRED PER EACH FIRE HYDRANT (SD-13).
2. ALL METAL MATERIAL, WITH THE EXCEPTION OF THE VALVE BOX, SHALL BE WRAPPED WITH TWO LAYERS OF 8 MIL. POLYETHYLENE SECURELY TAPED IN PLACE.
3. REFER TO DISTRICT'S SPECIFICATIONS, APPURTENANT STRUCTURES, FOR MATERIAL SPECIFICATIONS.
4. Fire hydrant assembly breakaway spool shall be used to adjust lower fire hydrant stem within required distance from finish grade. Cadmium plated breakaway bolts shall be installed on fire hydrant and extension. Bolts to be installed heads up. Only one gasketed flange shall be allowed below the surface. Bury, control valve, tee and breakaway spool shall be lined with epoxy, Scotchkote 206N or 134.

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

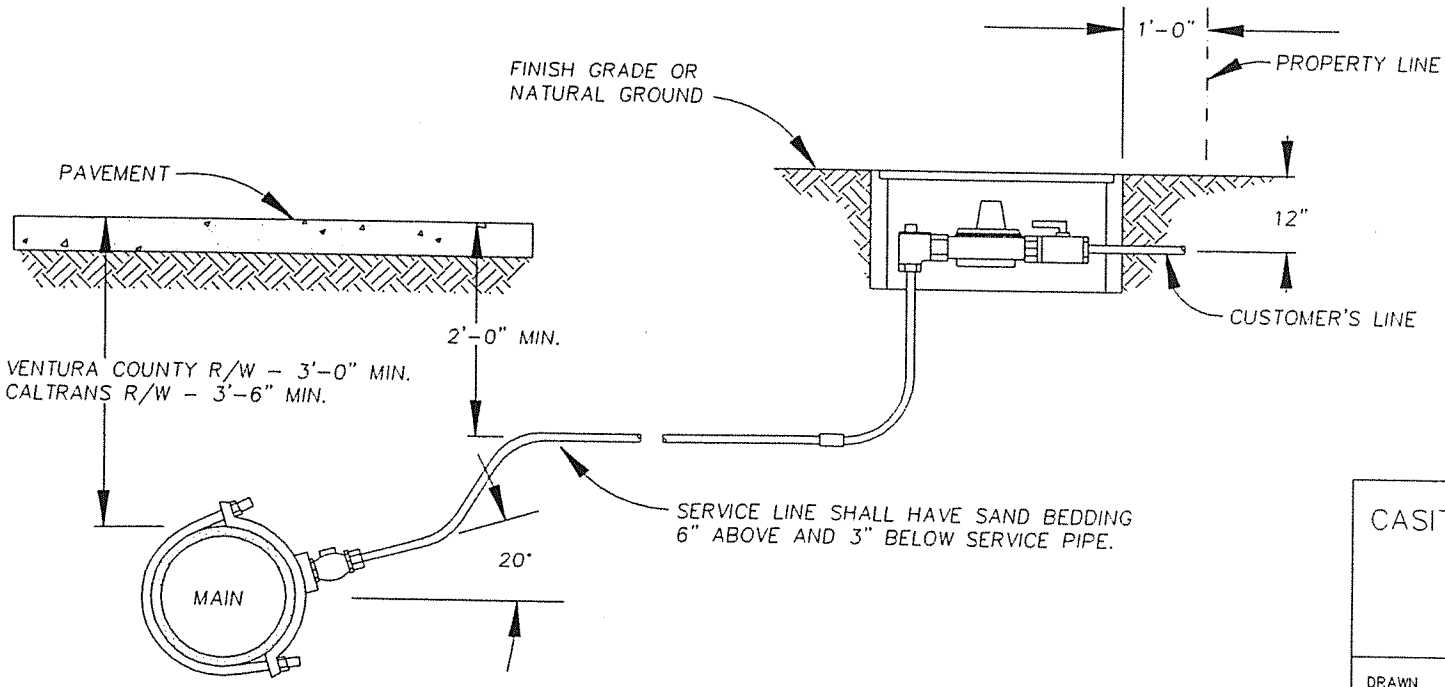
TYPICAL FIRE HYDRANT
WET BARREL TYPE

DRAWN S.E.W.
CHECKED
APPROVED John J. Johnson 12-18-93
SCALE: N.T.S.
DATE: OCT 93'
NO.: SD - 9



PLAN

NOTE:
1. CURBS, AS REFERED TO ON THESE DRAWINGS, MEAN CONCRETE CURBS AND GUTTERS.
2. FOR INSTALLATIONS WHERE SIDEWALK ABUTS CURB AND THE PROPERTY LINE, METER BOXES ARE SET FLUSH IN THE SIDEWALK AND ADJACENT TO THE BACK OF THE CURB. INSTALL 2" PVC SLEEVE UNDER SIDEWALK.
3. FOR INSTALLATIONS IN AREA WITH PARKWAY BETWEEN CONC. CURB AND SIDEWALK, METER BOXES ARE SET FLUSH WITH TOP OF CURB AND ADJACENT TO BACK OF CURB.
4. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS OR OTHERWISE DIRECTED BY THE ENGINEER, ALL METER BOXES SHALL BE LOCATED AS NOTED ABOVE.
5. FOR MATERIAL LIST SEE DETAILS ON SD-12 AND DISTRICT'S SPECIFICATIONS, APPURTENANT STRUCTURES.



PROFILE

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

TYPICAL METER SERVICE
PLAN AND PROFILE

DRAWN S.E.W.
CHECKED
APPROVED 10-18-93

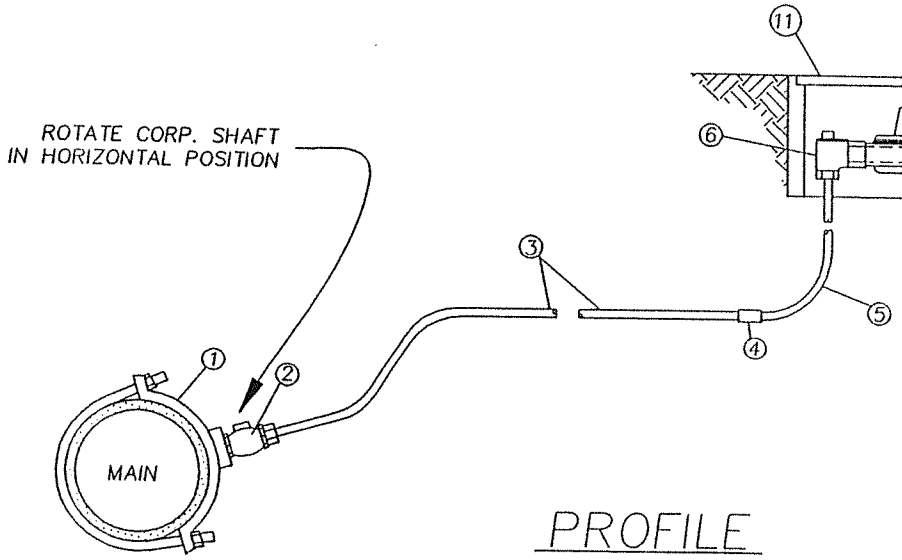
SCALE: N.T.S. | DATE: OCT 93' | NO.: SD - 11

MATERIAL LIST FOR TYPICAL WATER SERVICE

ITEM NO.	DESCRIPTION OF ITEM	SIZE & TYPE OF SERVICE												MATERIAL DESCRIPTION
		3/4"				1"				2"				
		SINGLE		DUAL		SINGLE		DUAL		SINGLE		DUAL		
①	SERVICE SADDLE (DOUBLE STRAP) I.P. THRD'S	1	3/4"	1	1"	1	1"	1	1-1/2"	1	2"			J-979, J-996, F202B
②	CORPORATION STOP I.P. THRD'S	1	3/4"	1	1"	1	1"	1	1-1/2"	1	2"			J-3403SG, J-1957SG
③	COPPER TUBING	1	3/4"	1	1"	1	1"	1	1-1/2"	1	2"			△5
④	COPPER TEE (C-C)			1				1				SPECIAL DESIGN		△4 H-15380 OR J-2617-SG
⑤	COPPER TUBING	1	3/4"	2	3/4"	1	1"	2	1"	1	2"	SEE ENGINEER		△5
⑥	ANGLE METER STOP	1	3/4"	2	3/4"	1	1"	2	1"	1	2"			△1
⑦	SERVICE STOP	1	3/4"	2	3/4"	1	1"	2	1"	1	2"			△2
⑧	BRASS NIPPLE (2-1/2" LENGTH)	1	3/4"	2	3/4"	1	1"	2	1"	1	2"			STANDARD WEIGHT
⑨	INSULATING COUPLING	1	3/4"	2	3/4"	1	1"	2	1"	1	2"			RALEIGH MODEL 700
⑩	CUSTOMER SERVICE NIPPLE (12" LENGTH)	1	3/4"	2	3/4"	1	1"	2	1"	1	2"			PVC PIPE, SCH. 80, TxT
⑪	METER BOX	1		2		1		2		1				△3

