DEPARTMENT OF TRANSPORTATION
ES-OE MS #43
1727 30TH Street, 2ND Floor
Sacramento, CA 95816

May 25, 2001

04-Ala,SCl-880-R0.0/R0.7,15.3/16.9
04-285524
ACNHI-880-1(047)11N

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SANTA CLARA AND ALAMEDA COUNTIES IN MILPITAS AND FREMONT FROM 1.6 km SOUTH TO 0.7 km NORTH OF THE COUNTY LINE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on June 5, 2001.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, the Proposal and Contract, and the Federal Minimum Wages with Modification Number 4 dated 4-27-01. A copy of the modified wage rates are available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

Project Plan Sheets 38, 62, 164, 183, 202, 264, 265 and 267 are revised. A half-sized copy of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 88A, 88B, 88C, 176A, 176B, 176C, 176D and 176E are added. A half-sized copy of the added sheets are attached for addition to the project plans.

In the Special Provisions, in the "NOTICE TO CONTRACTORS," the following is added:

"Bidder inquiries may be made as follows:

The Department will consider bidder inquiries only when a completed "Bidder Inquiry" form is submitted. A copy of the "Bidder Inquiry" form is available at the Internet address shown below. The bidder inquiry shall include the bidder's name and telephone number. Submit "Bidder Inquiry" forms to:

Construction Program Duty Senior
111 Grand Avenue
Oakland, CA 94612

Fax Number: (510) 622-1805
E-mail: DUTY_SENIOR_DISTRICT04@ dot.ca.gov
Tel. Number: (510) 286-5209

To expedite processing, submittal of "Bidder Inquiry" forms via Fax or E-mail is preferred.

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To the extent feasible and at the discretion of the Department, completed "Bidder Inquiry" forms submitted for consideration will be investigated, and responses will be posted on the Internet at:

http://www.dot.ca.gov/dist4/construction/CONTRACTINQUIRIES.html

The responses to bidders' inquiries, unless incorporated into formal addenda to the contract, are not a part of the contract, and are provided for the bidder's convenience only. In some instances, the question and answer may represent a summary of the matters discussed rather than a word-for-word recitation. The availability or use of information provided in the responses to bidders' inquiries is not to be construed in any way as a waiver of the provisions of Section 2-1.03 of the Standard Specifications or any other provision of the contract, the plans, Standard Specifications or Special Provisions, nor to excuse the contractor from full compliance with those contract requirements. Bidders are cautioned that subsequent responses or contract addenda may affect or vary a response previously given."

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," is replaced as attached.

In the Special Provisions, Section 5-1.25, "RELATIONS WITH SANTA CLARA VALLEY WATER DISTRICT," is added as attached.

In the Special Provisions, Section 10-1.02, "ORDER OF WORK," the following is added:

"The lane closure of the eastbound lane of Dixon Landing Road Overcrossing shall be a one-time event of up to 30 continuous working days. The Contractor's operations shall be scheduled so that all work which requires the lane closure will be accomplished during this time period. The Contractor's attention is directed to Section 4, "Beginning of work, Time of Completion and Liquidated Damages," of these special provisions, in regard to penalties for additional lane closure days. The Contractor shall notify the Engineer in writing at least 30 days in advance of establishing the lane closure of Dixon Landing Road Overcrossing."

In the Special Provisions, Section 10-1.22, "OBSTRUCTIONS," is revised as attached.

In the Special Provisions, Section 10-1.92, "ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY," is added as attached.

In the Special Provisions, Section 10-1.93, "WELDED STEEL PIPE CASING (BRIDGE)," is added as attached.

In the Special Provisions, Section 10-1.94, "ALAMEDA COUNTY WATER DISTRICT (ACWD) AND CITY OF MILPITAS WATER MAINS," is added as attached.

In the Proposal and Contract, the Engineer's Estimate Items 3, 79, 93, 94, 95, 175, 184 and 192 are revised, Items 237, 238, 239, 240, 241, 242, 243, 244, 245 and 246 are added and Items 121 and 236 are deleted as attached.

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To Proposal and Contract book holders:

Replace pages 3, 6, 7, 9, 11, 12 and 14 and add page 14A of the Engineer's Estimate in the Proposal with the attached revised pages 3, 6, 7, 9, 11, 12 and 14 and added page 14A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Plans, Specifications & Estimates Branch
Office of Office Engineer

Attachments

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Sections 8-1.03, "Beginning of Work," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," and 20-4.08, "Plant Establishment Work," of the Standard Specifications and these special provisions.

The work (except plant establishment work) shall be diligently prosecuted to completion before the expiration of **600 WORKING DAYS** beginning on the fifteenth calendar day after approval of the contract.

The work shall be completed in two phases as follows:

Phase I consists of all work associated with this contract with the exception of the portion referred to as Phase II

Phase II consists of the construction of L-1 from Station 103+00 to 106+46, detour removal and associated final pavement delineation on the L-2 On-Ramp, detour removal and final pavement delineation on the D Line, final pavement delineation, signal and lighting associated with the intersection of R3, R4, CC, and D Lines.

The Contractor shall diligently prosecute the work beginning on the fifteenth calendar day after approval of the contract to completion before the expiration of the number of working days that follows:

	NUMBER OF WORKING DAYS
Phase I	520
Phase II	600

The Contractor shall pay to the State of California the sum per day as indicated below, for each and every calendar day's delay in completing each phase of work (except plant establishment work) in excess of the number of working days prescribed above.

	LIQUIDATED DAMAGES
Phase I	$6,000
Phase II	$6,000

The Contractor will be allowed a total of 30 WORKING DAYS of one-time continuous lane closure for the eastbound lane of Dixon Landing Road Overcrossing. The Contractor shall pay to the State of California the sum of $13,000 for each and every calendar day in excess of the 30 WORKING DAYS that the lane remains closed, and for each day of additional lane closure after the first lane closure period.

The Contractor shall diligently prosecute all work (including plant establishment) to completion before the expiration of **1350 WORKING DAYS** beginning on the fifteenth calendar day after approval of the contract.

The Contractor shall pay to the State of California the sum of $250 per day, for each and every calendar day's delay in completing the work in excess of the number of working days prescribed above.

Delays due to actions required by the Engineer performing normal inspection, testing and review duties shall be considered as included in the number of working days for the completion of the contract and no extensions of time will be allowed for such actions in determining liquidated damages.

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

No incentive payments will be paid nor will disincentive deductions be charged on this project.

5-1.25 RELATIONS WITH SANTA CLARA VALLEY WATER DISTRICT

A portion of this project is located within the jurisdiction of the Santa Clara Valley Water District. An agreement regarding a stream or lake has been entered into by the Department of Transportation and the Santa Clara Valley Water District. The Contractor shall be fully informed of the requirements of this agreement as well as rules, regulations, and conditions that may govern the Contractor's operations in these areas and shall conduct the work accordingly.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone 916-654-4490, and are available for inspection at the office of the District Division Chief for the Department of Transportation at 111 Grand Avenue, Oakland, CA.

It is unlawful for any person to divert, obstruct or change the natural flow of the bed, channel or bank of a stream, river or lake without first notifying the Santa Clara Valley Water District, unless the project or activity is noticed and constructed in conformance with conditions imposed under Fish and Game Code Section 1601.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

Modifications to the agreement between the Department of Transportation and the Santa Clara Valley Water District, which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Santa Clara Valley Water District for their consideration.

When the Contractor is notified by the Engineer that a modification to the agreement is under consideration, no work shall be performed which is inconsistent with the original agreement or proposed modification until the Department of Transportation and the Santa Clara Valley Water District take action on the proposed modifications. Compensation for delay will be determined in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Modifications to any agreement between the Department of Transportation and the Santa Clara Valley Water District will be fully binding on the Contractor. The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

10-1.22 OBSTRUCTIONS

Attention is directed to Section 8-1.10, "Utility and Non-Highway Facilities," and Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 150 mm in diameter or pipelines operating at pressures greater than 415 kPa (gage); underground electric supply system conductors or cables, with potential to ground of more than 300 V, either directly buried or in a duct or conduit which do not have concentric grounded or other effectively grounded metal shields or sheaths.

