Contract Documents
And Specifications

For

Construction of

Trunk Water Line Replacement Project
Potrero, Morongo, and Martin Roads

FOR

MORONGO BAND OF MISSION INDIANS

October 2013

WILLDAN Engineering

374 Poli Street, #101
Ventura, CA 93001

This page intentionally left blank

MORONGO BAND OF MISSION INDIANS

A SOVEREIGN NATION

NOTICE INVITING BIDS

FOR

TRUNK WATER LINE REPLACEMENT POTRERO, MORONGO, AND MARTIN ROADS

NOTICE IS HEREBY GIVEN that the Morongo Band of Mission Indians as Owner, invites sealed bids for the project:

Trunk Water Line Replacement Potrero, Morongo, and Martin Roads

Sealed Bids Due: **November 12, 2013 at 3:00 p.m.**

Bids may be mailed to:

Attn: John Covington,
Water Department Manager
Administration Building
12700 Pumarra Road
Banning, CA 92220

Bids must be prepared in conformance with the Instructions to Bidders and submitted in a sealed envelope plainly marked on the outside, "MORONGO BAND OF MISSION INDIANS/ENGINEER ATTN: JOHN COVINGTON, WATER DEPARTMENT MANAGER.: TRUNK WATER LINE REPLACEMENT, POTRERO, MORONGO, AND MARTIN ROADS BID DOCUMENTS. DO NOT OPEN WITH REGULAR MAIL"

1. Project Description:

Water Main

- Installation of approximately 8,505 LF of 16-inch DI CL250 water main
- Installation of water transmission main valves, valves boxes, blow-offs, and associated appurtenances
- Abandonment of approximately 7,150 LF of 16-inch water main
- Removal of approximately 1,400 LF of 16-inch water main
- AC pavement overlay of Potrero Road between Foothill Road and Morongo Road

2. Obtaining Bid Documents:

Contract Documents, Specifications, and Design Plans can be viewed at: **www.morongonation.org**
Copies are available from WILLDAN Engineering, the Owner's Engineer, at the following address:

Contact: Willdan Engineering
Attention: Michael D. Bustos/Project Manager
374 Poli Street, Suite 101
Ventura, CA 93001
805-653-6597

3. Pre-Bid Conference and Job Walk:

Bidders are encouraged to attend a **pre-bid conference at 10:00 A.M. local time on October 22, 2013** at the Morongo Band of Mission Indians Administration Building, 1st Floor Conference Room, 12700 Pumarra Road, Banning, California. Representatives of Owner and Engineer will be present to discuss the Project in more detail. All contractors and associates will have to check in at the Guard Booth when entering the Reservation. Photo ID is required. Destination will be the Administration Building to meet with John Covington.

This page intentionally left blank

4. Bid Security:

The bid must be accompanied by a Bid Security made payable to Owner in an amount of 5% of Bidder's maximum Bid price in the form of a certified check or money order or a Bid bond as outlined in the General Conditions.

5. Bid Opening Day:

Bids will be opened on November 12, 2013 at 3:00 p.m., same time and date they are due.

6. Payment Bond and Contract Bond:

The successful bidder shall furnish to the Owner at the time of execution of the contract a Payment Bond approved by the Owner in an amount equal to one hundred percent (100%) of the contract price. The successful bidder shall also furnish to the Owner at the time of execution of the contract a Performance Bond approved by the Owner in an amount equal to one hundred percent (100%) of the contract price.

The Owner reserves the right to reject any or all bids, to waive any irregularity, and to take all bids under advisement for a period of forty-five days.

This page intentionally left blank

TRUNK WATER LINE REPLACEMENT
POTRERO MORONGO AND MARTIN ROADS
SPECIFICATIONS INDEX

SECTION **NAME**

C-200.....INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS
C-410.....BID FORM FOR CONSTRUCTION CONTRACTS
C-430.....BID BOND
C-450.....NON COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
C-520.....SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)
C-610.....PERFORMANCE BOND
C-615.....PAYMENT BOND
C-700.....GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT
00800.....DBE REQUIREMENTS

TECHNICAL SPECIFICATIONS

01300.....SUBMITTALS
01400.....QUALITY CONTROL
01600.....MATERIAL AND EQUIPMENT
01700.....CONTRACT CLOSEOUT
01800.....STORM WATER POLLUTION PREVENTION PLAN
01900.....TRAFFIC CONTROL PLAN
02225.....TRENCHING AND BACKFILL
02740.....FLEXIBLE PAVEMENT
02800.....ABANDONMENT OF CONDUITS, PIPE AND STRUCTURES
09900.....PAINTING
15010.....PIPING AND APPURTENANCES – GENERAL PROVISIONS
15100.....PRESSURE TESTING OF WATER PIPELINES
15105.....DISINFECTION OF WATER PIPELINES
15115.....DUCTILE IRON PIPE AND FITTINGS
15120.....PVC PIPE AND FITTINGS
15125.....CEMENT MORTAR LINED AND COATED (CML&C) STEEL PIPE
15131.....PIPING SPECIALTIES
15155.....BUTTERFLY VALVES
15160.....GATE VALVES

APPENDICES

APPENDIX A..GEOTECHNICAL REPORT

This page intentionally left blank

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Knowledge for Creating and Sustaining the Built Environment

Construction Specifications Institute

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

ARTICLE 1 - DEFINED TERMS 1

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS 1

ARTICLE 3 - QUALIFICATIONS OF BIDDERS 1

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE 1

ARTICLE 5 - PRE-BID CONFERENCE 3

ARTICLE 6 - SITE AND OTHER AREAS 3

ARTICLE 7 - INTERPRETATIONS AND ADDENDA 3

ARTICLE 8 - BID SECURITY 4

ARTICLE 9 - CONTRACT TIMES 4

ARTICLE 10 - LIQUIDATED DAMAGES 4

ARTICLE 11 - SUBSTITUTE AND “OR-EQUAL” ITEMS 4

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS 5

ARTICLE 13 - PREPARATION OF BID 5

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS 6

ARTICLE 15 - SUBMITTAL OF BID 6

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID 6

ARTICLE 17 - OPENING OF BIDS 7

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE 7

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT 7

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE 7

ARTICLE 21 - SIGNING OF AGREEMENT 7

ARTICLE 22 - SALES AND USE TAXES 8

ARTICLE 23 - RETAINAGE 8

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

TABLE OF ARTICLES (Alphabetical by Subject)

Subject	Article
Award of Contract	7
Basis of Bid; Comparison of Bids	6
Bid Security	4
Bids to Remain Subject to Acceptance	7
Contract Security and Insurance	7
Contract Times	4
Copies of Bidding Documents	1
Defined Terms	1
Examination of Bidding Documents, Other Related Data, and Site	4
Interpretations and Addenda	3
Liquidated Damages	4
Modification and Withdrawal of Bid	6
Opening of Bids	7
Pre-Bid Conference	3
Preparation of Bid	5
Qualifications of Bidders	1
Retainage	8
Sales and Use Taxes	8
Signing of Agreement	7
Site and Other Areas	3
Submittal of Bid	6
Substitute or "Or-Equal" Items	4

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, contractor to include with Bid written evidence such as a statement of qualifications, financial data, previous relevant project experience, and present commitments.

A. Relevant Experience shall include contacts, telephone numbers, value of work, contract period and actual time to complete the work and value of Change Orders.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The following reports listed below identify:

Report of Geotechnical Investigation, Trunk Water Main Replacement Project, dated July 9, 2013; prepared by Willdan Geotechnical

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. No Hazardous Environmental Condition has been identified at the Site.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies at Bidder's expense. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.06 Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

A. Other Work being performed in the area of the Project is as follows:

1. None.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in 4.01 as provided in Paragraph 4.02 of the General Conditions.;

E. obtain and carefully study (or accept consequences of not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 A pre-Bid conference will be held at 10:00 a.m. local time on October 22, 2013, at Morongo Band of Mission Indians Administration Building, 1st Floor Conference Room, 12700 Pumarra Rd., Banning, California. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Attendance is not mandatory. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within 7 days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or "or-equal" materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or "or-equal" item. No item of material or equipment will be considered by Engineer as a substitute or "or-equal" unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 Contractor shall submit along with Bid the identity of certain Subcontractors, Suppliers, individuals, or entities. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer.

13.02 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 *Unit Price*

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.

14.03 Bid prices will be compared after adjusting for differences in the time designated by Bidders for Substantial Completion. The adjusting amount will be determined at the rate set forth in the Contract Documents for liquidated damages for failing to achieve Substantial Completion for each day before or after the desired date appearing in Article 9.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to:

Morongo Band of Mission Indians
Attn: Mr. John Covington
Administration Building
12700 Pumarra Road
Banning, California 92220

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

17.01 The sealed bids will be publicly opened and announced at 3:00 PM on November 12, 2013 at the above mentioned Administration Building.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project and is the lowest price.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 22 - SALES AND USE TAXES

22.01 Owner is exempt from California state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph 6.10 of the General Conditions for additional information.

ARTICLE 23 - RETAINAGE

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

23.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

WAGE REQUIREMENTS

The project is not subject to prevailing wage requirements.

Statutory Penalty for Unauthorized Overtime Work: In accordance with 1813 of the California Labor Code, the CONTRACTOR shall as a penalty to the State or political subdivision on whose behalf the Contract is made or awarded, forfeit twenty-five dollars ($25.00) for each worker employed in the execution of the Contract by the CONTRACTOR or by any Subcontractor for each calendar day during which said worker is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of 1810-1815 of the California Labor Code.

Workers' Compensation Notice: As required by 1860 of the California Labor Code and in accordance with the provisions of 3700 of the Labor Code, every CONTRACTOR will be required to secure the payment of workers' compensation to its employees.

Workers' Compensation Certification by Contractor: In accordance with 1861 of the California Labor Code, the CONTRACTOR shall furnish the OWNER a notarized statement as follows: "I am aware of the provisions of 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract."

Apprenticeship Requirements: CONTRACTOR agrees to comply with 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime CONTRACTOR for all apprenticeship occupations. Under these sections of the law, CONTRACTORS and Subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one apprentice hour for each five journeymen hours (unless an exemption is granted in accordance with 1777.5) and CONTRACTORS and Subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in 3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least 16 years of age, who are in training under apprenticeship standards and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.

Payroll Records: CONTRACTOR shall keep accurate payroll records on forms provided by the Division of Labor Standards Enforcement, or alternatively, the CONTRACTOR shall keep accurate payroll records containing the same information. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual per diem wages paid to each journeyman, apprentice, or worker employed by the CONTRACTOR. Such record shall be made available for inspection at all reasonable hours, and a copy shall be made available to employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Upon written notice from the OWNER or the Division of Labor Standards Enforcement, the CONTRACTOR shall, within ten (10) days, file with the OWNER a certified copy of the payroll records. The CONTRACTOR shall cause an identical clause to be included in every subcontract for the Work.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

BID FORM

FOR CONSTRUCTION CONTRACTS

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

EJCDC C-410 Suggested Bid Form for Construction Contracts
Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

Construction Specifications Institute

BID FORM

Trunk Water Line Replacement Project
Potrero, Morongo, and Martin Roads
for
Morongo Band of Mission Indians

TABLE OF ARTICLES

Article	Article No.
Bid Recipient	1
Bidder's Acknowledgements	1
Bidder's Representations	1
Further Representations	3
Basis of Bid	3
Time of Completion	5
Attachments to this Bid	5
Defined Terms	6
Bid Submittal	6

EJCDC C-410 Suggested Bid Form for Construction Contracts
Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Morongo Band of Mission Indians
Attn: John Covington, Water Department Manager
Administration Building
12700 Pumarra Road
Banning, CA 92220

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s).

FORMAT FOR UNIT PRICE BID

Bid Schedule A – EPA Grant Phase I – Potrero Road and Morongo Road Water Main is for installation of approximately 5,255' of 16" DI CL250 pipe and associated appurtenances.						
Item No.	Description	Unit	Bid Quantity	Bid Unit Price	Bid Price	Specification Section/Plan Reference
1	Potrero Road and Morongo Road Construction Items					
1.1	16" DI pipe installation (including all fittings not included in other bid items), restraints, trench excavation, bedding, pipe laying, and backfill, and pavement restoration (DI pipe and bedding material furnished by Owner)	LF	5,255	$	$	02740 15115 15120
1.2	Install new 1" Polyethylene Service Connection, including 1" Saddle, and 1" Compression Corporation Stop	EA	14	$	$	15131 Construction Note 8 Detail 7, Sheet 13
1.3	Install new 2" Polyethylene Service Connection, including 2" Saddle, and 2" Compression Corporation Stop	EA	4	$	$	15131 Construction Note 10 Detail 7, Sheet 13
1.4	Reconnect to Existing 6" Water Service, including 16" x 6" tee (FLG), 6" DIP, fittings, & incidentals	EA	1	$	$	Construction Notes 21, 30, & 31, Sheet 4
1.5	Connection at Foothill Road Including excavation, field cutting, removals, valves, fittings, 12" DIP, & incidentals	LS	1	$	$	Sheet 3 Detail A, Sheet 14
1.6	Connection at Verdugo Road Including excavation, field cutting, removals, valves, fittings, 12" DIP, & incidentals	LS	1	$	$	Sheet 4 Detail B, Sheet 14

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

1.7	Connection to Existing PRV Station 4 (STA 43+47 and 43+74), Including excavation, field cutting, removals, valves, fittings, & incidentals	LS	1	$	$	Sheet 6 Detail C, Sheet 14
1.8	Connection at Morongo Road Including excavation, field cutting, removals, valves, fittings, 12" DIP & incidentals	LS	1	$	$	Sheet 6 Detail D, Sheet 14
1.9	Culvert Crossing (STA 45+57 to 45+74) Including excavation, fittings, steel pipe spools, & incidentals	LS	1	$	$	Sheet 7 Detail E, Sheet 15
1.10	Connection at Saubel Road Including excavation, field cutting, removals, valves, fittings, 12" DIP & incidentals	LS	1	$	$	Sheet 7 Detail F, Sheet 15
1.11	Connection to Existing PRV Station 5 (STA 55+20) Including excavation, field cutting, removals, valves, fittings, 8" DIP, & incidentals	LS	1	$	$	Sheet 8 Detail G, Sheet 15
1.12	Connection at Malki Road Including excavation, field cutting, removals, valves, fittings, & incidentals	LS	1	$	$	Sheet 8 Detail H, Sheet 15
1.13	16" Mainline Butterfly Valves (FLG), excluding valves included in connection details	EA	8	$	$	15155 Construction Note 6
1.14	12" Gate Valve (FLG), excluding valves included in connection details	EA	1	$	$	15160 Construction Note 7, Sheet 4
1.15	Install New Fire Hydrant and Assembly	EA	5	$	$	Construction Note 19 Detail 4, Sheet 13
1.16	Remove Existing Mainline Valve, excluding valve removals included in connection details	EA	2	$	$	Construction Note 11