	3/4"	1"	2"
△1	H-14259 OR J-4201SG	H-14259 OR J-4201SG	JONES J-1975WSG
△2	FORD B-13, JONES J-1908	FORD B-13, JONES J-1908	BF13-777, JONES J-1913W
△3	BROOKS # 37	BROOKS # 37	BROOKS # 65
△4	3/4"x 3/4"x 1"	3/4"x 3/4"x 1"	SPECIAL DESIGN - SEE ENGINEER
△5	TYPE "K" SOFT	TYPE "K" SOFT	TYPE "K - 2" HARD

NOTE : MAXIMUM PRESSURE = 150 P.S.I.



PROFILE

NOTES:

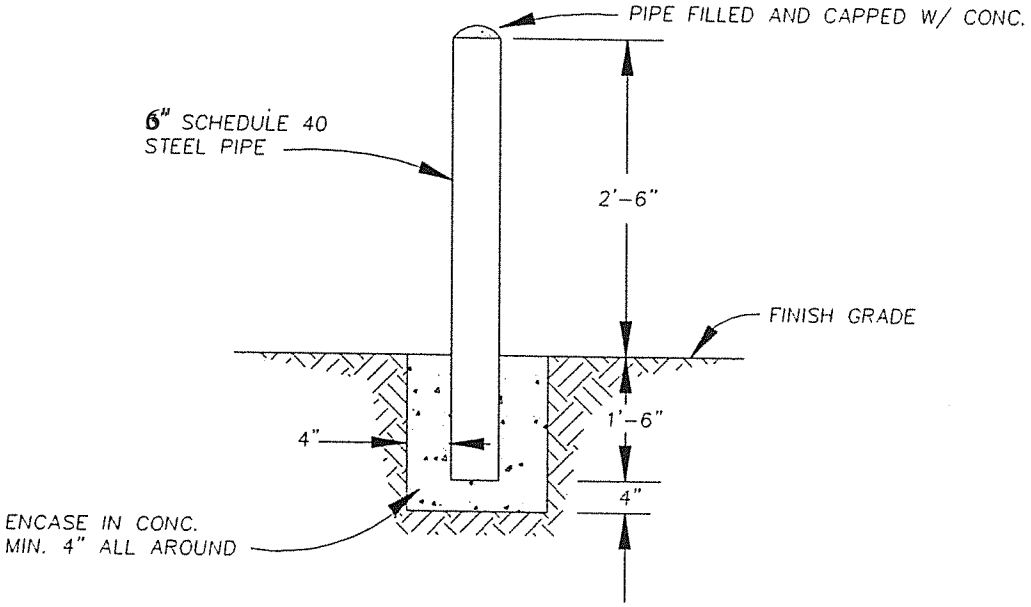
1. REFER TO DISTRICT'S SPECIFICATIONS, APPURTENANT STRUCTURES, FOR MATERIAL SPECIFICATIONS.
2. COPPER TUBING CONNECTIONS SHALL BE MUELLER 110 OR JAMES JONES SUPER GRIP.

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

TYPICAL METER SERVICE
COPPER PIPE MATERIAL LIST

DRAWN S.E.W.
CHECKED T.J.C
APPROVED John J. Johnson 12-2-97

SCALE: N.T.S. | DATE: NOV. 97' | NO.: SD -- 12



NOTE:
GUARD POSTS SHALL BE PLACED SO AS NOT TO OBSTRUCT THE INTENDED USE OF THE APPURTENANCE AND SHALL BE PLACED IN A LOCATION WHICH IS SATISFACTORY TO THE ENGINEER,

GUARD POSTS SHALL BE 6-INCHES IN DIAMETER.

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

TYPICAL GUARD POST

DRAWN S.E.W.

CHECKED

APPROVED John J. Johnson 10-13-93

SCALE: N.T.S. | DATE: OCT 93' | NO.: SD - 13