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

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444 1-800-227-2600
Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600

When crossing over Pacific Gas & Electric Company's 915mm, 762mm, and 152mm gas transmission lines, care must be exercised by the Contractor not to damage these gas pipelines. Crossings of the wheel loads on these gas pipelines shall be kept to a minimum at all times with the following wheel load restrictions:

915mm

Minimum Cover of Top of Pipe (meters)	Allowable Wheel Load (kg/wheel)
0.46	10600
0.65	13300
0.95	20600
1.25	30500
1.55	42000
1.85	56000
2.15	70600

762mm

Minimum Cover of Top of Pipe (meters)	Allowable Wheel Load (kg/wheel)
0.46	12700
0.65	16400
0.95	26800
1.25	41000
1.55	59000
1.85	79700
2.15	10300

152mm

Minimum Cover of Top of Pipe (meters)	Allowable Wheel Load (kg/wheel)
0.30	9000
0.65	20800
0.95	38400
1.25	54400

Installation of the following utility facilities will require coordination with the Contractor's operations. The Contractor shall notify the Engineer in writing 25 days in advance of completion of the soffit slab and is ready for the PG&E facility installation. The Contractor shall notify the Engineer in writing 25 days in advance of completion of the 500 mm steel casing and is ready for the Pacific Bell facility installation The Contractor shall submit a schedule of work, verified by a representative of the utility company, to the Engineer. The schedule of work shall provide not less than the following number of working days, as defined in Section 8-1.06, "Time of Completion," of the Standard Specifications for the utility company to complete their work:

Utility (address)	Location	Working Days
PG&E	Dixon Landing Road Overcrossing	30
Pacific Bell	Dixon Landing Road Overcrossing	20

In the event that the utility facilities mentioned above are not installed within the time specified and, if in the opinion of the Engineer, the Contractor's operations are delayed or interfered with by reason of the utility facilities not being installed within the time specified, the State will compensate the Contractor for the delays to the extent provided in Section 8-1.09, "Right of Way Delays," of the Standard Specifications, and not otherwise, except as provided in Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.

10-1.92 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY

Attention is directed to Sections 5-1.10, "Equipment and Plants," and 7-1.01A(3), "Payroll Records," of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer a list of each piece of equipment and its identifying number, type, make, model and rate code in accordance with the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rate" which is in effect on the date the work is performed, and the names, labor rates and work classifications for all field personnel employed by the Contractor and all subcontractors in connection with the public work, together with such additional information as is identified below. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used for this mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records," of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 11 days after the contract award for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

The minimum data to be furnished shall comply with the following specifications:

DATA CONTENT REQUIREMENTS.--

A. The Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company name.	Alphanumeric; up to 30 characters.
Federal tax ID	Alphanumeric; up to 10 characters.
State contractor license	Alphanumeric; up to 20 characters.
Company type (prime or sub)	Alphanumeric; up to 10 characters.
Address (line 1).	Alphanumeric; up to 30 characters.
Address (line 2).	Alphanumeric; up to 30 characters.
Address (city).	Alphanumeric; up to 30 characters.
Address (2-letter state code).	Alphanumeric; up to 2 characters.
Address (zip code)	Alphanumeric; up to 14 characters.
Contact First Name.	Alphanumeric; up to 15 characters
Contact Last Name	Alphanumeric; up to 20 characters
Telephone number (with area code).	Alphanumeric; up to 20 characters.
Company code: short company name.	Alphanumeric; up to 10 characters.
Type of work (Department-supplied codes)	Alphanumeric; up to 30 characters
DBE status (Department-supplied codes)	Alphanumeric; up to 20 characters.
Ethnicity for DBE status (Department-supplied codes).	Alphanumeric; up to 20 characters.
List of laborers to be used on this contract (detail specified below).	
List of equipment to be used on this contract (detail specified below).	

For example, one such set of information for a company might be:

04-072359
XYZ CONSTRUCTION, INC.
94-2991040
AL1649T
SUB
1240 9TH STREET
SUITE 600
OAKLAND
CA
94612
JOHN
SMITH
(510) 834-9999
XYZ
PAVING
MBE
BLACK

B. The Contractor shall provide the following information for each laborer who will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Employee ID	Alphanumeric; up to 10 characters.
Last name.	Alphanumeric; up to 20 characters.
First name.	Alphanumeric; up to 15 characters.
Middle name.	Alphanumeric; up to 15 characters.
Suffix	Alphanumeric; up to 15 characters
Labor trade (Department-provided codes).	Alphanumeric; up to 10 characters.
Labor classification (Department-provided codes).	Alphanumeric; up to 10 characters.
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Doubletime hourly rate	Alphanumeric; up to (6,2)
Standby hourly rate.	Alphanumeric; up to (6,2)
Ethnicity (Department-provided codes).	Alphanumeric; up to 20 characters.
Gender.	Alphanumeric; up to 1 characters.

For example, one such set of information might be:

04-072359
XYZ
1249
GONZALEZ
HECTOR
VINCENT
JR.
OPR
JNY
12.50
18.75
25.00
0.00
HISPANIC
M

C. The Contractor shall provide the following information for each piece of equipment that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Company's equipment ID number.	Alphanumeric; up to 10 characters.
Company's equipment description.	Alphanumeric; up to 60 characters.
Equipment type (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment make (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment model (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment rate code (from Department ratebook).	Alphanumeric; up to 10 characters
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Standby hourly rate	Alphanumeric; up to (6,2)
Idle hourly rate.	Alphanumeric; up to (6,2)
Rental flag.	Alphanumeric; up to 1 character.

For example, one such set of information might be:

04-072359
XYZ
B043
CAT TRACTOR D-6C
TRACC
CAT
D-6C
3645
75.00
75.00
0.00
0.00
N

DATA DELIVERY REQUIREMENTS.--

A. All data described in "Data Requirements" of this section shall be delivered to the Department electronically, on 3 1/2" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.

B. Data of each type described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).

C. The file format for all files delivered to Caltrans shall be standard comma-delimited, plain text files. This type of file (often called “CSV”) is the most standard type for interchange of formatted data; it can be created and read by all desktop spreadsheet and desktop database applications. Characteristics of this type of file are:

- All data is in the form of plain ASCII characters.
- Each row of data (company, person, equipment) is delimited by a carriage return character.
- Within rows, each column (field) of data is delimited by a comma character.

D. The files shall have the following columns (i.e., each row shall have the following fields):

1. Contractor info: 17 columns (fields) as specified in "Data Requirements #1", above.
2. Labor info: 15 columns (fields) as specified in "Data Requirements #2", above.
3. Equipment info: 13 columns (fields) as specified in "Data Requirements #3", above.

For every one type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file must contain column headers (in plain text).

E. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:

1. All data shall be uppercase.
2. Company type shall be either “PRIME” or “SUB”.
3. Labor trade and classification codes must conform to a list of standard codes that will be supplied by Department.
4. Contractor type of work codes and DBE status codes must conform to a list of standard codes that will be supplied by Department.
5. Ethnicity codes must conform to standard codes that will be supplied by Department.
6. Data in the "gender" column must be either "M" or "F".
7. Data in the "rental equipment" column must be either "Y" or "N".
8. Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the equipment will be identified in the field.) Include manufacturer, rated capacity & trade description
9. Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled “Labor Surcharge and Equipment Rental Rate”, which is in effect on the date the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields as directed by the Engineer.

F. The name of each file must indicate its contents, e.g., "labor.csv" for laborers, “equipment.csv” for equipment, and “contractor.csv” for contractors. Each floppy disk supplied to Caltrans must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

PAYMENT.-- Payment for providing electronic mobile daily diary computer system data delivery will be made on a lump sum basis. The lump sum bid price for electronic mobile daily diary computer system data delivery will be made according to the following schedule:

The Contractor will receive not more than 2.1 per cent per month of the total bid price for electronic mobile daily diary computer system data delivery . After the completion of the work, 100 per cent payment will be made for electronic mobile daily diary computer system data delivery less the permanent deduction, if any, for failure to deliver complete weekly electronic mobile daily diary computer system data in each month.