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

1.17	Remove Existing Hydrant & Install New Hydrant & Assembly	EA	3	$	$	15131 Construction Note 9
1.18	Abandonment of Existing Water Mains (Cut and Plug)	EA	11	$	$	02800 Construction Note 12
1.19	Install 2-inch Combination Air Vacuum/Release Valve Assembly	EA	2	$	$	15131 Construction Note 25 Detail 3, Sheet 13
1.20	Install 4-inch Blowoff Assembly	EA	1	$	$	15131 Construction Note 26 Detail 8, Sheet 16
1.21	Cold Milling (1.5" Depth)	SF	28,000	$	$	02740
1.22	Tapered Cold Milling (0" to 1.5")	SF	3,700	$	$	02740
1.23	Header Cold Mill	SF	1,765	$	$	02740
1.24	1.5" AC Overlay	Tons	1,000	$	$	02740
1.25	Striping, Pavement Markers, and Pavement Markings (Replace in kind)	LS	1	$	$	Plans
1.26	Traffic Control	LS	1	$	$	01900
SUBTOTAL BID SCHEDULE A (Items 1.1 through 1.26)					$	
Bid Schedule B –EPA Grant Phase II – Martin Road Water Main is for removal of approximately 1,400' of 16" PVC pipe and installation of approximately 3,250' of 16" DI CL250 pipe and associated appurtenances.						
Item No.	Description	Unit	Bid Quantity	Bid Unit Price	Bid Price	Specification Section/Plan Reference
2	Martin Road Construction Items					
2.1	Remove Ex. 16" PVC pipe	LF	1,400	$	$	15115
2.2	16" DI pipe installation (including all fittings not included in other bid items), restraints, trench excavation, bedding, pipe laying, and backfill, and pavement restoration (DI pipe and bedding material furnished by Owner)	LF	3,250	$	$	02740 15115 15120

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

2.3	Install New 1" Polyethylene Service Connection Including 1" Saddle, 1" Compression Corporation Stop	EA	1	$	$	15131 Construction Note 8 Detail 7, Sheet 13
2.4	Remove Existing Hydrant & Install New Hydrant & Assembly	EA	4	$	$	15131 Construction Note 9
2.5	Install New Fire Hydrant and Assembly	EA	1	$	$	Construction Note 19 Detail 4, Sheet 13
2.6	Remove Existing Fire Hydrant	EA	1	$	$	Construction Note 11
2.7	Abandonment of Existing Water Mains (Cut and Plug)	EA	5	$	$	02800 Construction Note 12
2.8	Install 2-inch Combination Air Vacuum/Release Valve Assembly	EA	3	$	$	15131 Construction Note 25 Detail 3, Sheet 13
2.9	Install 4-inch Blowoff Assembly	EA	4	$	$	15131 Construction Note 26 Detail 8, Sheet 16
2.10	16" Mainline Butterfly Valves (FLG), excluding valves included in connection details	EA	4	$	$	15155
2.11	Connection at Malki Road Including excavation, removals, fittings, & incidentals	LS	1	$	$	Sheet 10
2.12	Connection at Ramon Road Including excavation, flange adaptors w/ restraints, & incidentals	LS	1	$	$	Sheet 11
2.13	Connection at Mathews Road including excavation, field cutting, removals, fittings, 8" DIP, & incidentals	LS	1	$	$	Sheet 12
2.14	Connection at Ruiz Road Including excavation, field cutting, removals, fittings, & incidentals	LS	1	$	$	Sheet 13
2.15	Traffic Control	LS	1	$	$	01900
SUBTOTAL BID SCHEDULE B (Items 2.1 through 2.15)					$	

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

Bid Schedule C – Bonds and Insurance						
Item No.	Description	Unit	Bid Quantity	Bid Unit Price	Bid Price	Specification Section/Plan Reference
3.1	Insurance	LS	1	$	$	-
3.2	Bonds	LS	1	$	$	-
SUBTOTAL BID SCHEDULE C (Items 3.1 through 3.2)					$	

TOTAL BASE BID (BID SCHEDULE A + BID SCHEDULE B + BID SCHEDULE C)

$_____

TOTAL BASE BID (IN WRITING) CONTRACTOR'S NAME

_____ _____

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement and Instructions to Bidders.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

A. Required Bid security in the form of a certified check or bank money order or bid bond

B. List of Proposed Subcontractors

C. List of Proposed Suppliers

D. List of Project References

E. Required Bidder Qualification Statement with Supporting Data

F. Affidavit of Non-Collusion

G. DBE Forms/Good Faith Estimate

ARTICLE 8 – NOTES TO USER

8.01 Not Used

ARTICLE 9 – DEFINED TERMS

9.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders and the General Conditions.

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

ARTICLE 10 – BID SUBMITTAL

10.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: (SEAL)
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By:
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By:
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest

Date of Authorization to do business in *California* is / / .

A Joint Venture

Name of Joint Venture: _____

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

First Joint Venturer Name: _____ (SEAL)

By:
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title:

Second Joint Venturer Name: _____ (SEAL)

By:
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title:

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Phone No. Fax No.

SUBMITTED on , 20 .

State Contractor License No. _____. (If applicable)

Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

BID
Bid Due Date:
Project (Brief Description Including Location):

Construction and installation of TRUNK WATER LINE REPLACEMENT PROJECT – POTRERO ROAD, MORONGO ROAD, AND MARTIN ROAD.

BOND
Bond Number:
Date (Not later than Bid due date):
Penal sum _____ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER	SURETY
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:
   3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in

This page intentionally left blank

writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2. All Bids are rejected by Owner, or

3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

This page intentionally left blank

NON COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER
AND SUBMITTED WITH BID
(Public Contract Code Section 7106)

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

By _____

Subscribed and sworn to before me on _____
(date)

_____
(Notary Public)

(seal)

This page intentionally left blank

SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES

National Society of Professional Engineers
Professional Engineers in Private Practice

ASCE American Society of Civil Engineers

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Construction Specifications Institute

Knowledge for Creating and Sustaining the Built Environment

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

EJCDC
SUGGESTED FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between Morongo Band of Mission Indians, a Federally Recognized Indian Tribe

(Owner) and _____

(Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 - WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Replacement of approximately 8,550 linear feet of the existing 16" water pipelines on Potrero Road, Morongo Road, and Martin Road, and all related fittings, valves and other appurtenances as outlined in the Trunk Water Line Replacement Project Construction Drawings and Specifications, including the obligations set forth within the General Conditions of the Construction Contract.

Water Main

- Installation of approximately 8,505 LF of 16-inch DI CL250 water main
- Installation of water transmission main valves, valves boxes, blow-offs, and associated appurtenances
- Abandonment of approximately 7,150 LF of 16-inch water main
- Removal of approximately 1,400 LF of 16-inch water main
- AC pavement overlay of Potrero Road between Foothill Road and Morongo Road

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

TRUNK WATER LINE REPLACEMENT PROJECT – POTRERO, MORONGO, AND MARTIN ROADS.

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by Willdan Engineering, (Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The Work will be substantially completed within ninety (90) days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

with Paragraph 14.07 of the General Conditions within one hundred five (105) days after the date when Contract Times commence to run. Contractor will not be liable for any delays caused by Owner, which may extend the 105 day period. All delays by Owner shall be documented by the field inspector.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner $500 for each day that expires after the time specified for paragraph 4.02A for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $10,000 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and below:

A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.B.

As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

B. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit. The Contract amount of
_____ ($_____).
(words) (figures)

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and

b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 90 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of 1.5% percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, Morongo Band of Mission Indians and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified as provided in Paragraph 4.06 of the General Conditions.

E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 7, inclusive).

2. Performance bond (pages 1 to 3, inclusive).

3. Payment bond (pages 1 to 3, inclusive).

4. Other bonds (pages _____ to _____, inclusive).

a. _____ (pages _____ to _____, inclusive).

b. _____ (pages _____ to _____, inclusive).

c. _____ (pages _____ to _____, inclusive).

5. General Conditions (pages 1 to 62, inclusive).

6. Specifications as listed in the table of contents of the Project Manual.

7. Drawings consisting of 16 sheets with each sheet bearing the following general title: Trunk Water Line Replacement Project, Potrero, Morongo, Martin Rds.

8. Addenda (as applicable)

9. Exhibits to this Agreement (enumerated as follows):

a. Contractor's Bid (pages 1 to 10, inclusive).

b. Documentation submitted by Contractor prior to Notice of Award.

1. Certification of DBE/MBE/WBE Subcontractors, inclusive.

2. Bid Bond (pages 1 to 2), inclusive.

3. List of Proposed Subcontractors (pages 1 to _), inclusive.

4. List of Proposed Suppliers (pages 1 to _), inclusive.

5. List of Project References (pages 1 to _), inclusive.

6. Bidder Qualification Statement (pages 1 to _), inclusive.

7. Copy of Contractors State License Board Active License (pages 1 to 1), inclusive.

8. Non-Collusion Affidavit (pages 1 to 1), inclusive.

9. DBE Forms (Forms 1-6, EPA Forms 6100-2,3,4), inclusive.

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

11.

Not Used

12. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

a. Notice to Proceed (pages _____ to _____, inclusive).

b. Work Change Directives.

c. Change Order(s).

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Other Provisions

A. This Agreement shall be governed by, and construed in accordance with the laws of the United States. To the extent that there is no applicable Federal law, this agreement shall be governed by and construed in accordance with the laws of the State of California.

B. In the event of a conflict, inconsistency, or ambiguity between the Contract Documents, the following Order of Precedence shall govern:

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

Change Orders or Written Amendments to Contact Documents (latest to earliest in order of precedence)
Drawings
Specifications
This Agreement
General Conditions
Bid Form
Inviting Bids

C. To the extent permitted by law, Contractor will give first consideration of employment to qualified members of the Morongo Band of Mission Indians, qualified descendants of members of the Morongo Band of Mission Indians, and qualified members of other Federally-recognized Indian tribes subject to Contractor's hiring policies including the applicant's successfully passing a drug screen test to be administered by Contractor. Contractor will provide said employees with a wage and benefit package comparable to non-union wages and benefits found in the locale of the Project. Contractor will continue to provide employment to all Morongo Tribal members or descendants who accept employment with Contractor so long as their positions are necessary to Contractor's performance under this Agreement and they continue to perform their duties in a satisfactory manner. The foregoing provision similarly applies to Contractor's onsite Construction Subcontractors.

[SIGNATURE PAGE FOLLOWS]

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:

Morongo Band of Mission Indians

By: _____

Title: Robert Martin, Tribal Chairman

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for giving notices:

12700 Pumarra Road

Banning, CA 92220

Attn: Chairman and Water Dept. Manager

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement.)

CONTRACTOR:

_____

By: _____

Title: _____

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for giving notices:

_____

_____

_____

License No.: _____
(Where applicable)

Agent for service or process: _____

_____

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

Copyright 8 2002 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

CONTRACT
Date:
Amount:
Description (Name and Location):

TRUNK WATER LINE REPLACEMENT PROJECT – POTRERO, MORONGO, AND MARTIN ROAD

BOND
Bond Number:
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL
Company:

Signature: _____ (Seal)
Name and Title:

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: _____
Signature and Title

CONTRACTOR AS PRINCIPAL
Company:

Signature: _____ (Seal)
Name and Title:

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title:

EJCDC No. C-610 (2002 Edition)
Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

This page intentionally left blank

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

3.3. Owner has agreed to pay the Balance of the Contract Price to:

1. Surety in accordance with the terms of the Contract;

2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or

2. Deny liability in whole or in part and notify Owner citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within

This page intentionally left blank

two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone Surety Agency or Broker Owner's Representative (engineer or other party)

This page intentionally left blank

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

CONTRACT
Date:
Amount:
Description (Name and Location):

TRUNK WATER LINE REPLACEMENT PROJECT – POTRERO ROAD, MORONGO AND MARTIN ROAD

BOND
Bond Number:
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL
Company:

Signature: _____ (Seal)
Name and Title:

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: _____
Signature and Title

CONTRACTOR AS PRINCIPAL
Company:

Signature: _____ (Seal)
Name and Title:

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title:

EJCDC No. C-615 (2002 Edition)Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

This page intentionally left blank

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to

This page intentionally left blank

be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker:
Owner's Representative (engineer or other party):

This page intentionally left blank

GENERAL CONDITIONS

OF THE

CONSTRUCTION CONTRACT

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

This page intentionally left blank

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1 – Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 5

Article 2 – Preliminary Matters 6
2.01 Delivery of Bonds and Evidence of Insurance 6
2.02 Copies of Documents 6
2.03 Commencement of Contract Times; Notice to Proceed 6
2.04 Starting the Work 7
2.05 Before Starting Construction 7
2.06 Preconstruction Conference; Designation of Authorized Representatives 7
2.07 Initial Acceptance of Schedules 7

Article 3 – Contract Documents: Intent, Amending, Reuse 8
3.01 Intent 8
3.02 Reference Standards 8
3.03 Reporting and Resolving Discrepancies 9
3.04 Amending and Supplementing Contract Documents 9
3.05 Reuse of Documents 10
3.06 Electronic Data 10

Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points 10
4.01 Availability of Lands 10
4.02 Subsurface and Physical Conditions 11
4.03 Differing Subsurface or Physical Conditions 11
4.04 Underground Facilities 13
4.05 Reference Points 14
4.06 Hazardous Environmental Condition at Site 14

Article 5 – Bonds and Insurance 16
5.01 Performance, Payment, and Other Bonds 16
5.02 Licensed Sureties and Insurers 16
5.03 Certificates of Insurance 16
5.04 Contractor's Insurance 17
5.05 Owner's Liability Insurance 19
5.06 Property Insurance 19
5.07 Waiver of Rights 21

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

5.08 Receipt and Application of Insurance Proceeds 21
5.09 Acceptance of Bonds and Insurance; Option to Replace 22
5.10 Partial Utilization, Acknowledgment of Property Insurer 22

Article 6 – Contractor's Responsibilities 22
6.01 Supervision and Superintendence 22
6.02 Labor; Working Hours 23
6.03 Services, Materials, and Equipment 23
6.04 Progress Schedule 23
6.05 Substitutes and "Or-Equals" 24
6.06 Concerning Subcontractors, Suppliers, and Others 26
6.07 Patent Fees and Royalties 27
6.08 Permits 28
6.09 Laws and Regulations 28
6.10 Taxes 28
6.11 Use of Site and Other Areas 29
6.12 Record Documents 29
6.13 Safety and Protection 30
6.14 Safety Representative 31
6.15 Hazard Communication Programs 31
6.16 Emergencies 31
6.17 Shop Drawings and Samples 31
6.18 Continuing the Work 33
6.19 Contractor's General Warranty and Guarantee 33
6.20 Indemnification 34
6.21 Delegation of Professional Design Services 35

Article 7 – Other Work at the Site 35
7.01 Related Work at Site 35
7.02 Coordination 36
7.03 Legal Relationships 36

Article 8 – Owner's Responsibilities 37
8.01 Communications to Contractor 37
8.02 Replacement of Engineer 37
8.03 Furnish Data 37
8.04 Pay When Due 37
8.05 Lands and Easements; Reports and Tests 37
8.06 Insurance 37
8.07 Change Orders 37
8.08 Inspections, Tests, and Approvals 37
8.09 Limitations on Owner's Responsibilities 38
8.10 Undisclosed Hazardous Environmental Condition 38
8.11 Evidence of Financial Arrangements 38
8.12 Compliance with Safety Program 38

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Article 9 – ENGINEER'S STATUS During Construction 38
9.01 Owner's Representative 38
9.02 Visits to Site 38
9.03 Project Representative 39
9.04 Authorized Variations in Work 39
9.05 Rejecting Defective Work 39
9.06 Shop Drawings, Change Orders and Payments 39
9.07 Determinations for Unit Price Work 40
9.08 Decisions on Requirements of Contract Documents and Acceptability of Work 40
9.09 Limitations on Engineer's Authority and Responsibilities 40
9.10 Compliance with Safety Program 41

Article 10 – Changes in the Work; Claims 41
10.01 Authorized Changes in the Work 41
10.02 Unauthorized Changes in the Work 41
10.03 Execution of Change Orders 41
10.04 Notification to Surety 42
10.05 Claims 42

Article 11 – Cost of the Work; Allowances; Unit Price Work 43
11.01 Cost of the Work 43
11.02 Allowances 46
11.03 Unit Price Work 46

Article 12 – Change of Contract Price; Change of Contract Times 47
12.01 Change of Contract Price 47
12.02 Change of Contract Times 48
12.03 Delays 48

Article 13 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 49
13.01 Notice of Defects 49
13.02 Access to Work 49
13.03 Tests and Inspections 49
13.04 Uncovering Work 50
13.05 Owner May Stop the Work 50
13.06 Correction or Removal of Defective Work 51
13.07 Correction Period 51
13.08 Acceptance of Defective Work 52
13.09 Owner May Correct Defective Work 52

Article 14 – Payments to Contractor and Completion 53
14.01 Schedule of Values 53
14.02 Progress Payments 53
14.03 Contractor's Warranty of Title 56
14.04 Substantial Completion 56
14.05 Partial Utilization 56
14.06 Final Inspection 57

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

14.07 Final Payment 57
14.08 Final Completion Delayed 58
14.09 Waiver of Claims 59

Article 15 – Suspension of Work and Termination 59
15.01 Owner May Suspend Work 59
15.02 Owner May Terminate for Cause 59
15.03 Owner May Terminate For Convenience 60
15.04 Contractor May Stop Work or Terminate 61

Article 16 – Dispute Resolution 61
16.01 Methods and Procedures 61

Article 17 – Miscellaneous 61
17.01 Giving Notice 61
17.02 Computation of Times 62
17.03 Cumulative Remedies 62
17.04 Survival of Obligations 62
17.05 Headings 62

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer and Owner which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment, as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

   a. does not conform to the Contract Documents; or

   b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

   c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified herein, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to four printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction. In addition, at Owner's sole discretion Drawings may also be provided in electronic format.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents. The Morongo Band of Mission Indians Water Department Construction Standards shall be utilized.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. The data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* Owner has provided to Contractor:

1. those reports, if any, known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" contained in any such report upon which Contractor may rely, if any, shall be identified in a supplemental document to be provided within five (5) working days after execution of the Agreement. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others.