The contract lump sum price paid for electronic mobile daily diary computer system data delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in electronic mobile daily diary computer system data delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Department of Transportation will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit electronic mobile daily diary computer system data delivery conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable electronic mobile daily diary computer system data have not been submitted to the Engineer. Retentions for failure to submit acceptable electronic mobile daily diary computer system data shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable electronic mobile daily diary computer system data will be released for payment on the next monthly estimate for partial payment following the date that acceptable electronic mobile daily diary computer system data is submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of electronic mobile daily diary computer system data delivery. Adjustments in compensation for electronic mobile daily diary computer system data delivery will not be made for any increased or decreased work ordered by the Engineer in furnishing electronic mobile daily diary computer system data.

10-1.93 WELDED STEEL PIPE CASING (BRIDGE)

Welded steel pipe casings through bridges shall be of the size shown and shall conform to the provisions in Section 70, "Miscellaneous Facilities," of the Standard Specifications and these special provisions.

WORKING DRAWINGS

Working drawings for temporary support of casing pipe at the abutments shall be submitted for approval in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings" of the Standard Specifications.

MATERIALS

Casing pipe

Casing pipe shall be welded steel pipe conforming to the provisions in Section 70-1.02B, "Welded Steel Pipe," of the Standard Specifications, except that the pipe shall be treated in accordance with the following requirements, prior to shipping. Exterior surfaces of welded steel pipe shall be cleaned and coated in conformance with the requirements in at the option of the Contractor, cleaned, primed, and coated in accordance with specifications of ANSI/AWWA C214.

Casing placed within the box girder of the bridge need not be coated or wrapped. The Casing to installed outside of the bridge shall be coated and wrapped

Pipe sections may be made from one or more steel sheets either spirally or longitudinally butt welded . Pipe cylinders shall be true right cylinders and shall be fabricated into standard nominal laying lengths of not less than 7.3 m nor more than 12 m. Shorter lengths may be used where required to provide for proper location of cures, fittings, and valves.

The minimum nominal diameter and minimum metal thickness of steel casing shall be as follows:

Casing	Minimum Thickness
460mm	6mm
500mm	7mm
660mm	8mm

Joints

Joints shall be fully welded, and shall conform to the requirements for Cement Lined Welded Steel Pipe of these special provisions. The interior of 500 mm casing shall be smooth at the weld joints.

Pipe wrapping tape

Wrapping tapes for pipe in contact with the ground shall be a pressure sensitive polyvinyl chloride or polyethylene tape having thickness of 1.27 mm, minimum.

CONSTRUCTION

If a blockout is provided in the bridge abutment wall for casing pipe, the space between the casing pipe and bridge abutment wall shall be filled with portland cement mortar conforming to the provisions in Section 51-1.135, "Mortar," of the Standard Specifications.

Openings for utilities through bridge superstructure concrete shall either be formed or shall consist of pipe sleeves.

Wrapping and coating pipe

Damaged coating on steel pipe casing in contact with earth shall be wrapped as follows:

A. Pipe to be wrapped shall be thoroughly cleaned and primed as recommended by the tape manufacturer.
B. Tapes shall be tightly applied with uniform lap, free from wrinkles and voids to provide not less than 2.5 mm thickness.
C. Field joints and fittings for wrapped pipe shall be covered by double wrapping 1.27 mm thick tape. Wrapping at joints shall extend a minimum of 150 mm over adjacent pipe coverings. Width of tape for wrapping fittings shall not exceed 50 mm. Adequate tension shall be applied so tape will conform closely to contours of joint.

Where a welded steel pipe casing passes through the abutment wall, the welded steel pipe casing shall be additionally wrapped with 2 layers of 6.8 kg asphalt-felt building paper, securely taped or wired in place.

CONCRETE PIPE CRADLES AND FACILITIES

Concrete pipe cradles and concrete pipe stops, steel threaded rod with nut, steel plate, bolts, galvanized steel pipe strap clamp and non-metallic conduit spacer shall be furnished and installed in the structures as shown on the plans and as specified in these special provisions.

Precast concrete cradles shall conform to the dimensions shown on the plans and shall be constructed of commercial quality concrete containing not less than 25 kilograms of portland cement per cubic meter and commercial quality welded wire mesh and reinforcement. Precast cradles and pipe stops shall be moist cured for not less than 3 days. Reinforcement shall conform to the requirements of Section52,'Reinforcment," of the Standard Specifications.

Epoxy adhesive for bonding precast cradles to concrete soffit slab shall conform to the provisions in Section 95-1, "General", of the Standard Specifications and, at the option of the Contractor, shall conform to the provisions in Section95-2.03, "Epoxy Resin Adhesive for Bonding New Concrete to Old Concrete," or in Section 95-2.04, "Rapid Set Epoxy Adhesive for Pavement Markers," or in Section 95-2.05, "Standard Set Epoxy Adhesive for Pavement Markers," of the Standard Specifications.

Bolts and Nuts

Unless otherwise indicated, bolts shall be of steel with ASNI regular unfinished square o hexagon heads and the nuts shall be of steel with ASNI regular hexagonal dimensions, as specified in ASNI B18.2 for Wrench Head Bolts and Nuts and Wrench Openings.

ALL bolts and all nuts shall be threaded in accordance with ASNI B1.1 for Screw Threads, Coarse Thread Series, Class 2A and 2//b fit.

Pipe Anchor Assembly

All steel anchor bolts, nuts, pipe clamps and other fittings shall be suitable for the type and size of the supply lines or casing and shall conform to the provisions in Section 75-1.03, "Miscellaneous Bridge Metal,' of the Standard Specifications.

Openings for utilities trough bridge superstructure concrete shall either be formed of shall consist of pipe sleeves.

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MEASUREMENT AND PAYMENT

Measurement and payment for welded steel pipe casing for each size listed in the Engineers Estimate shall conform to the provisions in Sections 70-1.04, "Measurement," and 70-1.05, "Payment," of the Standard Specifications.

Full compensation for furnishing and installing mortar and building paper, shop and field welding, and other fittings, and pipe craddle and assemblies shall be considered as included in the contract prices paid per meter for the sizes of welded steel pipe casing involved and no additional compensation will be allowed therefor.

10-1.94 ALAMEDA COUNTY WATER DISTRICT (ACWD) AND CITY OF MILPITAS WATER MAINS GENERAL

The Contractor shall furnish and install the water main and appurtenances as shown on the plans ,as specified here and as directed by the Engineer.

Authorized ACWD inspectors shall have access at all times to all places of production, fabrication and testing for purposes of inspection or observation. Whether or inspection is made at the plant, pipe will be inspected upon delivery for condition, quality of workmanship and compliance with these specifications.

Welded steel pope water main for the various sizes shown in the overcrossing bridge structure shall conform to the following specifications:

1) Steel cylinder pipe shall be fabricated in accordance with on e of the following ASTM sstandards.A53, A134, A125, A139,and/oer in accordance with AWWA C200 for steel conforming to ASTM A283C or D or A570 grades 30, 33, 36 unless otherwise indicated on the plans.

2) Minimum thickness shall be 8 mm.

3) Minimum yield point shall be 227. megapascals.

4) Maximum pipe length shall be 12 meter. Shorter lengths may be used where required to provide for proper location of curves, fitting, valves and closur**es.**

Notification

Before beginning work on the water main, the Contractor shall notify ACWD at (510) 659-1970,Extension 420. Advance notification of 5 days prior to delivery of pipe required

Notwithstanding any thing contained herein, it shall be the sole responsibility of Contractor to construct a water main capable of passing the pressure and leakage tests and to effect a disinfection of the water main.

Preconstruction Meeting

A special preconstruction meeting will held to discuss water main construction . The Engineer shall schedule the meeting and attendees will include the Contractor, its water main subcontractor, ACWD and City of Milpitas representatives.

Construction Schedule

At the reconstruction meeting, the Contractor shall submit its schedule for installation g pipe. The schedule shall show lead time required to obtain pipe and fittings, time required to produce job drawings including time to review b ACWD, delivery of pipe, installation, and testing of the water main.

Shop Drawings

The Contractor shall submit 4 sets of the manufacturer's certified shop drawings covering the design, manufacture add fabrication of steel cylinder pipe, fittings, specials and joint details to the Engineer for approval prior to the start of the fabrication of the pipe.

Allow ten working days after Engineer's receipt of shop drawings for review.

The drawings shall indicate:

1. Manufacture/Supplier.
2. Type ,thickness and grade of steel pipe.
3. Pipe coating type and thickness and manufacturer.
4. Pipe lining, type and thickness.
5. Joint detail.
6. Details of flanges, type, class and size, dished heads, blowoffs, outlets, dimensions, thickness, lining and coating.
7. Line layout diagram showing center line of steel pipe stations, laying lengths, maximum joint pull, elevations, grades, degree of bevel, piece marks, location of specials, closure sections, insulating joints.
8. Material list to include nuts, bolts, gaskets, etc.
9. Tape coating for field repairs.

Contractor shall also submit to ACWD a certification of compliance , obtained from the pipe manufacture, stating that all steel pipe and fittings have been manufactured and tested in accordance with these specifications. Contractor shall submit results of factory testing and inspection regardless of whether of not they wee witnessed by ACWD.

Testing and Inspections of Pipe

ACWD at its option may inspect the plant facilities, materials, fabrication of the pipe, fittings pipe coatings and linings to be furnished by Contractor.

Testing of tie pipe to insure compliance with these specifications shall be made in accordance with AWWA C200.

A hydrostatic shop test shall be performed on each straight section of pipe, under an internal pressure sufficient to develop a tensile stress of 151.6847 Megapascals (22,0000psi) within the walls of the pipe. The test pressure shall be maintained for not less than 5 seconds for pipe 450 mm diameter and smaller, and not less than 10 seconds for pipe 500 mm and larger.

Defects in welds shall be repaired and all repaired sections shall be retested hydrostatically.

Testing of epoxy paint coating shall be in accordance with AWWA C218 and AWWA C2124 for tape coating systems,

At the time the pipe and fittings are delivered to the job site, ACWD will make an electrical inspection of the pipe coatings.

ACWD may elect to waive any of the above testing and inspection requirements, in which event ACWD may require the manufacturer to submit affidavits stating that all pipe, coatings and linings have been manufactured and tested in accordance with this specification.

MATERIALS

Epoxy Coatings

Epoxy coatings shall be applied in strict compliance with manufacturer's specifications and shall not be field applied unless approved by ACWD for repair to damaged sections.

All applied epoxy coating systems shall be tested for thickness and flaws. These tests may be conducted by ACWD at the point of application or at the job site, The decision of ACWD regarding test results will be final.

Tests for flaws and holidays in the coating system shall be by an approved low voltage wet sponge device developing at least 67 colts S.C. potential. Any flaws detected by the wet sponge test shall be repaired to the specification requirement.

Tests to determine coating thickness shall be made by and acceptable magnetic measuring device approved by ACWD.

Pipe Surface Preparation:

Sandblast to SSPC - SP6

Commercial Blast with 1-2 Mils /anchor Pattern

First Coat:

High Solids Epoxy 4-6 Mils DFT

Top Coat:

Aliphatic Polyurethane

1 Coat @ 1.5 - 2.5 Mils DFT

DFT: Dry Film Thickness

Film thickness' are approximate and should be in accordance with Manufacturer's Recommendation.

The Contractor shall supply approved epoxy "touch up" paint for the repair of any damaged coating or lining. The Contractor shall adhere to the paint manufacturers recommendations for surface preparation, curing time, etc

Tape Coating

Tape coatings shall be used at the pipe joints where their application work allow the tapes to be applied without wrinkles or air pockets. If, in the opinion of the ACWD application of tapes will result in a finished product which will not provide an acceptable coating. Contractor shall use the type of coating recommended by ACWD.

Application of primers and tape shall be in strict accordance with manufacturer's specifications.

After the application of the primer, the tape shall be firmly wrapped circumferentially on the pipe or appurtenance overlapping each previous wrap by not less than one mm the width of tape. Wrinkles, air pockets or loose wrap will not be permitted. Improper wrapping shall be removed, the pipe cleaned and reprimed as required by manufacturer's specifications or by ACWD and rewrapped,

All applied tape coatings shall be tested for holidays and flaws. These tests will be conducted by ACWD at the job site. The decision of the ACWD regarding test results will be final.

Tests for flaws and holidays in the coating system will be conducted using a high voltage wand detector or a garter spring detector. All areas failing to pass the electrical inspection shall be repaired as approved the ACWD.

Mastic Coating

Mastic coatings will be used where the application of a tape coating cannot be satisfactorily applied because of the surface configuration such as fittings and valves.

This application of the mastic coatings shall be in strict accordance with manufacturer's specifications to a thickness of not less than 40 mils.

Unless otherwise approved by the ACWD, all mastic coatings shall be applied not less than 24 hours prior the installation of the item so coated. However, installation of coated items shall not take place until sufficient set has occurred in the coating to allow handling of the coating without damage.

Minor coating damage occurring during installation may be repaired in place or at the option of the ACWD , shall be remove from the trench and recoated.

Any improperly applied coating shall be removed, the item cleaned and recoated as required by the ACWD.

No backfill concrete pour around any coated item will take place until sufficient curing of the coating or coating repair has occurred.

Lining for Steel Cylinder Pipe

The interior surface of the pipe shall be lined. ACWD shall be notified not less than 48 hours in advance of lining operations order that the operation may be inspected.

Cement mortar lining shall be done in accordance with AWWA C205 and shall be of he following thickness:

Inside Water Way
Minimum

Diameter of Pipe After Lining (mm)	Lining Thickness (mm)	Tolerance (mm)
300-600	8 mm	1.5 mm

Immediately after application of the lining,, the pipe ends shall be tightly capped with a waterproof cover to prevent the escape of moisture from the interior of the pipe. If additional moisture is required to maintain moist condition, water shall be introduced inside the pipe, after the mortar has attained sufficient set, in a manner such that the introduction of the water will not damage the lining surface.

The waterproof covers shall be kept on the pipe throughout and beyond the curing period. If removal of the covers is necessary for the pipe coating operation, they shall be replaced as soon as practicable after the application of the coating and shall remain on the pipe ends until immediately prior to the installation of the pipe.

During the entire period form lining application to pipe installation , Contractor shall exercise care and diligence to prevent damage to the lining and to minimize the development of cracks therein. Any defective area in the lining shall be removed to the pipe wall and repaired by hand application to the full required thickness. Mortar used for repair of defective lining shall have the same mix proportions as the lining being repaired. If numerous or large defective areas occur in the lining of a pipe section or special fitting, Contractor shall remove and replace the entire lining.

Cement mortar used for the purpose of pipe joint patching compound shall be ANSI/NSF 61 approved. Recommended product is All-crete 20 Minute Set by Concrete Products, Woodland, CA.

Joints

Joints shall be bell and spigot welded joints as shown. Flange joints shall be used for all valve installations.

Fabrication of Fittings

Except as may be herein or indicated otherwise on the plans, the fabrication of fittings and specials for steel cylinder pipe shall conform to AWWA C208.

Steel used for the fabrication of fittings or specials shall conform to the material specification for the manufacture of steel cylinder pipe. The welded seams in specials or fittings shall be tested by the air soap method or by the dye check method. However, if the fitting is fabricated from steel pipe cylinders which gave been previously tested hydrostatically, no further tests is required on seams so tested. Any defects revealed under either test method shall be rewelded by hand and the weld again tested.

All fittings and specials shall be lined and coated with the same material as the pipe to which they are to be attached.

Resilient-Seated Gate Valves

This section of the specification covers iron-body, bronze mounted resilient-seated gate valves, 3000mm or smaller, intended for ordinary water works service. The resilient-seated gate valves specified herein shall conform to the latest edition of AWWA C509,Rssilient-Seated Gate Calves, except as otherwise amended herein;

AWWA C509 Section 1.5, "Affidavit of Compliance:"

When requested by ACWD, the manufacturer and vendor will each furnish an affidavit stating that all the valves furnished for installation within ACWD comply with these specifications. ACWD, at its option, may select at random from the valves furnished, a valve or valves to be disassembled for inspection.

Failure to conform to these specifications after certification by the manufacturer and vendor will justify rejection of all valves of this manufacturer in future installations for a period of not less than one year. After this period, the valve may then be reevaluated after sufficient evidence is presented to ACWD of this manufacturer's compliance to these specifications.