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

   a. reviewing and checking all such information and data;

   b. locating all Underground Facilities shown or indicated in the Contract Documents;

   c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

   d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Owner has provided to Contractor those reports and drawings, if any, known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" contained in any such report upon which Contractor may rely, if any, shall be identified in a supplemental document to be provided within five (5) working days after execution of the Agreement. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and their respective officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided herein or in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified herein or in the Supplementary Conditions, certificates of insurance (and other

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified herein or in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified herein or in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided herein or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified herein or in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

   a. Such insurance shall remain in effect for two years after final payment.

   b. Contractor shall furnish Owner and each other additional insured identified herein or in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

   a. Statutory Limits.

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

eliminate the exclusion with respect to property under the care, custody and control of Contractor and which shall provide coverage as follows:

a. For each occurrence (combined single limit for bodily injury and property damage) in an amount not less than $1,000,000.

b. Aggregate for Products/Completed Operation in an amount not less than $2,000,000.

c. General Aggregate (to apply separately to Contractor's work under this contract) in an amount not less than $2,000,000.

d. Umbrella or excess liability coverage in an amount not less than $10,000,000. The umbrella or excess insurance policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:

Each person	$2,000,000
Each Accident	$2,000,000

b. Property Damage:

Each Accident	$2,000,000
Annual Aggregate	$4,000,000

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided herein, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be determined by Owner or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified herein, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations,

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment approved by Engineer and Owner;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified herein, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified herein. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified herein as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified herein as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld).

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, hydrostatic testing and related equipment, drinking water for workers, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

D. Owner shall supply the following: Construction water, soils compaction tests, progress inspections, and permitting work within the pipeline alignment.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

   a. in the exercise of reasonable judgment Engineer determines that:

      1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

      2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

      3) it has a proven record of performance and availability of responsive service.

   b. Contractor certifies that, if approved and incorporated into the Work:

      1) there will be no increase in cost to the Owner or increase in Contract Times; and

      2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

   a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

   b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If these General Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance herewith, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified herein to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and their officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Owner shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work. Notwithstanding the foregoing, Contractor

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

shall cooperate with Owner in establishing and following a procedure designed to reduce or eliminate any requirement for payment of sales, use or other similar taxes, to the extent allowable under California law.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner and Engineer or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

   a. Submit number of copies specified in the General Requirements.

   b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

   a. Submit number of Samples specified in the Specifications.

   b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

   a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

   b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

   c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

   d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring approval and Contractor shall reimburse Engineer for Engineer's charges for such time.

G. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Engineer for Engineer's charges for its review time unless the need for such change is beyond the control of Contractor.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's one year warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in herein, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided herein.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, or regarding the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor shall not include prevailing wage. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine , with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

   c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work. In no event shall the aggregate rental paid for any item rented from Contractor exceed seventy-five percent (75%) of the purchase price for such item. In the event that the rental costs for any item is expected to exceed the percentage set forth in the preceding sentence, Contractor shall notify Owner and Owner shall have the option, in Owner's sole discretion, to purchase such item and retain it after completion of the Work.

   d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

   e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

   f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When any Work is performed on the basis of cost-plus, Contractor's fee shall be ten percent (10%). When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer'sacceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the bets of the Engineer's knowledge, information and belief:

    a. the Work has progressed to the point indicated;

    b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

    c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

    a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

    b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work, or

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

    d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling Owner to a set-off against the amount recommended; or

   d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice(with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed and/or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver a definitive Substantial of Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objection(s) from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents,

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner , Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection withOwner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer,) and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

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

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Owner's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Contractor:

1. Elects in writing to invoke the dispute resolution process provided for in attachment entitled Limited Waiver of Sovereign Immunity and Dispute Resolution.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Exhibit 1

DISPUTE RESOLUTION AND LIMITED WAIVER OF SOVEREIGN IMMUNITY

A. **Limited Waiver of Sovereign Immunity.** The Morongo Band of Mission Indians ("Tribe"), a federally-recognized Indian tribe, hereby expressly grants a limited waiver of its sovereign immunity (hereinafter "Limited Waiver"), as described herein, solely for actions (including non-binding arbitration required herein) brought by _____ ("_____"), but by no other entity or individual, requesting enforcement of the specific covenants and obligations of the Tribe under the agreement to which this Limited Waiver is attached as an Exhibit (the "Agreement") or actual damages against the Tribe. This limited Waiver is to be strictly construed in favor of the Tribe. Except as expressly set forth herein, the Tribe does not waive, limit or modify its sovereign immunity.

B. **Conditions Precedent to Limited Waiver.** Notwithstanding anything to the contrary contained herein or in the Agreement, the Tribe grants this Limited Waiver of its sovereign immunity as to any claim if and only if each and every one of the following conditions is met:

1. The claim is brought by _____ and not by any third party. (There are no third-party beneficiaries of the Agreement or this Limited Waiver.)

2. The claim alleges a breach by the Tribe of one or more of the specific obligations or duties of the Tribe under the terms of the Agreement.

3. The claim seeks:

   a. Some specific action, or discontinuance of some action, by the Tribe to bring the Tribe into full compliance with the duties and obligations expressly assumed by it under the Agreement; or

   b. Money damages for noncompliance with the terms and provisions of the Agreement. Any recovery of damages shall be limited to those amounts required to be paid under the Agreement and shall not include special, punitive, exemplary, or consequential damages.

4. _____ has complied with the Meet and Confer and Non-Binding Arbitration provisions set forth below.

C. **Meet and Confer.** Prior to instituting an action to which this Limited Waiver is applicable, _____ must first raise the matter in dispute for which it is seeking relief with the Morongo Tribal Council by written notice requesting a Meet and Confer to be held.

1. The written notice must state the specific issue(s) in dispute, the provision(s) of the Agreement claimed to be at issue or involved in the dispute, and the relief requested by _____.

2. The Parties shall jointly arrange a mutually agreeable time and place to Meet and Confer, which time shall be no less than five (5) and no more than twenty (20) business days after receipt of the request, unless the Parties agree that there is a good cause to extend this time limit. Attendees at the Meet and Confer shall have sufficient authority to resolve the matters at issue, unless the dispute is of a nature that requires approval by the Tribe's General Membership.

3. Any Meet and Confer session shall be private, and shall be deemed to be a settlement negotiation for the purpose of all state and federal rules protecting disclosures made during such conferences from later discovery or use in evidence. Neither Party may rely on, or seek to introduce as evidence in any judicial or other proceeding, any admission, any proposal, or any discussion or stated view of any proposal or the merits of either Party's position made in connection with any Meet and Confer session. Notwithstanding the foregoing, any document or factual information otherwise subject to discovery or otherwise admissible shall not be excluded from discovery or admission in evidence simply as a result of it having been used in connection with the Meet and Confer.

4. In the event the Tribal Council is unwilling to Meet and Confer within twenty (20) business days after receipt of a Meet and Confer request, the requirement to Meet and Confer shall be deemed to have been satisfied.

D. **Non-Binding Arbitration.** In the event a dispute is not resolved as a result of the Meet and Confer process, _____ may demand that the matter be submitted to non-binding arbitration.

1. The demand for submission of the matter to non-binding arbitration must be made no later than twenty-eight (28) days after the completion of the Meet and Confer process or the Tribal Council's failure to meet within the time period set forth in Section C above.

2. The non-binding arbitration shall be limited to the specific issue(s) identified in the Meet and Confer request.

3. Within twenty (20) business days after delivery of a demand for non-binding arbitration, each Party must notify the other party of the name of an arbitrator who is a practicing lawyer or retired judge with experience in disputes involving real property in the State of California, but who has (and whose law firm has) at no time represented or acted on behalf of either of the Parties. In the event that either Party fails to designate an arbitrator within that time period, the American Arbitration Association shall be requested to select an arbitrator who meets the same qualifications in lieu of designation of an arbitrator by the Party that failed to make such designation within the required time period.

4. Within ten (10) days after completion of the designation of the first two arbitrators, the two arbitrators so designated shall meet in person or by telephone and agree upon the appointment of a third arbitrator with the same qualifications and background. In the event the two arbitrators cannot agree on the selection of a third arbitrator within the 10-

day time period, the third arbitrator shall be selected by the American Arbitration Association. In the event any arbitrator becomes incapacitated or otherwise is unable to act as an arbitrator hereunder, that arbitrator shall be replaced in accordance with the provision of this Article as if such replacement was an initial appointment to be made hereunder.

5. Each party shall have the right to conduct some discovery in connection with the arbitration proceedings, but the discovery shall be limited to the pre-hearing production of relevant documents and to such deposition discovery, limited both in number of depositions and duration, as the Arbitration Panel may approve by majority vote.

6. The Arbitration Panel shall hear any and all issues of law and of fact relevant to resolution of the specific issue(s) in dispute, with the hearing to take place at a mutually agreeable location within Riverside County on such date(s) and time(s) as may be agreed upon by the Parties and the members of the Arbitration Panel.

7. The Arbitration Panel shall make its non-binding determination in writing within thirty (30) days after the close of evidence and briefing in the arbitration. In the event the determination is not unanimous, the arbitrator who disagrees with the determination shall set forth his/her reasons for disagreeing with the majority's determination.

8. The Arbitration Panel shall have no power to vary or modify any terms of this Agreement.

9. Each party to the Arbitration shall pay its own attorney and expert witness fees and any other costs associated with the arbitration. The Arbitration Panel shall determine by majority vote who shall bear the fees and expenses of the Arbitration Panel or whether the fees and expenses of the Arbitration Panel shall be shared by the Parties, and if so, in what proportions. The determination of the Arbitration Panel with respect to payment of its fees and expenses shall be binding upon the Parties and may be reduced to a judgment.

E. **Suit, Jurisdiction.** Any action brought under the Agreement shall be brought only in the California Superior Court for Riverside County or in the Division of the United States District Court for the Central District of California in which Riverside County is located, and both Parties agree that such courts are the proper venue for such an action. Provided that _____ has complied with the Conditions Precedent to Limited Waiver set forth above, the Tribe shall be deemed to have waived its sovereign immunity as to any claim identified in the original request to Meet and Confer; provided, however, that such waiver shall not apply to any claim for special, punitive, exemplary, or consequential damages.

F. **No Waiver as to Any Individual.** This Limited Waiver does not apply to any claim brought against, or seeking to recover any relief from, any member, employee, agent or attorney of or for the Tribe.

G. **Attorney Fees.** Each Party shall bear its own attorney fees in connection with any legal proceedings brought pursuant to this Limited Waiver.

H. **Choice of Law.** The Parties agree any dispute arising under the Agreement shall be resolved first in accordance with applicable tribal law, if any, then in accordance with applicable federal law, if any; provided, however, if there is no applicable tribal or federal law, then California law shall be applied.

DBE FORMS

This page intentionally left blank

Clean Water State Revolving Fund Loan Program/ SDWA Drinking Water State Revolving Fund
DBE Instructions

State Water Resources Control Board Division of Financial Assistance (DFA)
1001 I Street· Sacramento, California 95814· (916) 341-5700 FAX (916) 341-5707 Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120 Internet Address:
http://www.waterboards.ca.gov
United States Environmental Protection Agency
Region 9
75 Hawthorne Street, San Francisco, CA 94104
http://www.epa.gov/region09

Compliance Guidelines for Clean Water State Revolving Fund (CWSRF)/SDWA Drinking Water State Revolving Loan Program Disadvantaged Business Enterprise (DBE)

This document and attachments shall be included by the owner as a contract provision for all construction contracts.

Compliance with the requirements of this document and attachments satisfies the DBE requirements of the U. S. Environmental Protection Agency and the State Water Resources Control Water Board. This document supersedes any conflicting requirements.

Failure to apply the *(6) Good Faith Efforts* listed under the Requirements in Section 3, prior to bid opening and to submit "Disadvantaged Business Enterprise Information" **(Form 4)** with the bid shall cause the bid to be rejected as a non-responsive bid. All other required "Good Faith Effort" documentation must be submitted within 10 working days of bid opening by selected Contractor.

NOTE: On March 26, 2008, the Environmental Protection Agency (EPA) Office of Small Business Programs (OSBP) published its final rule, "Participation by Disadvantaged Business Enterprises in Procurement under Environmental Protection Agency Financial Assistance Agreements (DBE Rule) in the Federal Register (40 CFR Part 30-40). The final rule took effect on May 27, 2008. The EPA DBE Program encompasses many of the components of the former MBE/WBE Program and also includes changes.

Some changes are:

- Creation of the Disadvantaged Business Enterprise (DBE) Program (formerly the Minority Business Enterprise, Women's Business Enterprise (MBE/WBE) Program.
- Recipients must negotiate fair share objectives with the agency, and now the fair share objectives and supporting documentation must be submitted within 120 days after acceptance of the assistance award.
- The "Six Affirmative Steps" and "Six Positive Efforts" were combined into the "Six Good Faith Efforts."
- Recipients who reported quarterly under the old program will now report semi-annually.

MBE's and WBE's can no longer self-certify. They must be certified by EPA, Small Business Administration (SBA), Department of Transportation (DOT) or by state, local, Tribal or private entities whose certification criteria match EPA's. (MBEs and WBEs must be certified in order to be counted toward a recipient's MBE/WBE accomplishments.) The new requirements affect all financial assistance agreements entered into from the effective date of the rule (May 25, 2008). The new DBE rule won't affect those financial assistance agreements entered into before May 25, 2008; those will still operate under the old MBE/WBE program requirements.

- The Contractor shall not discriminate on the basis of race, color, national origins, or sex in the performance of any contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreement. Failure by the contractor to carry out these requirements is a material breach of any contract which may result in termination of the contract or other legally binded document.