AWWA C509 Section 3. "General Design", add to Section 3.2:

The construction of the valves will be such that there will be no working parts that have rubbing contact of iron on iron.

AWWA C509 Section 4.11, "Wrench Nut and Handwheels", change paragraph 4.11 to read as follows:

The wrench nut will be securely held in place by a retaining nut of such size as to permit the operation of the valve wit ACWD valve operation tools. ACWD's valve operating tool inside measurement is as follows:

59 mm x 50 mmx64mm

Wrench nut to turn counter-clockwise to open.

AWWA C509 Section 4.5,"Valve Ends", add to paragraph 4.5.1:

Epoxy coated valve ends shall be uniformly coated and free of runs, blisters, irregularities or chips. Rejection of such valves shall be at thee sole discretion of the ACWD.

Valve Boxes and Valve Box Risers

Valve boxes and valve box risers shall be provided for all line valves as indicate of the plans or approved by the Engineer. The material used for valve box risers shall be as shown on the plans.

Flexible Expansion Joints

Flexible expansion joints shall be installed as shown on the plans at both ends of the water main. Material used for flexible expansion joins shall be as shown on the plans.

Ed Seal

End seal shall be installed as shown on the plans at both ends of the water main. Material used for end seal shall be as shown on the plans.

Insulators

Insulators shall be installed as shown on the plans. Materials for insulator shall be as shown on the plans.

Air and Vacuum Air Release Valves

Air and vacuum and air release valves shall be combination air release valve. Material for the air valve shall be as shown on the plans..

Steel Flanges

Unless otherwise indicated on the plans or approved by ACWD, all steel flanges shall be flat faced Class D unless noted otherwise. Slip-on flanges for field welds for pipe greater than 406 mm in diameter shall be Class E. All flanges shall conform to the latest edition AWWA C207. The flanges shall have the same diameter and drilling as Class 125 ANSI B216.1 cast iron flanges. Where flanges are to connect to flanged appurtenance, the flange shall match the flange on the appurtenance and be free of all irregularities.

Dished Heads

ASME dished heads shall be a standard commercial product. Heads shall be designed for an internal pressure of 1,034 kilopascals, but shall be not less than 6 mm thick with tangential outlets.

Gaskets

All gaskets shall be full faced type, made of cloth inserted rubber 3 mm thick. Where indicated on the plans or required by ACWD, flange isolation kits with neoprene-faced phenolic insulating gaskets and special sleeves shall be used.

Bolts and Nuts

Unless otherwise indicated, bolts shall be of steel with ASNI regular unfinished square or hexagon heads and the nuts shall be of steel with ASNI regular hexagonal dimensions, as specified in ASNI b18.2 for Wrench Head Bolts and Nuts and Wrench Openings.

All bolts and all nuts shall be threaded in accordance with ASNI B1,1 for Screw Threads, Coarse Thread Series, Class 2A and 2B fit.

Concrete pipe cradles and Facilities

Concrete pipe cradles and concrete pipe stops, steel threaded rod with nut, steel plate, bolts, galvanized steel pipe strap clamp and non-metallic conduit spacer shall be furnished and installed in the structures as shown on the plans and as specified in these special provisions.

Precast concrete cradles shall conform to the dimensions shown on the plans and shall be constructed of commercial quality concrete containing not less than 25 kilograms of portland cement per cubic meter and commercial quality welded wire mesh and reinforcement. Precast cradles and pipe stops shall be moist cured for not less than 3 days. Reinforcement shall conform to the requirements of Section52,'Reinforcment," of the Standard Specifications.

Epoxy adhesive for bonding precast cradles to concrete soffit slab shall conform to the provisions in Section 95-1, "General", of the Standard Specifications and, at the option of the Contractor, shall conform to the provisions in Section95-2.03, "Epoxy Resin Adhesive for Bonding New Concrete to Old Concrete," or in Section 95-2.04, "Rapid Set Epoxy Adhesive for Pavement Markers," or in Section 95-2.05, "Standard Set Epoxy Adhesive for Pavement Markers," of the Standard Specifications.

Pipe Anchor Assembly

All steel anchor bolts, nuts, pipe clamps and other fittings shall be suitable for the type and size of the supply lines or casing and shall conform to the provisions in Section 75-1.03, "Miscellaneous Bridge Metal,' of the Standard Specifications.

Openings for utilities trough bridge superstructure concrete shall either be formed of shall consist of pipe sleeves.

Transportation of Pipe and Appurtenance

All pipe and appurtenances shall be loaded for delivery in such a manner as to avoid damage to the lining or coating for the pipe or appurtenances .

Each pipe shall be marked on the exterior with a mark number or piece number.

Uniform bearing supports filling the curvature of the pipe shall be provided during transportation.

Each end of each pipe section 406 mm or large in diameter will be provided with two 50 mm x 50 mm wood struts wedged into position at right angles to each other to prevent the pipe from becoming out of the round. The wood struts shall remain in place in the pipe until just prior to installation.

End waterproof covers as specified above shall remain in place during transportation of the pipe and appurtenances and during storage of the pipe and appurtenances at the site of the work. Additional windbreak protection shall be provided of necessary to prevent end cover damage during transportation.

Delivery of pipe and appurtenances to the site of work shall not take place until immediately prior to the installation thereof.

Pipe material delivered to the site not meeting ACWD requirements will be rejected. Contractor is responsible for pipe transportation from job site or storage site to pipeline trench for installation no additional cost.

Handling and Unloading of Pipe and Appurtenances

Contractor shall notify ACWD not less than 48 hours in advance of the time of unloading or installation of pipe and appurtenances sot that arrangements for inspection of the unloading or installation of the pipe and appurtenances nay be made.

All material may be inspected for defects and conformity; to the specifications prior to installation. Any pipe, valve or appurtenance whether installed or not which, in the opinion of ACWD, does not meet the requirements of these specifications or otherwise found unfit shall be rejected as being unfit and will be immediately removed from the job site.

Pope shall be removed from the carrier truck by either a crane or forklift truck. When using a crane, a 150 mm minimum wide sling attached to each end of a 1.8 m long spreader bar will be used. Ropes or cables shall not be used. When using a forklift truck, the forks and any other area in which the pipe nay come in contact shall be covered with a cushioning material which shall protect the coating of the pipe from damage.

To facilitate the unloading and installation of the pipe, each pipe section and appurtenance shall be marked with tie number shown o the approved shop drawings as specified above and shall be unloaded adjacent to the location where it is to be installed.

The unloaded pipe shall be placed on sawdust sacks or sandbag supports and will be sufficiently clear of , grass, weeds or other material which nay prevent ACWD form making and electrical inspection of the coating as hereinafter specified.

No pipe section or appurtenance shall be slid along the ground. Rolling on skids or ground specially prepared so as to prevent any damage to the coating shall e allowed only upon approval of ACWD.

All pope and appurtenances shall be handled with care to avoid damage, the pipe shall not be dropped of dumped against other pipe , accessories, or other objects.

Contractor shall repair, as specified herein , or replace and pipe section or appurtenance which has been damaged during loading, transporting, unloading or as a result of fault support while being transported or stored on the site of the work.

Excessive coating or lining damage shall be cause for rejection of the pipe or appurtenance as unfit and will be immediately removed from the site of the work.

CONSTRUCTION

Installation of Pipe and Appurtenances

Contractor mast notify ACWD not less than 48 hours in advance of commencing installation of pipe to arrange for inspection whether at start of project or later on should Contractor be absent from projector any period of one or more work days.

All water main and appurtenances will be carefully lowered by means of a crane equipped with a 1.8 m spreader bar with 15 mm wide slings attached to each end or other suitable equipment consistent with safety in such a manner to prevent damage to the coating of lining on the pipe pr appurtenance.

Any damage to the lining or coating during installation shall be repaired as herein specified. Excessive coating or lining damage shall be cause for rejection of the pipe or appurtenance as unfit and shall be immediately removed from the site of the work.

All foreign matter or dirt shall be removed from the interior or all water mains and appurtenances before lowering. The interior of all water mains and appurtenances shall be kept clean by approved means before, during and after laying. When required be ACWD, the inside of the main shall be swabbed to remove all dirt prior to installation. Open ends of mains and appurtenances within the trench shall be closed by approved means to prevent entrance of trench water, animals or other foreign matter when the laying operation is not in progress.