The MBE/WBE Contract goal for this project is <u>2% MBE/ 1% WBE.</u>

Table of Contents

Section Description

1. Prime Contractor & Recipient Responsibilities 3

2. "Good Faith" Effort Process 4

3. Non-Governmental Local Contacts 8

4. Reporting Requirements 9

5. Definitions 10

6. DBE Forms 12

This page intentionally left blank

SECTION 1: PRIME CONTRACTOR & RECIPIENT RESPONSIBILITIES

PARTICIPATION RESPONSIBILITIES FOR PRIMES AND THEIR SUBCONTRACTORS

All recipients of federal funds from the U. S. Environmental Protection Agency (USEPA), as well as their prime contractors and subcontractors, must make every effort to solicit bids from eligible DBEs. This information must be documented and reported to EPA as described in this document.

The DBE Pre- Award responsibilities of the prime contractor(s) are:

1. To conduct a "Good Faith" efforts to ensure maximum DBE participation in the project if the prime contractor awards subcontracts.
2. Employ the Six Good Faith Efforts even if the Prime contractor has achieved its fair share objectives.
3. Complete or obtain from DBE subcontractors, all of the completed forms required in these guidelines **(Forms 1-5, attachment A-E)** and submit them to the recipient including **EPA form 6100-2, 3, and 4. (attachment F-H)**

The DBE Post – Award responsibilities of the prime contractor are:

1. Pay Sub- Contractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the EPA grantee.
2. Notify the EPA grantee in writing prior before the prime contractor terminates a DBE subcontractor for convenience.
3. Employee the Sixth Good Faith Efforts if soliciting a replacement subcontractor after the DBE subcontractor fails to complete work under the subcontract for any reason.
4. Inform the EPA grantee of DBE participation achieved for their required reporting.
5. Maintain records documenting compliance with the DBE regulations, including documentation of the contractor's good faith efforts.
6. Report actual DBE participation on a quarterly basis to the recipient OR PRIOR TO CONTRACT CLOSEOUT, WHICH EVER OCCURS FIRST. All required documents shall be submitted to the Recipient before final payment is made by the Recipient.

The DBE responsibilities of the Recipient are:

1. To ensure that the prime contractor and sub-contractor meets the responsibilities identified in these guidelines;
2. Submit all documentation identified in these guidelines to EPA within the required timelines and maintain all records in the project files for later access or auditing; and
3. Provide semi-annual reports on DBE procurements to EPA.

SECTION 2: "Good Faith" Effort Process

Any public or private entity receiving federal funds must demonstrate that efforts were made to attract DBEs on any CWSRF/DWSRF contracts. The process to attract DBEs is referred to as the "Good Faith" efforts. This effort requires the recipient, prime contractor and any subcontractors to take the steps listed below to assure that DBEs are used whenever possible as sources of supplies, construction, equipment or services. Failure to take the steps outlined below and submit **Form 4** *(Prime Contractor, Recipient Selected DBE),* prior to bid opening, shall cause the bid to be rejected as non-responsive. Use Forms **1 through 5** to document the process, **Form 6** is completed by the Recipient. If it is not practical or possible to comply with one or more of the five steps, prepare an explanation and submit it with the bid package. Title 40 of the Code of Federal Regulations (40 CFR), Protection of Environment, Part 33, § 33.304: Must a Native American (either as an individual, organization, Tribe or Tribal Government) recipient or prime contractor follow the six good faith efforts?

(a) A Native American (either as an individual, organization, corporation, Tribe or Tribal Government) recipient or prime contractor must follow the six good faith efforts only if doing so would not conflict with existing Tribal or Federal law, including but not limited to the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e), which establishes, among other things, that any federal contract, subcontract, grant, or subgrant awarded to Indian organizations or for the benefit of Indians, shall require preference in the award of subcontracts and subgrants to Indian organizations and to Indian-owned economic enterprises.

(b) Tribal organizations awarded an EPA financial assistance agreement has the ability to solicit and recruit Indian organizations and Indian-owned economic enterprises and give them preference in the award process prior to undertaking the six good faith efforts. Tribal governments with promulgated tribal laws and regulations concerning the solicitation and recruitment of Native-owned and other minority business enterprises, including women- owned business enterprises, have the discretion to utilize these tribal laws and regulations in lieu of the six good faith efforts. If the effort to recruit Indian organizations and Indian- owned economic enterprises is not successful, then the recipient must follow the six good faith efforts. All tribal recipients still must retain records documenting compliance in accordance with §33.501 and must report to EPA on their accomplishments in accordance with §33.502.

(c) Any recipient, whether or not Native American, of an EPA financial assistance agreement for the benefit of Native Americans, is required to solicit and recruit Indian organizations and Indian-owned economic enterprises and give them preference in the award process prior to undertaking the six good faith efforts. If the efforts to solicit and recruit Indian organizations and Indian-owned economic enterprises are not successful, then the recipient must follow the six good faith efforts.
(d) Native Americans are defined in §33.103 to include American Indians, Eskimos, Aleuts and Native Hawaiians.

STEP 1: Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State, Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them

whenever they are potential sources.

STEP 2: Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

STEP 3: Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

STEP 4: Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

STEP 5: Use the services of the U.S. Small Business Administration (SBA) and the Minority Business Development Agency (MBDA) of the U. S. Department of Commerce (DOC) in soliciting qualified DBEs. Utilization of these resources is required at no cost.

For additional assistance, the recipient or contractor can telephone the local offices of both agencies in their area (SBA Minority Enterprise Development Offices and DOC MBDA Regional Centers). The Internet web sites also include names, addresses, and phone or fax numbers of local SBA and MBDA centers. There are contact phone numbers available that will assist you in reaching the two offices if the Internet is unavailable. Do not write to these sources. The prime contractor must provide documentation that the local SBA/MBDA offices or web sites were notified of the contracting bid opportunity at least fifteen working days prior to bid opening and solicitation to DBE subcontractors at least ten working days prior to bid opening.

Documentation must not only include the efforts to contact the information sources and list the contract opportunity, but also the solicitation and response to the bid request. Include qualified DBEs on solicitation lists **(Form 1)** and record the information. Solicitation should be as broad as possible. The following web sites include a list of available sources for expanding the search for eligible DBEs: **http://www.sba.gov. http://www.ccl.gov** and **http://www.mbda.gov.** If DBE sources are *not* located, explain why and describe the efforts made.

For all contracts, the prime contractor must send invitations to at least three (or all, if less than three) DBE vendors for each item of work referred by sources contacted. The invitations must adequately specify the items for which bids are requested. The record of "good faith" efforts must indicate a real desire for a positive response, such as a certified mail receipt or a documented telephone conversation. (A regular letter or an unanswered telephone call is *not* an adequate "good faith" effort). A list of all sub -bidders, including the bidders not selected and non DBE subcontractors, and bid amount for each item of work must be submitted on **Form 5**. If a low bid was not accepted, an explanation must be provided.

STEP 6: If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs (1) through (5) of this section.

Federal Agencies:

Name and Address	Telephone Number and Web Site			
U.S.Small Business Administration	(415) 744-6820 Extension 0			
455 Market, Suite 600	PRO-Net DAOAbase: http://www.ccr.gov			
San Francisco, CA 94105	Bid Notification: http://web.sba.gov/subnet			
RE: Minority Enterprise Development Offices				
U.S. Department of Commerce	(415) 744-3001			
Minority Business Development Agency	Phoenix/Opportunity DAOAbase:			
211 Main Street, Room 1280	http:www.mbda.gov			
San Francisco, CA 94105	RE: Business Development Centers			

State Agencies:

Name and Address	Telephone and Website
California Department of Transportation	Mailing Adress: P.O.Box 942874
(CALTRANS) Business Enterprise Program	Sacramento, CA 94274-0015
1820 Alhambra Blvd.	(916) 227-9599
Sacramento, CA 94102-3298	www.dot.ca.gov/hq/bep
CA Public Utilities Commission (CPUC)	
505 Van Ness Avenue	www.cpuc.ca.gov/static/supplierdiversity
San Francisco, CA 94102-3298	

SECTION 3: Non-Governmental Local Contacts

DISADVANTAGED BUSINESS ENTERPRISE (DBE) RESOURCES

The following organizations provide services to identify potential DBEs. Some of the organizations charge a fee or require membership fees to provide their services. Services provided, may include the entire Good Faith effort process for recipients that need comprehensive assistance.

Humboldt Builder's Exchange Inc. Construction
2355 Myrtle Ave.
Eureka, CA 95501
Phone #: (707) 442-3708
FAX #: (707) 442-6051 www.humvx.com

California Daily Bid Advisor/Challenge News 1276 Lincoln Ave. #203
San Jose, CA 95125

Phone #: (408) 998-0241
or (800) 298-0240
FAX #: (408) 998-2534

California Procurement Training and Assistance Center at West Valley 1 West Campbell Ave., Ste *no* Campbell CA 95008
Phone #: (408) 871-4390
FAX #: (408) 378-2034

Contractors Assistance Center P. O. Box 7675
Redlands, CA 92375
Phone #: (800) 742-4124
FAX #: (800) 742-4125

Eldridge Bid Reporter, M/W/DVBE Assistance P. O. Box 699
West Sacramento, CA 95691 Phone #: (916) 444-7618 FAX #: (916) 444-7731
www.ebrbids.com
Regis Communications

Bid Source Interactive (CBSI) P. O. Box 568
Burson, CA 95225-0568 Phone #: (209) 772-3670 FAX #: (800) 560-7266 www.Regis-usa.com 1-800-962-4162

Riverside Community College District
Procurement Assistance Center 2038 Iowa Ave., Ste. 100 Riverside, CA 92507
Phone #: (909) 788-2559
FAX #: (909) 788-2515 www.resources4u.com/pac

Small Business Exchange 703 Market St., Ste. 1000 San Francisco, CA 94103 Phone #: (415) 778-6250
FAX #: (415) 778-6255 www.sbeinc.com

SECTION 4: Reporting Requirements

All requests for services, supplies, equipment or construction solicited by the SWRCB, other governmental agencies, non-profit agencies, or private businesses are subject to the DBE requirements. These requirements apply to the prime contractor and all subcontractors. The only exceptions to this requirement are contracts with governmental or non-profit agencies.

For the duration of the contract, all primary and subcontractors will be required to report progress made in fulfilling the "good faith" efforts. Failure to provide this information as stipulated in the contract language will be cause for **contract termination.** EPA staff will provide the recipient with the forms and instructions to report their "good faith" efforts. Prime Contractors/Sub Contractors reporting forms are attached herein.

Once a bidder/contractor is selected, the prime contractor should compile the information required by the "good faith" effort process. All information supporting the "good faith" effort must be submitted within ten working days after the bid opening. Recipient shall review the successful bidder's records closely to be sure

that, prior to bid opening, all required "good faith" efforts were made. *Failure of either the bidder or prime contractor/subcontractor to follow the process and provide the necessary information to the Recipient could jeopardize the bidding process.* The following situations and circumstances require actions as indicated:

1. Each DBE firm utilized must complete and submit **Form 3.** DBE Contractors can no longer self-certify. DBE Contractors must provide evidence that they are currently certified with their bid response.
2. If additional subcontracts become necessary after the award of the prime contract, provide **Form 3** to the Recipient within ten working days following the award of each new subcontract.
3. Any deviation from the information provided at the time of the bid shall not result in a reduction of DBE participation without prior approval of the Recipient.
4. Failure of the bidder to perform the five "good faith" effort steps *prior* to bid opening and submittal of **Form 4** with the bid will result in its bid being declared nonresponsive. The contract may then be awarded to the next responsive, responsible bidder that meets the requirements or the Recipient may re-advertise the project.
5. The apparent successful bidder must submit documentation to the recipient within ten working days following bid opening showing that, prior to the bid opening, all required "good faith" efforts were made.

SECTION 5: Definitions

Disadvantaged Business Enterprise (DBE)- DBE that has submitted a "Disadvantaged Business Enterprise" Form 3, and a firm that has been accepted as a bona fide DBE by the prime contractor/recipient. In addition, a DBE firm must be an independent business concern that is at least 51 % owned, controlled, and operated by minority group members (see definition of minority group member) or women. Ownership and control can be measured by:

- Contract work performance responsibility.
- Management responsibility.
- At least 51 % share of profits and risk.

Control means exercising the power to make policy decisions. Operate means being actively involved in the day-to-day management of the business. Determination of whether a business is at least 51 % owned by a woman or women shall be made without regard to community property laws. An otherwise qualified DBE which is 51 % owned by a married woman in a community property state will not be disqualified because her husband has a 50% interest in her share. Similarly, a business that is 51 % owned by a married man and 49% by an unmarried woman does not become a qualified DBE by virtue of the wife's 50% interest in the husband's share of the business.

A joint venture is a business enterprise formed by a combination of firms under a “joint venture" agreement. To qualify as a bona fide DBE, the minority-owned or women-owned and controlled firms in the joint venture must:

- Satisfy all requirements for bona fide DBE participation in their own rights.
- Share a clearly defined percentage of the ownership, management responsibilities, risks, and profits ofthe joint venture. Only this percentage of ownership will be credited towards the DBE goal.

A minority group member is a citizen ofthe United States and one of the following:

- *Native American* consists of American Indian, Eskimo, Aleut, and native Hawaiian. To qualify, the

person must meet one of the following criteria:

1. Native Americans are at least one-fourth Indian descent (as evidenced by registration with the Bureau of Indian Affairs).
2. Characteristic Indian appearance and features.
3. Characteristic Indian name.
4. Recognition in the community as an Indian.
5. Membership in a tribe, band, or group of American Indians (recognized by the Federal Government), as evidenced by a tribal enrollment number or similar indication.

- *African-American* consists of individuals having origins in any of the black racial groups of Africa.

- *Asian-Pacific American* consists of individuals having origins in any of the original peoples of the Far East, Southeast Asia, and the Indian subcontinent. This area includes, for example, China, Japan, Korea, the Philippines, Vietnam, Samoa, Guam, U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan. The Indian subcontinent takes in the countries of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Sikkim, and Bhutan.

- *Hispanic American* consists of individuals with origins from Puerto Rico, Mexico, Cuba, or South or Central America. Only those persons from Central and South American countries who are of Spanish origin, descent, or culture should be included in this category. Persons from Brazil, Guyana, Surinam or Trinidad, for example, would be classified according to their race and would not necessarily be included in the Hispanic category. In addition, this category does not include persons from Portugal, who should be classified according to race.

In cases where a firm is owned and controlled by a minority woman or women, the percentage may be credited towards DBE participation, or allocated, but may not be credited fully to both.

Recipient/Grantee - An agency (County, City, Tribe, Special District, etc.) applying for a CWSRF/DWSRF loan to construct a project.

Prime Contractor - Refers to any recipient of funds who will participate in some phase of construction. The contractor receiving funds directly from the recipient for construction is the prime contractor. Contractors working for the prime contractor are subcontractors.

Subcontractor- Refers to a person who is awarded a portion of an existing contract by a principal or general contractor. Subcontractor performs work under a contract with a general contractor, rather than the employer who hired the general contractor. Determining whether someone is a subcontractor depends on the facts in each case, but is generally determined by whether control over the manner and methods of the work is retained by the employer.

Good Faith Efforts- Any public or private entity receiving federal funds must demonstrate that efforts were made to attract DBEs on any CWSRF/DWSRF contracts. The process to attract DBEs is referred to as the "Good Faith" efforts. This effort requires the recipient, prime contractor and any subcontractors to take the steps listed below to assure that DBEs are used whenever possible as a source of supplies, construction, equipment or services.

Project Manager - Is the staff responsible for managing the project. The Project/Contract Manager is

responsible for review during the planning, design and construction contract development phases.

Minority Group Member- Entities that are owned and/or controlled by socially and economically disadvantaged individuals as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601note) and Public Law 102-389 (42 U.S.C. 4370d) respectively.