No main or appurtenances shall be laid in water or when in the opinion of ACWD conditions or whether are unsuitable for construction. Any water main section which has floated will be removed from the trench and be relaid in accordance with these specifications

Just prior to installing the pipe in the concrete pipe cradles ACWD will conduct and electrical inspection of the pipe coating. Defective locations shall e clearly indicated by a circular mark of cross immediately upon discovery by visual examination n or by the holiday detector. Defective coatings shall be repaired immediately.

Joints shall be installed on accordance with the approved shop drawings. When field conditions are encountered which require a change in the type joint to be used. ACWD will determine the type of joint required.

Inside joints shall be completed as soon as possible following the installation of the main. At the end of a day's wok, the inside of joints shall be completed to within joint of the end of the main. At no time shall the end of the main be more than three pipe lengths beyond the last completed inside joint.

Field welding of pipe joints shall conform to the latest edition of AWWA C206. The inside of Bell and Spigot joints in mortar lined mains shall be furnished by "buttering" the inside edge oft he bell end of the main with a cement mortar prior to the making of the joint. The mortar shall consist of one part cement and one part fine sand with only sufficient water to form a plastic mixture. Prior to the application of the mortar, the lining in both bell and spigot ends of the main shall be dampened to prevent the adjoining surfaces from dehydrating the fresh mortar.

After the joint is made, a rubber sewer ball or a squeegee shall be pulled through the pipe tot remove the excess mortar extruded by the closure.

After a joint has been made and coated, ACWD will conduct and electrical inspection of the joint coating.

When permitted by AWCD, minor field repair of damaged coating shall be made using the material and method of application.

Fittings nay be either welded of flanged to the steel pipe, unless the type of joint is specifically indicated otherwise on the plans. Valves must be flanged to steel pipe. O-Ring type joints or flexible couplings shall not be used.

The shop drawings submitted for approval by the pipe manufacturer shall detail the type of joint proposed.

Air and vacuum and air release valves shall be installed where shown on the plans, or high point in the main, in accordance with the detail shown on the plans, or as approved by ACWD.

Valve boxes and valve box risers shall be installed on all valves in accordance with the detail shown on the plans or as approved by ACWD.

Welding

Welding of longitudinal seams of steel pipe may be performed automatically by the electric arc method or by an approved resistance method. All other welding shall be done by a process which excludes the atmosphere from the molten metal of the weld.

All field welding shall be done by a certified welder and shall conform to the latest edition of AWWA C206 and that the weld joints conform with the approved NDI test method.

Penetration is defined as the complete filling the weld groove with tee weld metal. Fusion is defined as the bond between heads or between the weld metal and the pipe metal. Slag inclusion is a nonmetallic solid entrapped in the weld metal or between the weld metal and the pipe metal. Elongated slag inclusions are usually found at the fusion zone. Isolated slag inclusions are irregularly shaped inclusions and may be located any where on the weld. In order to secure adequate penetration, fusion and to prevent slag inclusion, all position welds shall be made with the parts to be joined secured against movement and with adequate clearance around the joint to allow the welder or welders space in which to work.

The root bead, being the first or stringer bead which initially joins the 2 sections of pipe; a section of pipe to a fitting, or 2 fittings, will be made by the uphill welding method. The joint will be free of all foreign matter such as grease, oil, dirt and scale. The welder shall start this weld at near the bottom and weld approximately one -half way up on each side of the pipe. The entire root bead shall be around the circumference before the start of the filler or finish beads. Scale and slag shall be removed from each bead, groove ad the stopping point of any weld bead, Cleaning shall be thorough and may be done with chipping hammer and wire brush or power tools.

The number of filler and finish beads will be such that the completed weld will have a substantially uniform section around the entire circumference of the pipe. At no point will the crown surface be below the outside surface of the pipe.

Two beads will not be started at the same location. The completed weld will be brushed and cleaned.

The filler or finish welds may be run down-hand or up-hand at the option of the welder.

The welding electrode is generally selected which is most suitable to the welder. Standard acceptable electrodes are Fleetweld 5 and 5P and designated by the American Welding Society as E-6010. The amperage will be that suitable to the job and the welder's technique.

In the event of failures or defects n the weld, the defects shall be entirely removed to clean metal before repairs are made. All slag and scale shall be removed by wire brushing, prior to correcting the defect.

It is understood that many variables exist in executing the various types of weld jobs. These procedures may be waived from time to time where they are impossible or impracticable.

Waiver of welding procedures shall be based on existing conditions of a particular job and are valid only for the duration of the condition requiring the waiver. Procedure waiver must have prior approval of ACWD.

ACWD shall be free to perform any standard tests necessary to determine that the welded seams conform to these specifications. When tested, the weld metal shall show a strength of not less than the strength of the plate being welded. The costs incurred in performance of the test shall be borne by Contractor.

Only certified welders shall be used.

Contractor shall provide certification from the manufacturer of the pipe that all welding exceeds the minimum requirements and meets the approved NDI test method and that the internal mortar lining meets the minimum service ability requirements of the pipe manufacturer.

TESTING

Testing of the Waterline

The water main and appurtenances shall be tested for pressure and leakage prior to acceptance by ACWD.

Contractor's Responsibility for Testing and Disinfection

Notwithstanding anything constrained herein, it shall be the sole responsibility of the Contractor to construct a water main capable of passing the pressure and leakage test ad to effect a disinfection of the water main. The fact that ACWD provides inspection during the construction and testing of the water facilities and performs laboratory testing to determine the sterility of the water mains shall not abrogate Contractor's responsibility in this regard.

It shall also be the responsibility of Contractor to prevent the consumption of water foe any and all uses from unsterile mains whether by their workmen., subcontractors of any other person who may come in contact with the water from the unsterile main.

Contractor shall indemnify and save ACWD harmless from any suits, claims or actions brought by any person or persons for or on account of any sickness or death sustained of arising out of the consumption of water form the unsterile main.

Hydrostatic Pressure Test

The hydrostatic pressure test will not be performed until all appurtenances have been installed and not less than 72 hours have elapsed since the last concrete thrust block or reverse anchor has been cast.. The hydrostatic pressure test shall be not less than 2 hours duration. Contractor may at his convenience conduct a preliminary pressure test at any time prior to ACWD conducting a pressure test . The results of the preliminary test will not be considered by ACWD.

Each section of water main to be tested shall be slowly filled with potable water. Cement mortar lined steel pipe shall be filled with water not less than 24 hours prior to testing.

All air should be vented from all high spots in the water main before making any pressure tests.

The hydrostatic pressure test shall be none and one-half times the operating pressure at the average elevation of the water main under test. However, notwithstanding the above, no water main will be tested at less than 1,035 kilopascals pressure.

The specified hydrostatic pressure test shall be measured at the point determined by ACWD. The pressure shall be applied by means of a pump connected to the main in a manner satisfactory to ACWD. The pump, pipe connection, bulkheads, pressure gage and all other equipment, materials and labor required for performing the hydrostatic pressure test shall be furnished by Contractor.

ACWD may check the test pressure by installing a test gage in place of Contractor's gage. In case of a difference on pressure readings between gages, ACWD's gage reading will govern in all cases.

Leakage Test

A hydrostatic pressure of 1035 kilopascals shall be applied to the water main for the leakage test for not less than 30 minutes. The leakage test may be held concurrently with the hydrostatic pressure test. However, the total elapsed time of the 2 tests shall not be less than 2-1/2 hours. The measured leakage for welded steel pipe of the various sizes shall not exceed 5 liters per 25 mm diameter per 24 hours per 1.6 kilometers of main.

At the conclusion of the leakage tests, the water main shall remain filled with potable water.

Disinfection

Disinfection will not be required

Bacteriological Test

Bacteriological testing will not be required.

Electrolysis Test Stations

Electrolyses Test Stations shall be installed by Contractor as shown on the plans and as specified in these special provisions. Test stations shall be as follows:

(1) Four Wire Test Stations (ACWD) - Four wire test stations will consist of 4 AWG #10 stranded copper wire, type U.S.E. rated insulation, color blue, red, white and green, attached to the steel cylinder in accordance with the plans. Test stations shall be installed as indicated on the drawings or as required by the Engineer The plans show the method to be used for the installation of the 4 wire test stations. A total of 2 are required for each ACWD pipeline installed.