SECTION 6: DBE Forms

The following forms are provided to report DBE information. They are available in electronic format from www.waterboards..ca.gov. **All forms where applicable must have original signature and date.**

The following table provides information on who completes each form, where the forms are to be sent and timeline for returning:

Form #	Description	Completed By	Submit To	Timeline
1	Solicitation	Prime	Recipient	With Bid
2	Bids Received List	Prime	Recipient	With Bid
3	DBE Certification	Prime/Sub	Recipient	10 days after bid opening
4	Selected DBE	Prime	Recipient	With Bid
5	Summary of Bids	Prime	Recipient	10 days after bid opening
6	Positive Effort Cert.	Recipient	EPA	Semi- Annually

Form #	Description	Provided By	Completed By	Submit To/ Timeline
6100-2	Sub-Cont. Participation	Prime	DBE Sub	Recipient /Closeout
6100-3	DBE Sub Performance	Prime	DBE Sub	With Bid
6100-4	DBE Sub Utilization	Recipient	Prime	With Bid

FORM 1

DISADVANTAGED BUSINESS ENTERPRISE (DBE)
"GOOD FAITH" EFFORT LIST OF SUBCONTRACTORS SOLICITED

Contractor Name	Contractor Address	How Located	Date of Contact	Contact Method	Task Description	Response *(YeslNo)*
					-	

This page intentionally left blank

FORM 2

DISADVANTAGED BUSINESS ENTERPRISE (DBE)
"GOOD FAITH" EFFORT BIDS
RECEIVED LIST

Contractor Name		Category (DBE)		Task Description		Bid Amount	Selected (Check)	Explanation for Not Selecting

This page intentionally left blank

FORM 3

DISADVANTAGED BUSINESS ENTERPRISE

(DBE)

CONTRACTOR CERTIFICATION

Firm Name:

Address:

Principal Service or Product: _____Bid Amount $_____

PLEASE INDICATE PERCENTAGE OF OWNERSHIP

o DBE _____ % Ownership

o Prime Contractor

o Supplier of Material/Service

o Subcontractor

o Broker

o Sole Ownership

o Corporation

o Partnership

o Joint Venture

Certified by:_____Title: _____

Print Name: _____ Date: _____

IMPORTANT: CONTRACTORS CAN NO LONGER SELF-CERTIFY. THEY MUST BE CERTIFIED BY EPA, SMALL BUSINESS ADMINISTRATION (SBA), DEPARTMENT OF TRANSPORTATION (DOT) OR BY STATE, LOCAL, TRIBAL OR PRIVATE ENTITIES WHOSE CERTIFICATION CRITERIA MATCH EPA'S. PROOF OF CERTIFICATION MUST BE PROVIDED. A COPY OF THE CONTRACTOR CERTIFICATION MUST BE SUBMITTED WITH THIS FORM.

THIS FORM MUST BE SUBMITTED WITHIN 10 WORKING DAYS AFTER THE BID OPENING DATE.

This page intentionally left blank

FORM 4

PRIME CONTRACTOR RECIPIENT
SELECTED DISADVANTAGED BUSINESS ENTERPRISE (DBE)

CONTRACT RECIPIENTS NAME		CONTRACT NO. OR SPECIFICATION NO.	
PROJECT DESCRIPTION		PROJECT LOCATION	
PRIME CONTRACTOR INFORMATION			
NAME AND ADDRESS (Include ZIP Code, Federal Employer Tax ID #)		o MBE	o WEE
PHONE		AMOUNT OF CONTRACT$	
DBE INFORMATION			
o NONE*			
oDBE		NAME AND ADDRESS (Include ZIP Code,)	
o SUBCONTRACTOR o JOINT VENTURE	o SUPPLIER/SERVICE o BROKER		
AMOUNT OF CONTRACT $		PHONE	
WORK TO BE PERFORMED			
oDBE		NAME AND ADDRESS (Include ZIP Code)	
o SUBCONTRACTOR o JOINT VENTURE	o SUPPLIER/SERVICE o BROKER		
AMOUNT OF CONTRACT $		PHONE	
WORK TO BE PERFORMED			
ODBE		NAME AND ADDRESS (Include ZIP Code,)	
o SUBCONTRACTOR o JOINT VENTURE	o SUPPLIER/SERVICE o BROKER		
AMOUNT OF CONTRACT $		PHONE	
WORK TO BE PERFORMED			
TOTAL DBE AMOUNT:	$	TOTAL WBE AMOUNT:	$
SIGNATURE OF PERSON COMPLETING FORM:			
TITLE:	PHONE:	DATE:	

*Negative reports are required. **ORIGINAL SIGNATURE AND DATE REQUIRED.** Failure to complete and submit this form with the bid will cause the bid to be rejected as non-responsive.

This page intentionally left blank

FORM 5

SUMMARY OF BIDS RECEIVED FROM SUBCONTRATORS
SUPPLIERS AND BROKERS (DBE&NON DBE)

Type of Job		Company Name		Selected	Amount	DBE
				Y/N	$$$$	Y/N

List type of jobs alphabetically from low to high in each category and selected low bidder.

This page intentionally left blank

FORM 6

DISADVANTAGED BUSINESS ENTERPRISE (DBE) POSITIVE EFFORT CERTIFICATION BY APPLICANT/RECIPIENT

1. The apparent successful low bidder on Clean Water State Revolving Fund Program funded project number
C-06- _____is _____
_
(Name of bidder)

2. Before the State Water Resources Control Board - Division of Financial Assistance can consider requests for an Approval of Award (AOA) to any bidder the applicant/recipient must certify to the following:

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

The bidder has obtained _____% of DBE participation for this contract.

Also submitted are Forms 3 and 4 that contain a complete list of those DBE firms subcontracted with or with whom other types of agreements were made. The list includes the names of the firm, address, phone number and dollar amount involved.

The following affirmative steps as required by 40 CFR 35.3150 (d) have been taken:

(1) The contractor divided total requirements when economically feasible, into small tasks or quantities to permit
maximum participation of disadvantaged business enterprise businesses.

(2) The contractor established delivery schedules, where the requirements of the work permitted, which encouraged
participation by disadvantaged business enterprise businesses.

(3) The contractor included qualified disadvantaged business enterprise businesses on solicitation lists.

(4) The contractor assures that disadvantaged business enterprise businesses were solicited, whenever they were
potential sources.

(5) The contractor used the services and assistance of the Small Business Administration and the Office of Minority Business Development Agency of the U.S. Department of Commerce.

It must be understood that the applicant/recipient in its role as a public trustee assumes primary responsibility to achieve an acceptable level of DBE utilization. This primary responsibility is a basic condition of the award of any Clean Water State Revolving Fund fInancial assistance. Where an application/recipient fails to meet its obligations under these requirements the applicant/recipient may be declared non-responsive and may have funding either annulled, suspended or terminated.

In accepting these responsibilities, I hereby certify to the above.

_____
___
Signature of authorized Applicant/Recipient Date

This page intentionally left blank

FORM 6100-2

EPA Form 6100-2 DBE Subcontractor Participation Form
http://www.epa.gov/osbp/pdfs/dbe/subcontractor participation form%20-.pdf

Environmental
Protection Agency

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

NAME OF SUBCONTRACTOR	**PROJECT NAME**
ADDRESS	**CONTRACT NO.**
TELEPHONE NO.	EMAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR

_____ _____
Subcontractor Signature Title/Date

Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)

This page intentionally left blank

FORM 6100-3

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental
Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form

NAME OF SUBCONTRACTOR	PROJECT NAME	
ADDRESS	BID/PROPOSAL NO.	
TELEPHONE NO.	E-MAIL ADDRESS	
PRIME CONTRACTOR NAME		
CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR

Currently certified as an MBE or WBE under EPA's DBE Program? ___ Yes ___ No Signature of Prime Contractor Date Print Name Title

Signature of Subcontractor Date

Print Name Title

'Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EP A award of financial assistance.

EPA FORM 6100-3 (DBE Subcontractor Performance Form)

This page intentionally left blank

FORM 6100-4

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental
Protection Agency
Disadvantaged Business Enterprise Program DBE Subcontractor Utilization Form

BID/PROPOSAL NO.	PROJECT NAME
NAME OF PRIME BIDDER/PROPOSER	E-MAIL ADDRESS
ADDRESS	
TELEPHONE NO.	FAX NO.

The following subcontractors will be used on this project:

COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	TYPE OF WORK TO BE PERFORMED	ESTIMATE D DOLLAR AMOUNT	CURRENTLY CERTIFIED AS AN MBE OR WBE?

I certify under penalty of perjury that the forgoing statements are true and correct. In the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302(c).

Signature of Prime Contractor	Date
Print Name	Title

'Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

This page intentionally left blank

TECHNICAL SPECIFICATIONS

This page intentionally left blank

SECTION 01300

SUBMITTALS

PART I GENERAL

1.1 SECTION INCLUDES

A. Submittal Procedures

B. Construction Progress Schedules

C. Proposed Products List

D. Product Data

E. Shop Drawings

F. Design Data

G. Test Reports

H. Certificates

I. Manufacturer's Instructions

J. Manufacturer's Field Reports

K. Erection/Installation Drawings

1.2 REFERENCES

AGC (Associated General Contractors of America) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry."

1.3 SUBMITTAL PROCEDURES

A. Transmit each submittal to Engineer for Engineer’s review and approval.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetical suffix.

C. Identify Project, Contractor, Subcontractor or Supplier; pertinent drawing and detail number, and specification section number, as appropriate.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submittal of related items.

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

G. Variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work will not be approved.

H. Provide space for Contractor and Engineer review stamps.

I. When revised for resubmittal, identify all changes made since previous submittal.

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

K. Submittals deemed unnecessary by Engineer will be returned without review or comment.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedule in triplicate to Engineer within 15 days after date established in Notice to Proceed. Task designation and completion intervals shall be reviewed and approved by Engineer.

B. Revise and resubmit as required.

C. Submit updated schedules with each Application for Payment, identifying changes and progress to date since previous version.

D. Submit a Gantt chart schedule with separate line for each major portion of Work or operation, identifying first work day of each week.

1.5 PROPOSED PRODUCTS LIST

A. Within 15 days after date of Owner Notice to Proceed, Contractor shall submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, Contractor shall provide manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

A. Product Data for Review:

1. Submitted to Engineer for review for the limited purpose of verifying conformance with the specifications and the design concept expressed in the Contract Documents.

2. After review, Contractor shall provide copies and distribute in accordance with Section 1.3 above and for record documents purposes described in Section 01700 - Contract Closeout.

B. Product Data For Information:

Submitted for the Engineer's knowledge as contract administrator or for the Owner.

C. Product Data For Project Close-out:

Submitted for the Owner’s benefit during and after project completion.

D. Submit the number of copies which the Contractor requires, plus two copies which shall be retained by the Engineer.

E. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

F. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

G. After review, distribute in accordance with the Submittal Procedures Section 1.3 above and provide copies for record documents described in Section 01700 – Contract Closeout.

1.7 SHOP DRAWINGS

A. Shop Drawings For Review:

1. Submitted to Engineer for review for the limited purpose of verifying

conformance with information provided and the design concept and intent expressed in the Contract Documents.

2. After review, Contractor shall produce copies and distribute in accordance with Section 1.3 above and for record documents purposes described in Section 01700 – Contract Closeout.

B. Shop Drawings For Information:

Submitted for the Engineer's knowledge as contract administrator or for the Owner.

C. Shop Drawings For Project Close-out:

Submitted for the Owner's benefit during and after project completion.

D. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances. Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Engineer.

1.8 DESIGN DATA

A. Submit for the Engineer's review and approval as contract administrator or for the Owner.

B. Submit for information for the limited purpose of assessing conformance with the Specifications and the design concept and intent expressed in the Contract Documents.

1.9 TEST REPORTS

A. Submit for the Engineer's review and approval as contract administrator or for the Owner.

B. Submit test reports for review and approval for the limited purpose of verifying conformance with the design concept expressed in the Contract Documents.

1.10 CERTIFICATES

A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified in Section 1.6 for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to owner in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

C. Refer to Section 01400 - Quality Control, Manufacturers' Field Services article.

1.12 MANUFACTURER'S FIELD REPORTS

A. Submit reports for the Engineer's benefit as contract administrator or for the Owner.

B. Submit report in duplicate within 30 days of observation to Engineer for information.

C. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.14 ERECTION / INSTALLATION DRAWINGS

A. Submit drawings for the Engineer's review and approval as contract administrator or for the Owner.

B. Submit for information for the limited purpose of verifying conformance with the information provided and the design concept expressed in the Contract Documents.

C. Data indicating inappropriate or unacceptable Work may be subject to action by the Engineer or Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality assurance - control of installation

B. Tolerances

C. References and standards

D. Inspection and testing laboratory services

E. Manufacturers' field services

1.2 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.4 REFERENCES AND STANDARDS

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of current issue except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING SERVICES

A. Contractor shall employ and pay for specified services of an independent third-party firm to perform testing.

B. The independent firm will perform tests and other services specified in individual specification sections and as required by the Engineer.

C. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Engineer.

D. Reports will be submitted by the independent firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent firm 48 hours prior to expected time for operations requiring services.

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

F. Testing does not relieve Contractor to perform Work to Contract requirements.

G. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm with instructions by the Engineer at no cost to the Owner.

1.6 INSPECTION SERVICES

A. Owner may appoint, employ, and pay for specified services of an independent firm to perform inspection.

B. The independent firm will perform inspections and other services specified in individual specification sections and as required by the Engineer.

C. Inspecting may occur on or off the project site. Perform off-site inspecting as required by the Engineer.

D. Reports will be submitted by the independent firm to the Engineer and Contractor, in duplicate, indicating inspection observations, results, and compliance or non-compliance with Contract Documents.

E. Cooperate with independent firm; furnish safe access and assistance by incidental labor as requested. Notify Engineer and independent firm 48 hours prior to expected time for operations requiring services.

F. Inspection services do not relieve Contractor to perform work in accordance with Contract requirements.

1.7 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjustment and balance of equipment and training of Owner’s personnel or representative as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer shall be subject to approval of Engineer.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work implies acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products

B. Transportation and handling

C. Storage and protection

D. Product options

E. Substitutions

1.2 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Provide interchangeable components of the same manufacturer, for similar components.

1.3 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions and recommendations.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

C. Provide off-site storage and protection when site does not permit on-site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide mixing with foreign matter.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or more Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with Article 1.7 of this Section.

1.6 SUBSTITUTIONS

A. Submit bid for the work based on the materials, equipment, and methods as shown on the drawings and described in the Specifications except as indicated otherwise.

1. The Contract is based on the materials, equipment, and methods described in the Contract Documents. Any deviations therefrom including substitutions must be submitted with the bid at the time of bid or as the result of a formal request from the contractor prior to bid date, subsequently approved by the Engineer.

2. The Engineer will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data, samples if necessary, and all other information required to evaluate the proposed substitution. The submittal will include an itemized comparison of features of the proposed substitution with product specified, including effect on Contract Time Schedule, design or artistic effect if applicable, its relationship to separate contracts, and accurate comparative cost data. Cost data is to be submitted whether or not modification of the Contract Sum is to be a consideration. The responsibility for obtaining the material is the Contractor's; incomplete submittals will be returned without action.

3. Substitutions will not be considered if they are indicated or implied on shop drawings or other submittals and not accompanied by the formal request noted above.

4. Substitutions will generally not be considered if they require a substantial expenditure of time by the Engineer for their evaluation or will require a substantial revision to the Contract Documents to accommodate their use (see Paragraph F. below).

B. Nonproprietary Products: Products designated in the Specifications by nonproprietary description are intended to set a minimum standard of quality acceptable to the Owner.

C. Proprietary Products: Only one product or process and manufacturer is specified. Substitutions will only be considered after compliance with Article 1.7A and 1.7D.

D. Procedures: In the event a substitution is proposed, the following procedure will be followed:

1. Submit substitutions at time of base bid submittal.

2. List substitutes to specified items indicating price adjustment to basic bid.

3. Substitutions will be submitted in addition to items specified in the Contract Documents.

E. Availability of Specified Items: Verify at time of bidding that all specified items will be available in time for orderly installation to meet project schedules.

F. Reimbursement of Engineer's Cost:

1. In the event substitutions proposed to the Engineer involve substantial cost to the Engineer as outlined in Paragraph 1.7A.4 above and the Contractor still desires the substitution to be considered, the Engineer will record all time used by him and by his consultants in evaluation of each such proposed substitution.

2. Whether or not the Engineer approves such a proposed substitution, the Contractor will promptly, upon receipt of the Engineer's billing, reimburse the Engineer at the rate of two and one-half times the direct cost to the Engineer and his consultants for all time spent by them in evaluation of the proposed substitution and for revising Contract drawings to incorporate such changes in any and all parts of the work and for extra costs in reviewing shop drawings.

3. Engineer's cost billed to Contractor will not be considered for additive change orders to contract amount.

G. Owner-Furnished Materials

1. The Tribe will furnish the ductile iron pipe material for the contractor to install. Contractor shall be responsible for furnishing all ductile iron fittings required to maintain the specified alignment. Contractor shall provide all labor and equipment required to transport the ductile iron pipe from the Tribe’s stockpile location, on the Reservation, to the project site(s).

2. The Tribe will furnish the bedding material required for pipe installation. The contractor shall provide all labor, trucking, and equipment required to haul the material from the Tribe’s stockpile location, on the Reservation, to the project site(s).

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures

B. Final cleaning

C. Adjusting

D. Project record documents

E. Operation and maintenance data

F. Spare parts and maintenance Products

G. Warranties and bonds

H. Maintenance service

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.

B. Provide submittals to Owner that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final project assessment and walk-through.

B. Clean interior and exterior surfaces exposed; remove temporary labels, stains and foreign substances.

C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

D. Clean filters of operating equipment (if applicable).

E. Clean debris from roofs, gutters, downspouts, and drainage systems (if applicable).

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and temporary construction facilities from the site.

1.4 ADJUSTING

Adjust and fine-tune operating products and equipment to ensure smooth and unhindered operation.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings

2. Specifications

3. Addenda

4. Change Orders and other modifications to the Contract

5. Reviewed Shop Drawings, Product Data, and Samples

6. Manufacturer's instruction for assembly, installation, and operation / maintenance

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.
3. Changes made by Addenda, Special Provisions, and modifications.

F. Record Drawings and Shop Drawings: Legibly mark in red each item to record actual construction including:

1. Measured depths of foundations in relation to finish floor datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

4. Field changes of dimension and detail.

5. Details not shown on original Contract Drawings.

G. Submit documents to Engineer with claim for final Application for Payment.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit data bound in 8-1/2 x 11-inch text pages, three D-size ring binders with durable plastic covers.

B. Prepare binder cover with printed title: “Operation and Maintenance Instructions,” title of project, and subject matter of binder when multiple binders are required.

C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab clearly printed under reinforced laminated plastic tabs.

D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20 pound white paper, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment Suppliers.

2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers. Identify the following:

a) Significant design criteria

b) List of equipment

c) Parts list for each component

d) Operating instructions

e) Maintenance instructions for equipment and systems

f) Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents

3. Part 3: Project documents and certificates, including the following:

a) Shop drawings and product data

b) Certificates for testing, inspection, and performance compliance

c) Originals of warranties and bonds

E. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer's comments. Revise content of all document sets as required prior to final submission.

F. Submit six (6) sets of revised final volumes, within 10 days after final inspection.

1.7 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.

B. Deliver to Owner; obtain receipt prior to final payment.

1.8 WARRANTIES AND BONDS

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in three D-size ring binder with durable plastic cover.

D. Submit prior to final Application for Payment.

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.9 MAINTENANCE SERVICE

A. Furnish service and maintenance of components indicated in specification sections during the warranty period.

B. Examine system components at a frequency consistent with reliable operation and manufacturer's requirements. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

E. Maintenance and repair shall be done by personnel trained and experienced with the components being maintained and repaired.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

This page intentionally left blank

SECTION 01800

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

PART I GENERAL

1.1 SUMMARY

A. This item shall consist of preparation, implementation and compliance with a storm water pollution prevention plan (SWPPP) for the project.

1.2 MEASUREMENT AND PAYMENT

A. No separate payment will be made for the SWPPP. All costs associated with the SWPPP shall be included in the Lump Sum or Unit Prices of other Bid Items.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 SWPPP PREPARATION

A. Contractor shall submit to the engineer a completed and signed SWPPP at the preconstruction conference. The plan may utilize the practices recommended in the California Storm Water Association Best Management Practices Construction Handbook, telephone (510) 444-6771, Fax (510) 444-1262, and shall be consistent with the construction General Permit, issued by the State Water Resources, Control Board, through submittal of the Notice of Intent (NOI).

B. If construction will occur between November 15 and April 15 (considered as the rainy season per the Agency's Ordinance), the Best Management Practices (BMPs) implemented shall include but not be limited to those appropriate for wet weather conditions.

3.2 STORM WATER POLLUTION PREVENTION MEASURES

A. All storm water pollution prevention measures shall be in accordance with the submitted SWPPP. In the event circumstances during the course of construction require changes to the original SWPPP, a revised plan shall be promptly submitted to the Owner's representative in each instance. No responsibility shall accrue to the Owner as a result of the plan or as a result of knowledge of the plan. All work installed by the contractor in connection with the SWPPP but not specified to become a permanent part of the project shall be removed and the site restored in so far as practical

to its original condition prior to completion of construction or when directed by the Owner's representative.

B. Unless otherwise indicated in the Special Provision, measurement and payment for Storm Water Pollution Prevention Measures, as described herein, shall be included in the items of work requiring storm water pollution prevention measures as indicated in the project Special Provisions. Such payment shall be considered full compensation for all labor, materials, tools, and equipment for completion, and implementation and compliance with the SWPPP.

END OF SECTION

SECTION 01900

TRAFFIC CONTROL

PART I GENERAL

1.1 SUMMARY

A. Contractor shall submit to the engineer a completed and signed Traffic Control Plan at the preconstruction conference. Control of public traffic shall be accomplished in accordance with the "Manual of Traffic Controls for Construction and Maintenance Work Zones," published by the State of California, Department of Transportation (Caltrans), the County of Riverside Traffic Policy.

1.2 MEASUREMENT AND PAYMENT

A. Payment for Traffic Control will be made at the contract lump sum price, and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and other incidentals for doing all work involved in traffic control in the construction area, including preparation of a traffic control plan.

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

3.1 The Traffic Control Plan shall meet or exceed the requirements of Riverside County. The following provision shall be included in the Traffic Control Plan.

1. The Contractor shall provide for detour around the Martin Road work area during construction hours. Traffic shall be allowed to travel on Martin Road during non-construction periods. If traffic cannot be allowed to travel on Martin Road during non-construction periods, the contractor shall obtain approval from the Owner a minimum of one week prior to the closing of these streets during non-construction periods. The request for closure shall include the length of time of the closure.

2. The Contractor shall provide traffic control in the work areas on Morongo Road and Potrero Road. Traffic shall be allowed to travel on Potrero and Morongo Roads during all construction periods. If traffic cannot be allowed to travel on Potrero and Morongo Roads during construction periods, the contractor shall obtain approval from the Owner a minimum of one week prior to the closing of these streets during construction periods. The request

for closure shall include the length of time of the closure.

a. Whenever it becomes necessary to restrict traffic to less than two ten-foot wide lanes, the Contractor shall install appropriate warning signs and barricades, and shall provide flag persons.

3. Contractor shall be responsible for maintaining all traffic control devices at all times.

4. Whenever it becomes necessary to restrict traffic to less than two ten-foot wide lanes, the Contractor shall install appropriate warning signs and barricades, and shall provide flag persons.

5. All open trenches caused by the removal of curbs, gutters, sidewalks and asphalt shall be barricaded at all times when the Contractor's employees are not actively engaged in work at that location. Lighted barricades shall be used at locations where directed by the Owner's Representative. Plans for barricading and traffic control shall be approved in advance by the Owner's Representative.

6. At all work areas that require restricted parking, the Contractor shall post no parking signs at least forty-eight (48) hours in advance.

7. Roads shall remain open after working hours. Temporary cold patch and backfill shall be installed as required to allow road opening after working hours. Steel plating of the open trench above the end of the pipeline is acceptable as long as the plate is properly anchored and cold patch AC Pavement is placed on sides of the plates which will be impacted by traffic.

END OF SECTION

SECTION 02225

TRENCHING, BEDDING, AND BACKFILL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Trenching, Bedding, and Backfilling.

1.2 REFERENCES

A. Trenching, bedding and backfill shall conform to the recommendations of the project geotechnical reports and these specifications, whichever is more stringent.

1.3 METHOD OF MEASUREMENT AND PAYMENT

A. Bedding, Trenching, Backfill and Disposal of Excess Material shall be included in the unit price for 16” Water Main installation. Trucking for hauling of Owner-furnished bedding material shall also be included in the contract unit price bid for pipe installation. Any unused native backfill material may be disposed of on the Reservation at a location mutually agreed to.

1.4 FILL MATERIALS

A. Bedding Material: Furnished by Owner; free of topsoil, roots, grass, weeds, large stone, and foreign matter. Sand Equivalent (SE) of 30 or higher.

B. Backfill: Excavated material or imported, graded free of rocks larger than 8 inches organic material and debris.

PART 2 EXECUTION

2.1 EXAMINATION AND PREPARATION

A. Call Underground Service Alert (USA) not less than two working days before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum.

C. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

D. Maintain and protect existing utilities to remain.

2.2 PROTECTION OF ADJACENT WORK

A. Protect adjacent utilities and structures which may be damaged by excavation work, including service utilities and pipe.

B. Grade excavation top perimeter to prevent surface water run-off into excavation or to adjacent properties.

2.3 TRENCHING

A. Excavate for storm drain, sanitary sewer, ducts, water, fiber optic, and gas piping in accordance with SSPWC 306-1.1.1 and 306-1.1.2.

B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.

C. Hand trim excavation and leave free of loose matter. Hand trim for bell and spigot pipe joints.

D. Excavate material from Trench to a minimum depth of 4 inches below the pipe and 6 inches on each side of the pipe to 1 foot over the pipe.

E. Slope banks to angle or repose of less, or shore as needed to protect existing structures and utilities.

F. Support pipe and conduit during placement and compaction of bedding fill.

G. Backfill trenches to required contours and elevations.

H. Place and compact fill materials as for Backfilling.

I. Correct unauthorized excavation at no cost to Owner.

J. Remove excess material not being reused from site and dispose at a mutually agreed upon site on the Reservation.

K. AC Pavement removed from the area above the trench may be recycled into the trench backfill or Aggregate subbase but only if it meets specifications. AC Pavement shall not be disposed of at Owner site.

2.4 BACKFILLING

A. Bedding shall be placed per SSPWC 306-1.2.1(A).

B. Backfill areas to contours and elevations. Use unfrozen and unsaturated materials.

C. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

D. Place fill material in continuous layers and compact in accordance with schedule at end of this section.

2.5 TESTS

A. All laboratory material tests and field tests will be performed by Engineer.

2.6 TOLERANCES

A. Top Surface of Exposed Subgrade: Plus or minus 0.1 foot.

2.7 SCHEDULE

A. Bedding: Compact uniformly to 90 percent of maximum density.

B. Backfill Under Asphalt Paving: Fill, to bottom of aggregate base, compact uniformly to 95 percent of maximum density.

C. Backfill outside of paved area, compact uniformly to 90 percent maximum density.

END OF SECTION

This page intentionally left blank

SECTION 02740

FLEXIBLE PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Asphaltic concrete paving
2. Aggregate subbase course
3. Cold Milling

1.2 SUBMITTALS

A. Product Data: Submit product information

B. Design Data: Submit mix design [of each class of mix].

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with Standard Specifications for Public Works Construction (Greenbook) (SSPWC).

1.4 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 degrees F below bitumen suppliers bill of lading and not more than maximum specified temperature.

1.5 MEASUREMENT AND PAYMENT

A. Payment for Asphalt Concrete Pavement Overlay shall be made at the contract unit price bid per ton. Payment for asphalt concrete pavement for trench restoration shall be included in the contract unit price bid for 16” Ductile Iron Pipe Installation. Such price shall constitute full compensation for the preparation of subgrade and applying tack coat; resetting pavement markings; reconstructing or adjusting manhole or vault frames and covers to grade. Finish paving on Potrero Rd shall include full street width.

B. Aggregate Base Course or CMB for trench restoration shall be included in the unit price bid for 16” Ductile Iron Pipe Installation. Such price shall constitute full compensation for the preparation of base course including placing and compacting to density acceptable to the Engineer.

When payment is to be made on a tonnage basis, the Contractor shall furnish to the Engineer at the time of delivery of the material to the job site a legible copy of a licensed weighmaster’s certificate showing gross, tare, and net weights of each truckload of asphalt concrete mixture. When an automatic batching system is used, the licensed weighmaster’s certificate may show only the net weight of material in the truck load. Failure of the Contractor to provide a certificate to the Engineer by the end of the day on which the material represented by such certificate is delivered to the job site may, at the discretion of the Engineer, result in the forfeiture of all payment for such material, including any labor and equipment costs included in the price for furnishing and placing the asphalt concrete.

C. Measurement and Payment for cold milling and transport and disposal of pavement grindings shall be at the contract unit price bid per square foot in accordance with SSPWC Subsection 302-1.12 and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and other incidentals for doing all work involved in cold milling as indicated in the contract documents. All AC grindings are to be disposed of on the Reservation at a location mutually agreed to.

PART 2 PRODUCTS

2.1 FLEXIBLE PAVEMENT

A. Asphalt Cement: In accordance with SSPWC 203-1.

B. Aggregate per SSPWC 203-6.3.2.

1. Coarse

C. Fine Aggregate: In accordance with SSPWC 203-6.3.2.

D. Mineral Filler: Finely ground particles of Portland cement or mechanically reduced rock in accordance with SSPWC 203-6.3.3.

E. Primer: In accordance with SSPWC 302-5.3.

F. Tack Coat: In accordance with Section 2.2.

2.2 TACK COAT

A. This item shall consist of a Bituminous Surface Pavement Tack Coat composed of a blend of elastic Polymer modified asphalts, thermoplastic resins and digested whole tire rubber.

B. Paving asphalt (also referred to as tack coat) shall be Thermoplastic Polymer Modified No Track Tack, for ARHM and AC overlay, and SS 1h otherwise. The Thermoplastic Polymer Modified No Track Tack shall meet the following criteria:

Test	Method	Typical Properties	Specification
Digested whole tire rubber		2	1-3
Softening Point Degree F	D36	165	160 Min
Penetration @ 77 Deg. F 100g, 5 sec, Dmm	D-5	16	10 Min
Brookfield Viscosity @ 275 Deg. F cPs*	D4402	975	3000 Max
Brookfield Viscosity @ 350 Deg. F cPs*	D4402	185	300 Max

*BKF LV II, spdl #21 @ 20 RPM

2.3 ASPHALT PAVING MIX

A. Asphalt concrete shall be class C2 PG64-10 and shall comply with Section 203-6 of the Standard Specifications.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify gradients and elevations of base.

B. Verify compacted subgrade and granular stabilized soil subbase is dry and ready to support paving and imposed loads.

3.2 COLD MILLING ASPHALT CONCRETE PAVEMENT

Cold milling asphalt concrete pavement shall conform to Section 302 of the Standard Specifications as modified below:

302-1 Cold Milling Asphalt Concrete Pavement.

A. Work under this section shall consist of performing all work involved with:

cold planing of the existing asphalt pavement and removal of all asphalt concrete waste material. All work shall comply with SSPWC Section 302-1 except as expanded or modified herein.