(2) Three wire test Station 9City of Milpitas) - Test stations shall be installed as indicated on the drawings or as required by the Engineer. The plans show the method to be used for the installation of the City of Milpitas test stations. A total of 2 required for each (City of Milpitas pipeline installed); one station for the pipeline and one station for each casing segment (2 total).

(3) Coating Repair - Removal and replacement of the coating shall be done so as to leave the pipe coating, after restoration, in the same condition as before the removal of the coating.

The coating will be removed in sufficient quantity to permit the installation of the test lead. Test leads shall be welded to the pipe in accordance with the plans. After the test lead is welded to the cylinder, the void remaining after the coating removal shall be refilled with an inert material similar to Scotch Cast Resin No. 4, Size A or B or approved equal, with a curing time of no more than 4 hours, The test lead shall be covered by the application of this material to render the joint impervious to water. After the void filler has cured the area around it shall be primed and circumferentially tape wrapped as specified herein.

(4) Testing of Electrolysis Control Stations - Prior to final acceptance of the water main, ACWD will test each and every one of the Electrolysis Test Stations installed. Tests will be made by ACWD using ACWD's equipment. In the event any of the Electrolysis Test Stations are found to be improperly installed, connected or electrically discontinuous, Contractor shall immediately do such work as is required to repair the Test Station to the complete satisfaction of the Engineer.

(5) Magnesium Anodes - Magnesium anodes shall be installed at each end of the steel water main and at the end of the steel casing. Magnesium anodes shall be 13.5.kilogran standard (H - 1 Grade A) or "Galvomag" alloy repackaged in a backfill consisting of 75 Gypsum,20% Bentonite and 5% Sodium Sulfate. Anode lead wire shall be #10 AWG copper wire with type U.S.E. installation.

Number of Anodes Required; 300 mm welded steel pipe - one 14.5.kilogramanode per 21 meter of pipe installed; 460 mm welded steel pipe - one 14.5 kilogram anode per 21 meter of pipe installed.

"After backfilling, but prior to paving, the installation will be tested by ACWD to determine if the anodes are properly connected. Should the tests show a disconnected anode, the Contractor shall immediately perform such work as may be necessary to replace or repair the installation.

Installation of Water Main Within Steel Casing

Cement lined welded steel pipe installed in the casing will be separated from the encasement by means of insulators.

Insulators shall be installed at intervals of not more than 3 meter, with one insulator located at not more than 300 mm from each end of the encasement pipe. Insulators shall completely insulate the water main from the encasement pipe.

Insulators shall be full circumferential on the pipe as shown o the plans.

If a joint falls within the encasement, the joint shall be welded all around. Butt straps shall be required if requested by ACWD. The pipe may be pushed or pulled through the encasement unless the method is specifically stated on the plans.

After the main has been installed, the ends of the encasement pipe shall be closed by the use of a rubber casing end seals. The seals shall be Standard Pull On, with wrap around casing seals as shown on the plans.

Material Furnished by ACWD

ACWD's electrolysis lead connection, electrolysis test station, and their incidentals will be furnished by ACWD.

Curb Markings

The location of all valves, blowoffs, air valves, electrolysis stations, etc., shall be marked on the closest curb face in accordance with plans.

Deck Forms

Prior to the final inspection and acceptance of the water main, all deck forming within the water main cell shall be removed.

MEASUREMENT AND PAYMENT

The length of welded steel pipe (either casing or cement lined) to be paid for by the meter will be the slope length designated by the Engineer.

Pipe placed in excess of the length designated will not be paid for.

The contract price paid per meter for welded steel pipe casing (PG&E, PAC Bell and water) and cement lined weld steel pipe (ACWD and City) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in welded steel pipe casing (PG&E, PAC Bell and water) and cement lined weld steel pipe (ACWD and City), complete in place, including shop and field welding, shop drawings, valves, air release valves, valve boxes, blow-off, electrolysis test stations, flexible expansion joints, concrete pipe cradles, reinforced concrete pipe stops, tests and inspections as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ENGINEER'S ESTIMATE
04-285524

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	013513	TEMPORARY CREEK DIVERSION SYSTEM	LS	LUMP SUM	LUMP SUM	
2	070010	PROGRESS SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
3	070018	TIME-RELATED OVERHEAD	WDAY	600		
4	074018	HEALTH AND SAFETY PLAN	LS	LUMP SUM	LUMP SUM	
5	074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
6	074020	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
7	020972	TEMPORARY COVER	LS	LUMP SUM	LUMP SUM	
8	020973	TEMPORARY DRAINAGE INLET PROTECTION	EA	30		
9	020974	TEMPORARY CONCRETE WASHOUT FACILITY	LS	LUMP SUM	LUMP SUM	
10	020975	TEMPORARY ENTRANCE/EXIT	LS	LUMP SUM	LUMP SUM	
11	020976	DRAINAGE INLET PROTECTION	EA	86		
12	020977	FLARED END SECTION PROTECTION	EA	13		
13	020978	TEE DISSIPATOR PROTECTION	EA	6		
14	074029	TEMPORARY SILT FENCE	M	2500		
15	074023	TEMPORARY EROSION CONTROL	M2	17 700		
16	074031	TEMPORARY SAND BAG	EA	12		
17	020988	TEMPORARY MINOR CONCRETE (MINOR STRUCTURE)	M3	32		
18	020989	TEMPORARY MINOR CONCRETE (BACKFILL)	M3	3		
19	020990	TEMPORARY 300 MM ALTERNATIVE PIPE CULVERT (TYPE A)	M	230		
20	020991	TEMPORARY 300 MM ALTERNATIVE PIPE CULVERT (TYPE B)	M	16		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	151266	SALVAGE DOUBLE THRIE BEAM BARRIER	M	430		
62	151272	SALVAGE METAL BEAM GUARD RAILING	M	320		
63	151274	SALVAGE CONCRETE BARRIER (TYPE K)	M	560		
64	151540	RECONSTRUCT CHAIN LINK FENCE	M	1260		
65	152390	RELOCATE ROADSIDE SIGN	EA	4		
66	021065	RELOCATE SIGN STRUCTURE (TRUSS)	EA	2		
67	152430	ADJUST INLET	EA	2		
68	152440	ADJUST MANHOLE TO GRADE	EA	3		
69	152609	MODIFY INLET TO MANHOLE	EA	1		
70 (S)	153101	PLANE ASPHALT CONCRETE PAVEMENT	M2	8510		
71	153210	REMOVE CONCRETE	M3	200		
72	153221	REMOVE CONCRETE BARRIER	M	1280		
73	157551	BRIDGE REMOVAL, LOCATION A	LS	LUMP SUM	LUMP SUM	
74	157552	BRIDGE REMOVAL, LOCATION B	LS	LUMP SUM	LUMP SUM	
75	157560	BRIDGE REMOVAL (PORTION)	LS	LUMP SUM	LUMP SUM	
76	158100	SALVAGE CRASH CUSHION	EA	1		
77	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	
78	170101	DEVELOP WATER SUPPLY	LS	LUMP SUM	LUMP SUM	
79	190101	ROADWAY EXCAVATION	M3	49 000		
80	020982	EXCAVATION (TYPE R)	M3	70		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81 (F)	192003	STRUCTURE EXCAVATION (BRIDGE)	M3	1985		
82 (F)	192008	STRUCTURE EXCAVATION (TYPE A)	M3	785		
83 (F)	192037	STRUCTURE EXCAVATION (RETAINING WALL)	M3	975		
84 (F)	193003	STRUCTURE BACKFILL (BRIDGE)	M3	355		
85 (F)	048477	STRUCTURE BACKFILL (BRIDGE) (LIGHTWEIGHT AGGREGATE)	M3	1340		
86 (F)	193013	STRUCTURE BACKFILL (RETAINING WALL)	M3	1620		
87 (F)	048478	STRUCTURE BACKFILL (RETAINING WALL) (LIGHTWEIGHT AGGREGATE)	M3	399		
88 (F)	193031	PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	M3	75		
89	193110	BEDDING MATERIAL	M3	49		
90	194001	DITCH EXCAVATION	M3	2970		
91 (F)	197025	EARTH RETAINING STRUCTURE, LOCATION E	M2	470		
92 (F)	197033	EARTH RETAINING STRUCTURE, LOCATION F	M2	1190		
93	198001	IMPORTED BORROW	M3	161 000		
94	020983	IMPORTED BORROW (LIGHTWEIGHT AGGREGATE)	M3	61 000		
95	020984	LIGHTWEIGHT AGGREGATE (GEOSYNTHETIC REINFORCED EMBANKMENT)	M3	880		
96	020985	GEOSYNTHETIC REINFORCEMENT MATERIAL	M2	6800		
97 (S)	200001	HIGHWAY PLANTING	LS	LUMP SUM	LUMP SUM	
98 (S)	200114	ROCK BLANKET	M2	1100		
99 (S)	203001	EROSION CONTROL (BLANKET)	M2	4600		
100 (S)	203561	JUTE MESH	M2	14 000		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
121	BLANK					
122	048479	FURNISH PILING (CLASS 900C) (ALT X)	M	2484		
123 (S)	048480	DRIVE PILING (CLASS 900C) ALT X)	EA	105		
124	048481	FURNISH PILING (CLASS 625C) (ALT X)	M	3806		
125 (S)	048482	DRIVE PILING (CLASS 625C) (ALT X)	EA	176		
126	048483	FURNISH PILING (CLASS 400C) (ALT X)	M	2290		
127 (S)	048484	DRIVE PILING (CLASS 400C) (ALT X)	EA	98		
128	499030	FURNISH CAST-IN-STEEL-SHELL CONCRETE PILING (610 MM)	M	4280		
129 (S)	499031	DRIVE CAST-IN-STEEL-SHELL CONCRETE PILE (610 MM)	EA	164		
130 (S)	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
131	510000	SEAL COURSE CONCRETE	M3	120		
132 (F)	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	631		
133 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	5443		
134 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	M3	138		
135 (F)	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	M3	916		
136 (F)	510129	CLASS 2 CONCRETE (BOX CULVERT)	M3	595		
137	510408	CLASS 1 CONCRETE (RETAINING WALL)	M3	360		
138 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	115.9		
139	510526	MINOR CONCRETE (BACKFILL)	M3	37		
140 (F)	511035	ARCHITECTURAL TREATMENT	M2	414		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	620910	450 MM ALTERNATIVE PIPE CULVERT (TYPE A)	M	820		
162	020995	450 MM ALTERNATIVE PIPE CULVERT (TYPE C)	M	290		
163	620911	450 MM ALTERNATIVE PIPE CULVERT (TYPE B)	M	200		
164	020997	450 MM ALTERNATIVE PIPE CULVERT (TYPE D)	M	260		
165	620914	600 MM ALTERNATIVE PIPE CULVERT (TYPE A)	M	230		
166	620916	600 MM ALTERNATIVE PIPE CULVERT (TYPE C)	M	225		
167	620925	900 MM ALTERNATIVE PIPE CULVERT (TYPE A)	M	13		
168	650067	300 MM REINFORCED CONCRETE PIPE	M	10		
169	650069	450 MM REINFORCED CONCRETE PIPE	M	100		
170	664010	300 MM CORRUGATED STEEL PIPE (2.01 MM THICK)	M	60		
171	664016	450 MM CORRUGATED STEEL PIPE (2.77 MM THICK)	M	11		
172	665730	300 MM SLOTTED CORRUGATED STEEL PIPE (2.77 MM THICK)	M	250		
173	681134	80 MM PLASTIC PIPE (EDGE DRAIN)	M	2620		
174	681137	80 MM PLASTIC PIPE (EDGE DRAIN OUTLET)	M	410		
175	681990	FILTER FABRIC	M2	27 000		
176	682020	CLASS 1 PERMEABLE MATERIAL	M3	1.5		
177	692383	300 MM ANCHOR ASSEMBLY	EA	9		
178	703232	GRATED LINE DRAIN	M	10		
179	705334	300 MM ALTERNATIVE FLARED END SECTION	EA	5		
180	705336	450 MM ALTERNATIVE FLARED END SECTION	EA	3		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
181	705337	600 MM ALTERNATIVE FLARED END SECTION	EA	8		
182	705339	900 MM ALTERNATIVE FLARED END SECTION	EA	1		
183	721024	ROCK SLOPE PROTECTION (1/4T, METHOD B)	M3	32		
184	721400	CONCRETE (SLOPE PROTECTION)	M3	460		
185	721501	CONCRETE (CONCRETED-ROCK SLOPE PROTECTION)	M3	8		
186	721616	CONCRETED-ROCK SLOPE PROTECTION (COBBLE, METHOD B)	M3	30		
187 (F)	721811	SLOPE PAVING (MASONRY BLOCK)	M2	650		
188	021008	ROCK SLOPE PROTECTION FABRIC (TYPE B)	M2	310		
189 (F)	731501	MINOR CONCRETE (CURB)	M3	15		
190	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M3	390		
191 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	11 967		
192 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	6684		
193 (S)	800392	CHAIN LINK FENCE (TYPE CL-1.8, VINYL-CLAD)	M	1690		
194	820107	DELINEATOR (CLASS 1)	EA	150		
195	820151	OBJECT MARKER (TYPE L-1)	EA	14		
196 (S)	832003	METAL BEAM GUARD RAILING (WOOD POST)	M	470		
197 (S-F)	833032	CHAIN LINK RAILING (TYPE 7)	M	651		
198	833080	CONCRETE BARRIER (TYPE K)	M	330		
199	833126	CONCRETE BARRIER (TYPE 25A)	M	130		
200 (F)	833128	CONCRETE BARRIER (TYPE 25 MODIFIED)	M	781		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
221 (S)	021011	SIGNAL AND LIGHTING (STAGE CONSTRUCTION) LOCATION 3	LS	LUMP SUM	LUMP SUM	
222 (S)	021012	SIGNAL AND LIGHTING (STAGE CONSTRUCTION) LOCATION 4	LS	LUMP SUM	LUMP SUM	
223 (S)	021013	LIGHTING AND SIGN ILLUMINATION (STAGE CONSTRUCTION)	LS	LUMP SUM	LUMP SUM	
224 (S)	860402	LIGHTING (CITY STREET)	LS	LUMP SUM	LUMP SUM	
225 (S)	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	
226 (S)	860640	IRRIGATION CONTROLLER ENCLOSURE CABINET	EA	2		
227 (S)	021014	TRAFFIC OPERATIONS SYSTEM-LOCATION 1	LS	LUMP SUM	LUMP SUM	
228 (S)	021015	TRAFFIC OPERATIONS SYSTEM-LOCATION 2	LS	LUMP SUM	LUMP SUM	
229 (S)	021016	TRAFFIC OPERATIONS SYSTEM-LOCATION 3	LS	LUMP SUM	LUMP SUM	
230 (S)	021017	CAMERA UNIT	EA	1		
231 (S)	021018	PAN/TILT UNIT	EA	1		
232 (S)	021019	CAMERA CONTROL UNIT	EA	1		
233 (S)	021020	VIDEO ENCODER UNIT	EA	1		
234 (S)	021021	VIDEO IMAGE SENSOR ASSEMBLY	EA	1		
235 (S)	021022	INTEGRATED SERVICES DIGITAL NETWORK TERMINAL ADAPTOR UNIT	EA	1		
236	BLANK					
237	021506	460 MM WELDED STEEL PIPE CASING (WATER)	M	126		
238	021507	460 MM WELDED STEEL PIPE CASING (PG&E)	M	36		
239	021508	500 MM WELDED STEEL PIPE CASING (PACIFIC BELL)	M	143		
240	021509	660 MM WELDED STEEL PIPE CASING (WATER)	M	37		

ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
241	021510	300 MM CEMENT LINED WELDED STEEL PIPE (ACWD)	M	141		
242	021511	300 MM CEMENT LINED WELDED STEEL PIPE (CITY)	M	286		
243	021512	460 MM CEMENT LINED WELDED STEEL PIPE (ACWD)	M	139		
244	021513	ASPHALTIC EMULSION (CURING SEAL)	TONN	95		
245	021514	ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
246	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____