B. 302-1.1 General. The following is hereby added to the first paragraph of Subsection 302-1.1:

Such straight edge grade along the edge of the cold plane area shall not deviate more than ¼-inch below nor ⅛-inch above the grade specified in the Plans or Specifications. Removal of undulations in the existing paved surface shall be included in this item of work.

C. Cold milling of existing asphalt surfaces shall be for one lane in width for the lane disturbed by the trenching operation. The depth of cold milling shall not be any less than the height of ARHM overlay. Full depth cold milling will begin from the centerline of the road and taper to 0" depth at the end of 5' width.

D. Cold planing machines shall be Barber Greene RX40, CMI PR450 or equivalent. Trucks shall be 10-wheel maximum size.

E. The Contractor shall remove all planed asphalt concrete material (spoil) from the project site immediately after planing operations. Disposal of cold planing grindings shall be per SSPWC section 302-1.8.

F. All cold milled streets must be accepted by the Engineer as clean after cold milling, at least the day before paving. Sweepers used for cold milling shall not enter on streets approved as clear after cold milling.

G. The Contractor shall remove existing asphalt concrete and slurry from gutters adjacent to any area specified to be cold milled.

H. After cold milling, Contractor shall provide temporary AC ramping at all drive approaches. Temporary ramping at header end cuts shall be extended to 6 feet from end of cut line and at edges of bus pads and cross gutters. Temporary pavement transitions shall be constructed on Kraft paper or other suitable bond breaker such that upon removal of the temporary pavement transition a clean notch remains.

I. Unless indicated otherwise on the Plans, any pavement repairs within designated cold milling areas shall be completed prior to cold milling operations. Paving shall begin not later than two (2) working days after completion of cold milling in each location and shall proceed without interruption from start to finish. Any painted crosswalk or stop bar obliterated, either partially or entirely, by cold milling shall be immediately replaced by temporary tabs.

J. No more than two (2) calendar days shall pass between cold milling and placing asphalt concrete leveling course or final asphalt overlay. In the event pavement is in any way damaged as a result of the cold milling operation, the Contractor shall, at his own expense, repair the damaged areas per these specifications and to the satisfaction of the Engineer. During the cold milling operation, the Contractor shall sweep the street with sprinklered mechanical vacuum sweepers and remove all loosened material from planed areas. Sweeping shall be performed on a daily basis until the overlay operation has been completed.

K. For transverse cold milling operations, the cold planer shall be operated at perpendicular angles to the centerline of the road. At the outside edge of transverse cold planes, there shall be a vertical lip as deep as the required overlay thickness. A temporary asphalt concrete cold mix ramp will be required at all transverse joints having a maximum slope of 10:1 and be constructed of Kraft paper or other suitable bond breaker, such that upon removal of the temporary pavement, a clean notch remains. This ramp must be constantly maintained by the Contractor and completely removed prior to final paving. Cold mix ramps will also be required at all valves, manholes, etc. a minimum of 1' long around the structure.

L. Where multiple cold mill passes are necessary, or specified, the contractor shall make passes within a tolerance of 1/8" at the edge of each pass. In no case shall the contractor allow traffic to travel on surfaces that have an abrupt longitudinal cold milled ledge. During cold mill operations the contractor shall detour traffic away from said longitudinal cold mill ledges.

M. Pavement Transitions: Per SPPWC 302-1.10.

3.3 PREPARATION

A. Apply primer in accordance with SSPWC 302-5.3.

B. Use clean sand to blot excess primer.

C. Apply tack coat to contact surfaces of curbs, gutters, cold milled edges, and surfaces to receive AC overlay.

1. The material is applied at 325 to 425 degrees F with a distributor truck at typical application rates of 0.08 to 0.15 gal/square yard. The exact application rate will be determined by surface conditions at time of application.

2. The tack coat shall be applied to the existing pavement on the areas to receive the ARHM or AC, or slurry where specified. The

Engineer shall approve the exact rate and number of applications. Two heavy coats of SS 1h shall be applied to vertical joints for patching. All contact surfaces with new asphalt shall be painted tack coat immediately before the asphalt concrete is placed.

3. The tack coat shall be applied as specified in Subsection 302-5.4 of the Standard specifications and these special Provisions. Thermoplastic Polymer Modified No Track Tack shall be applied only when the existing surface is dry and the atmospheric temperature is 50 deg. F and rising. NO material shall be applied when rain is imminent.

4. The Thermoplastic Polymer Modified No Track Tack shall be heated slowly to 325-425 degrees F. At no time shall the product be heated above 450 degrees F. The product shall be applied through a distributor truck equipped with a heating unit and shall maintain tack coat at or above 325 degrees F. It shall be equipped with a full circulating spreader bar and pumping system capable of applying the Thermoplastic Polymer Modified No Track Tack material within + 0.01 gallons per square yard tolerance of specified application rate and give uniform covering of the surface to be treated. The distributor shall also include a tachometer, pressure gauge, and volume measuring device and thermometer. The application rates shall be 0.15 gallons per square yard for all ARHM or AC overlay and slurry seal (where specified) or as otherwise directed by the Engineer. If the pavement temperature reaches over 130 degrees F, the application rate will be reduced to minimum 0.08 gallons per square yard on overlay applications.

5. Paving asphalt shall not be applied until the preparation of the existing surface has been completed and thoroughly cleaned, and then only so far in advance of placing the asphalt concrete overlay as permitted by the Engineer. Slurry seal shall be applied on the same day as receiving tack coat . The Thermoplastic Polymer Modified No Track Tack shall not be left exposed overnight.

6. Existing concrete curb faces and all concrete not to be overlaid shall be protected against disfigurement from the asphalt tack coat. Residue of the material shall be removed from concrete surfaces to return the concrete to its original condition unless otherwise directed by the Engineer.

7. Excessive tracking of tack coat onto adjacent pavements will require immediate clean-up. If significant amounts of asphalt tack coat are tracked onto existing adjacent pavements, the contractor shall be required to clean it off to the satisfaction of the City

Engineer or provide a slurry seal to restore the pavement at their own expense. This shall apply to the entirety of asphalt haul routes to and from the project sites.

8. On all vertical joins of AC patching, apply SS-1H tack coat uniformly in two coats of .20 gallons per square yard each with full "break" in between, or .20 gallons per square yard PG 64-10 uniformly in one coat. Tack coat shall not be applied when the temperature of the surface to be tacked is below 40° F in the shade. A tack coat shall be applied at the following:

   a. Pavement joins;
   b. Areas where new pavement meets existing pavements;
   c. Areas where lift sections from pavement placed on different days meet;
   d. Trenches;
   e. Areas where existing striping has been sandblasted; and
   f. Raised valves and manhole covers.

C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

D. Diesel fuel shall not be used for cleaning purposes within any of the streets within the project. Linseed oil shall be used.

3.4 INSTALLATION – ASPHALT PAVEMENT SINGLE COURSE

A. Install Work in accordance with SSPWC 302-5.

B. Place asphalt within 24 hours of applying primer or tack coat.

C. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

C. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.5 ERECTION TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot (3 m) straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation from Indicated Elevation: Within 1/2 inch.

END OF SECTION

SECTION 02800

ABANDONMENT OF CONDUITS, PIPE, AND STRUCTURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Abandonment of conduits, water mains, and structures

1.2 SUBMITTALS

A. Product Data: Submit plan of operation for Engineer's approval for the abandonment of existing water mains, conduits, and other structures.

B. Shutdown schedule shall be submitted 72 hours before depressurizing or tapping of existing pipelines. Indicate time to complete connections, Owner's inspection, testing, and disinfection within specified shutdown period.

A. Submit sketches, abandonment details, and procedures in accordance with Section 01300.

1.3 QUALITY ASSURANCE

A. Perform work including line plugging and capping in accordance with Standard Specifications for Public Works Construction (Greenbook) (SSPWC), or as directed by the Engineer.

1.4 OPERATIONAL REQUIREMENTS

A. Do not abandon existing water lines without an Owner's inspector or representative present. Do not operate valves without Water Department's approval. Normally, only the Water Department will operate valves.

B. Before removing any water pipe and utilities to be abandoned, provide temporary highline hoses, fittings, and appurtenances as directed by the Owner's Representative or Water Department to maintain water service and minimize service disruptions.

1.5 MEASUREMENT AND PAYMENT

A. Abandonment of existing water mains, utilities, and structures will be paid for at the unit price paid per each cut and plug location, per the Bid Schedule.

The price shall be included in the unit price for the abandonment of the water distribution pipelines. Such price shall constitute full compensation for the abandonment/demolition and disposal of existing water pipelines, services, conduits, and structures including cutting, dewatering, plugging, capping, hauling and disposal. Unit price shall also include the cost of any required permits.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 Guidelines and Requirements

A. Abandon and dispose of pipe materials in accordance with all state and federal laws.

B. Each location where water pipelines are abandoned shall be cut and plugged with slurry for a minimum of 5’ from the location of the cut.

C. Where services are to be abandoned as called out on the plans, remove and dispose of existing valves. Remove all corporation stops and and plug saddle, or remove adaptor from service and install plug in service saddle where no corporation stops are found.

D. Following removal of existing water mains, conduits, or structures, repair or restore surrounding improvements to preconstruction conditions or better, subject to approval by the Owner.

E. Stockpiling of removed or abandoned materials shall be temporary, outside of vehicle right of way in a location that will not cause a safety hazard. Stockpiling on streets, private property, and/or within public beach right of way shall be strictly prohibited.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coating Systems for Water Piping and Equipment

1.2 REFERENCES

A. SSPC-SP 1 - Solvent Cleaning

B. SSPC-SP 2 - Hand Tool Cleaning

C. SSPC-SP 3 - Power Tool Cleaning

D. SSPC-SP 5/NACE 1 - White Metal Blast Cleaning

E. SSPC-SP 6/NACE 3 - Commercial Blast Cleaning

F. SSPC-SP 10/NACE 2 - Near-White Metal Blast Cleaning

G. SSPC-SP 11 – Power Tool Cleaning to Bare Metal

1.3 DEFINITIONS

A. Definitions of Painting Terms: ASTM D16, unless otherwise specified.

B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.4 SUBMITTALS

A. Submit in accordance with Section 01300 – Submittals.

B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.

C. Color Samples: Submit manufacturer’s color samples showing full range of standard colors.

D. Manufacturer’s Quality Assurance: Submit manufacturer’s certification that coatings comply with specified requirements and are suitable for intended application.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer shall specialize in the manufacture of coatings with a minimum of 10 years successful experience.
2. Manufacturer shall be able to demonstrate successful performance on comparable projects of similar size and scope.
3. Single Source Responsibility: Coatings and coating application accessories shall be products of a single manufacturer.

B. Applicator's Qualifications:

1. Applicator shall be experienced in the application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.
2. Applicator's Personnel: Employ persons trained for application of specified coatings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:

1. Coating or material name.
2. Manufacturer.
3. Color name and number.
4. Batch or lot number.
5. Date of manufacture.
6. Mixing and thinning instructions.

B. Storage:

1. Store materials in a clean dry area and within allowable temperature limits in accordance with manufacturer's instructions.
2. Keep containers sealed until ready for use.
3. Do not use materials beyond manufacturer's shelf life limits.

C. Handling: Protect materials during handling and application to prevent damage or contamination.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Weather:

1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature ranges in accordance with manufacturer's instructions.
2. Surface Temperature: Minimum of 5°F (3°C) above dew point.
3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
5. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.

B. Ventilation: Provide adequate ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D102.

C. Dust and Contaminants:

1. Schedule coating work to avoid excessive dust and airborne contaminants.
2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

1.8 RELATED WORK

Materials and equipment furnished with shop coats, under other Sections of this Specification, will not be required to be prime coated under this Section provided the shop coating is compatible with the finished painting under this Section.

1.9 MEASUREMENT AND PAYMENT

Measurement and payment for painting shall be included in the price for equipment or material being painted.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Tnemec Company Incorporated, or approved Equal.

2.2 COATING SYSTEMS FOR STEEL - STRUCTURAL, TANKS, PIPE, AND EQUIPMENT

A. Exterior Exposed:

1. System Type: Epoxy/urethane.
2. Surface Preparation: SSPC-SP 6.
3. Primer: Series N69 Hi-Build Epoxoline II. DFT 3.0 to 5.0 mils.

4. Intermediate Coat: Series N69 Hi-Build Epoxoline II. DFT 2.0 to 3.0 mils.
5. Finish Coat: Series 75 Endura-Shield. DFT 2.0 to 5.0 mils.
6. Total DFT: 7.0 to 13.0 mils.
7. Finish Color: As selected by Engineer or as indicated on Drawings.

2.3 COATING SYSTEMS FOR GALVANIZED STEEL AND NONFERROUS METAL - PIPE AND MISCELLANEOUS FABRICATIONS

A. Exterior Exposed:

1. System Type: Epoxy/urethane.
2. Surface Preparation: In accordance with manufacturer's instructions.
3. Primer: Series N69 Hi-Build Epoxoline II. DFT 2.0 to 3.0 mils.
4. Finish Coat: Series 75 Endura-Shield. DFT 2.0 to 3.0 mils.
5. Total DFT: 4.0 to 6.0 mils.
6. Finish Color: As selected by Engineer or as indicated on the Drawings.

2.4 COATING SYSTEMS FOR DUCTILE OR CAST IRON – PIPE AND VALVES

A. Exterior Exposed:

1. System Type: Epoxy/urethane.
2. Surface Preparation: In accordance with manufacturer's instructions.
3. Primer: Series N69 Hi-Build Epoxoline II. DFT 3.0 to 5.0 mils.
4. Intermediate Coat: Series N69 Hi-Build Epoxoline II. DFT 4.0 to 6.0 mils.
5. Finish Coat: Series 75 Endura-Shield. DFT 2.0 to 3.0 mils.
6. Total DFT: 9.0 to 14.0 mils.
7. Finish Color: As selected by Engineer or as indicated on the Drawings.

2.5 COATING SYSTEMS FOR PVC

A. Exterior Exposed:
1. System Type: Epoxy/urethane.
2. Surface Preparation: Scarify.
3. Primer: Series N69 Hi-Build Epoxoline II. DFT 2.0 to 3.0 mils.
4. Finish Coat: Series 75 Endura-Shield. DFT 2.0 to 3.0 mils.
5. Total DFT: 4.0 to 6.0 mils.
6. Finish Color: As selected by Engineer or as indicated on the Drawings.

B. Interior Exposed:

1. System Type: Epoxy.
2. Surface Preparation: Scarify.
3. Primer: Series N69 Hi-Build Epoxoline II. DFT 2.0 to 3.0 mils.

4. Finish Coat: Series N69 Hi-Build Epoxoline II. DFT 2.0 to 3.0 mils.
5. Total DFT: 4.0 to 6.0 mils.
6. Finish Color: As selected by Engineer or as indicated on the Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which coating systems are to be applied.

3.2 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.

B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.3 SURFACE PREPARATION OF STEEL

A. Prepare steel surfaces in accordance with manufacturer's instructions for its intended application.

B. Fabrication Defects:

1. Correct steel and fabrication defects revealed by surface preparation.
2. Remove weld spatter and slag.
3. Round sharp edges and corners of welds to a smooth contour.
4. Smooth weld undercuts and recesses.
5. Grind down porous welds to pinhole-free metal.
6. Remove weld flux from surface.

E. Ensure surfaces are dry.

F. Immersion or Below Grade Surfaces: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 10/NACE 2.

G. Exterior Exposed or Interior Exposed Surfaces: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE 3.

H. Interior or Immersion Surfaces, Severe Exposure: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 5/NACE 1.

I. Marginally Prepared Surfaces (Maintenance): Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with manufacturer's instructions.

J. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.

K. Shop Primer: Prepare shop primer to receive field coat in accordance with manufacturer's instructions.

3.4 SURFACE PREPARATION OF GALVANIZED STEEL AND NONFERROUS METAL

A. Prepare galvanized steel and nonferrous metal surfaces in accordance with manufacturer's instructions.

B. Ensure surfaces are dry.

C. Remove visible oil, grease, dirt, dust, protective mill coatings, and other soluble contaminants in accordance with SSPC-SP 1 or manufacturer's instructions as specified for coating system.

D. Immersion Service: Clean surfaces by abrasive blasting.

E. Remove Rust From Galvanized Steel:

1. Remove white rust from galvanized steel by hand or power brushing.
2. Remove rust from old galvanized steel in accordance with SSPC-SP 2 or SP 3.
3. Do not damage or remove galvanizing.

F. Increase mechanical adhesion under moderate to severe conditions, such as exterior exposure or chemical environments, by abrasive blast and/or chemical cleaning.

3.5 SURFACE PREPARATION OF DUCTILE OR CAST IRON

A. Prepare ductile or cast iron surfaces in accordance with manufacturer's instructions and AWWA standards.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

3.6 SURFACE PREPARATION OF PVC

A. Prepare PVC surfaces in accordance with manufacturer's instructions and AWWA standards.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

C. Scarify PVC surfaces.

3.7 REPAIR

A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.

B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.

C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.9 FIELD QUALITY CONTROL

A. Inspector's Services:

1. Verify coatings and other materials are as specified.
2. Verify surface preparation and application are as specified.
3. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges.
4. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
   a. Check for holidays on interior steel immersion surfaces using holiday detector.
5. Report:
   a. Submit written reports describing inspections made and actions taken to correct nonconforming work.
   b. Report nonconforming work not corrected.
   c. Submit copies of report to Engineer and Owner.

B. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.10 CLEANING

A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.11 PROTECTION OF COATING SYSTEMS

A. Protect surfaces of coating systems from damage during delivery, storage, and construction.

END OF SECTION

SECTION 15010

PIPING AND APPURTENANCES - GENERAL PROVISIONS

PART 1 GENERAL

1.1 DRAWINGS

Dimensions shown on Contract Drawings are approximate only. Contractor shall verify all piping geometry in the field and shall be responsible for insuring proper alignment and fit of all piping consistent with the intent of the Contract Drawings. Field layout drawings shall be submitted as required for approval.

1.2 REFERENCES

A. AWWA C600 – Installation of Ductile Iron Water Mains and their Appurtenances

PART 2 PRODUCTS

2.1 Contractor's Responsibility for Material

The Contractor shall carefully examine all material for defects. Material which is known, or thought, to be defective shall not be installed.

The Engineer reserves the right to inspect all material and to reject all defective material shipped to the job site or stored on the site. Failure of the Engineer to detect damaged material shall not relieve the Contractor from his overall responsibility for the completed work if leaks or breaks occur after installation. Lay all defective material aside for final inspection by the Engineer to determine if corrective repairs may be made, or if the material is to be rejected. The Engineer shall determine the extent of the repairs.

Contractor shall classify defective pipe prior to Engineer's inspection as follows:

A. Damage to interior and/or exterior paint seal coats.

B. Damage to interior lining.

C. Insufficient lining thickness.

D. Poor quality interior paint seal coat.

E. Pipe out of round.

F. Damaged pipe barrel area to a point where pipe class thickness is reduced.

G. Denting or gouges in plain end of pipe.

The Contractor shall be responsible for all material, equipment, fixtures and devices furnished and such materials, equipment, fixtures and devices shall comply with the requirements and standards of all Federal, State and local laws, ordinances, codes, rules and regulations governing safety and health.

The Contractor shall be solely responsible for the safe storage of all material furnished to or by him until it has been incorporated in the completed project and accepted by the Engineer.

Pipe, fittings, valves, and associated appurtenances shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against other pipe. Handling of this material is to be in accordance with AWWA C600.

Keep fittings and valves drained and stored prior to installation in a manner protecting them from damage due to freezing of trapped water.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL REQUIREMENTS

A. All pipe shall be laid and maintained to the required lines and depths. Fittings, valves and hydrants shall be at the required locations with joints centered, spigots, and all valve and hydrant stems plumb, and otherwise installed in strict accordance with the specifications.

WARNING TAPE

Warning tape shall be located at minimum 2 feet above buried pipe. Tape shall be placed in the center of the trench line and covered with native backfill material. Tape shall bear "CAUTION BURIED WATER LINE BELOW", have a minimum width of 3 inches, be blue in color, and Non-Metallic.

TRACER WIRE

Tracer wire shall be 12 gauge type UF, 600V single strand copper wire. Splices in wire shall be "3M" Type DBY-6 low voltage for direct bury, and shall be waterproof gel cap type connectors.

B. All buried steel lugs, rods, brackets and flanged joint bolts and nuts shall be given one (1) coat of Koppers #50 coal tar coating prior to backfilling and polyethylene encased.

C. No deviation shall be made from the required alignment, depth or grade except with the prior written consent of the Engineer.

D. Thoroughly clean the pipes and fittings before they are installed and this material shall be kept clean until the acceptance of the completed work. Exercise care to insure that each length abuts against the next in such manner that no shoulder or unevenness of any kind occurs in the pipeline.

E. Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying.

F. Take up and replace with new, such in-place pipe sections found to be defective. Replacement work shall be at Contractor's sole expense.

G. Bedding materials for the pipe bedding shall be material furnished by the Owner, or excavated from the pipe trench, if approved by the Owner.

H. Take every precaution to prevent foreign material from entering the pipe while it is being placed. During laying operations, do not place debris, tools, clothing, or other materials in the pipe.

I. Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods.

J. Place sufficient backfill over the center sections of the pipe to prevent floating.

K. Carry out the cutting of pipe only with equipment specifically designed for that purpose such as an abrasive wheel, rotary wheel cutter, a guillotine pipe saw or a milling wheel saw. The use of chisels or hand saws will not be permitted. Cut ends and rough edges should be ground smooth and for push-on connections. The cut end should be beveled slightly.

L. In distributing material at the site of the Work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

M. If the pipe is to be strung out, it shall be performed in a straight line or in a line conforming to the curvature of the street. Each length of pipe shall be adequately blocked to prevent movement. Stockpiled pipe shall be adequately blocked to prevent movement. No pipe, material, or any other object shall be placed on private property, obstruct walkways or driveways, or in any manner interfere with the normal flow of traffic.

N. For prestressed concrete, gray and ductile iron pipe, special care shall be exercised. During handling, temporary storage, or construction to avoid damage to the bells, spigots. or flanged ends. If damaged pipe cannot be repaired to the Engineer's satisfaction, it shall be replaced at the Contractor's sole expense.

O. The Contractor shall remove all existing pipe, fittings, valves, pipe supports and blocking, and all other items necessary to provide space for making connections to existing pipe and state which is to be done under this Contract.

P. The Contractor shall be responsible for maintaining the minimum required clearance between the water line and other utility lines in strict accordance with all Federal, State and local requirements, and all right-of-way limitations.

Q. Water services shall be installed in conformance with the Construction Drawings and AWWA C901.

3.2 CONSTRUCTION METHODS TO AVOID CONTAMINATION

A. Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing such organisms. It is essential that the procedures of this section be observed to assure that a water main and its appurtenances are thoroughly clean for the final disinfection by chlorination.

B. Precautions shall be taken to protect the interiors of pipes, fittings, and valves against contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign material. All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods. Rodent-proof plugs may be used where it is determined that watertight plugs are not practical and where thorough cleaning will be performed.

C. Yarning or packing material shall consist of molded or tubular rubber rings, or rope of treated paper or other approved materials. Materials such as jute, asbestos or hemp shall not be used. Packing material shall be handled in a manner that avoids contamination.

D. No contaminated material or any material capable of supporting prolific growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use with potable water. It shall be delivered to the job in closed containers and shall be kept clean.

E. If dirt enters the pipe, and in the opinion of the Engineer the dirt will not be removed by the flushing operation, the interior of the pipe shall be cleaned by mechanical means and then shall be swabbed with a 1% hypochlorite disinfecting solution. Cleaning with the use of a pig, swab or "go-devil" should be undertaken only when the Engineer has specified such measures and has determined that such operation will not force mud or debris into pipe joint spaces.

F. It if it not possible to keep the pipe and fittings dry during installation, every effort shall be made to assure that any of the water that may enter the pipe joint spaces contains an available chlorine concentration of approximately 25 mg/L. This may be accomplished by adding calcium hypochlorite granules or tablets to each length of pipe before it is lowered into a wet trench, or by treating the trench water with hypochlorite tablets.

3.3 VALVE INSTALLATION

A. Prior to installation, inspect valves for direction of opening, freedom of operation, tightness of bolting, cleanliness of valve ports and particularly seating surfaces, and signs of handling damage and cracks. Correct defective valves or hold for inspection by the Engineer.

B. Install valves to the pipe in the manner specified in Section 3.1. Provide all required pipe supports, so that the pipe will not be required to support the weight of the valve. Set truly vertical.

3.4 INSTALLATION AND MAINTENANCE OF VALVE BOXES

The Contractor shall install valve boxes including tracer wire on all new buried valves installed. The valve boxes shall be installed as shown on the Drawings. Valve boxes shall be installed with adjustable riser pipes to protect the valve extension stems from damage. Contractor shall maintain adequate clearance between the riser pipes and the valve stem to ensure unobstructed valve operation. Valve covers shall be adjusted to conform with completed grade or street surface. Contractor shall be responsible for permanent pavement around the valve boxes to match existing grade where applicable.

3.5 THRUST RESTRAINT

Mechanical thrust restraint mechanisms shall be provided at pipeline changes in directions and valves as shown on the Drawings. Refer to Specifications Section 15131 - Piping Specialties.

END OF SECTION

SECTION 15100

PRESSURE TESTING OF WATER PIPELINES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pressure Testing of Water Pipelines

1.2 REFERENCES

A. ANSI/AWWA C900 - PVC Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. for Water Distribution

B. ANSI/AWWA C905 - PVC Pressure Pipe and Fabricated Fitting, 14 In. Through 48 In., for Water Transmission and Distribution

C. AWWA M23 – PVC Pipe Design and Installation Manual

D. SSPWC “Greenbook”, 2012 Edition

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature for all Contractor supplied materials and testing procedures shall be promptly submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Measurement and payment for the pressure testing of pipelines shall be included in the unit price for each pipe material to be supplied.

The above price shall include full compensation for furnishing all labor, materials, tools, equipment, temporary utilities, permits, and incidentals for the pressure testing of water pipelines in accordance with the Contract Documents.

PART 2 PRODUCTS

2.1 Hydrostatic Testing

Hydrostatic pressure test shall be performed for each pipe material per AWWA standards as referenced in the relevant specifications Sections.

A. The working pressure of the proposed pipelines is 112 – 125 psi.

2.2 Materials and Labor

A. Contractor shall supply all required piping plug connections, gauges, shut-off and air/vacuum valves, fittings, temporary utilities, equipment, permits, and associated appurtenances to conduct the required hydrostatic pressure tests.

B. Water required (testing and make-up) for pressure tests shall be supplied by the Owner.

C. Contractor shall supply all labor required to perform these tests. Testing shall be performed by a third-party independent firm specialized in the pressure testing of potable water transmission main pipelines. Contractor shall submit testing firm's Statement of Qualifications in accordance with Section 01300 for Engineer's approval.

D. Testing firm shall have a minimum of 10 years of related experience in the pressure testing of pipelines of similar scope and size.

2.3 Certificate of Compliance

A. Contractor shall submit to Engineer a written certificate of compliance certifying that the required pressure testing for each pipe material was performed in accordance with the associated AWWA standards for that pipe material.

PART 3 EXECUTION

3.1 INSTALLATION

General provisions provided in Specification Section 15010 shall be strictly followed in addition to the following:

A. Test pressures, test duration, and allowable leakage rates shall conform to the AWWA standards for the installation of each pipe material tested and the "Greenbook" SSPWC Section 306 standards for the installation of pipe.

B. In general, pressure testing shall be performed prior to complete surface restoration.

C. Dispose of water from existing mains and leakage from existing valves in accordance with applicable laws and regulations. Provide pumping

equipment hoses, and associated appurtenances to continually dewater work area when required.

D. Obtain all necessary permits prior to pipeline pressure testing.

E. Contractor shall coordinate and notify Engineer 24 hrs. prior to commencement of pressure testing. Engineer and/or Owner's representative shall be present to witness and record results of all pipeline testing.

F. Mortar lining and coating shall be allowed to cure for a minimum of 14 days or per manufacturer's instructions prior to pressure testing.

G. Contractor shall at his sole expense perform all necessary repairs to correct deficiencies found during the pipeline pressure tests. Contractor shall re-test the pipelines at the direction of the Engineer.

H. The pipelines shall at no time be placed into active service until the final pressure-test results have been reviewed and approved by the Engineer.

END OF SECTION

This page intentionally left blank

SECTION 15105

DISINFECTION OF WATER PIPELINES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Disinfection of Pipelines

1.2 REFERENCES

A. AWWA B301 - Liquid Chlorine

B. AWWA C651 - Disinfecting Water Mains

C. AWWA M23 - PVC Pipe Design and Installation Manual

D. SSPWC “Greenbook”, 2012 Edition

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature for all Contractor supplied materials, equipment, and disinfection and sampling procedures shall be promptly submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Measurement and payment for the disinfection of water pipelines shall be included in the unit price for each pipe material to be supplied and installed.

The above price shall include full compensation for furnishing all labor, materials, tools, equipment, laboratory, temporary utilities, permits, and incidentals for the disinfection of pipelines in accordance with the Contract Documents.

PART 2 PRODUCTS

2.1 Pipeline Disinfection

A. All water main pipelines shall be disinfected prior to being placed into service. Disinfection shall comply with AWWA C651.

2.2 Materials and Labor

A. Supply all required disinfection chemicals, gauges, valves, fittings, temporary utilities, sampling and chemical feed equipment, permits, and associated appurtenances to conduct the required pipeline disinfection.

B. Disinfectant:

Method of chlorination: Continuous Feed Method
Method of Injection: Injection solution using chemical feed pump
Alternate: Allowable if approved by Engineer
Maximum Fill Rate: 1 fps or as indicated in AWWA C651

Submit chlorination plan under Section 01300 for Engineer's approval.

C. Dosage

Pipe diameter	6 in	8 in	12 in	16 in	20 in	24 in
Pipe volume per 1000 feet	1,469 gal	2,611 gal	5,876 gal	10,445 gal	16,321 gal	23,502 gal
Maximum Fill Rate (gallons per minute)	88	157	352	627	979	1410

Note: Dosage shall comply with latest edition of AWWA C651 standards.

D. Required Chlorine Residual: Per AWWA C651 or as directed by Engineer.

E. Sample Frequency:

1. One sample shall be collected 24 hours after flushing pipeline to system residual at locations as directed to test all pipe. If first sample fails, 2 consecutive samples, 24 hours apart must pass.

F. Supply all labor required to perform disinfection. Disinfection shall be performed by a third-party independent firm specialized in the disinfection of potable water transmission main pipelines. Contractor shall submit testing firm's statement of qualifications in accordance with Section 01300 for Engineer's approval.

G. Testing firm shall have a minimum of 10 years of related experience in the pressure testing of pipelines of similar scope and size.

2.3 Certificate of Compliance

A. Contractor shall submit to Engineer a written certificate of compliance certifying that the required disinfection for each pipe material was performed in accordance with the associated AWWA standards for that pipe material.

PART 3 EXECUTION

3.1 INSTALLATION

General provisions provided in specification Section 15010 shall be strictly followed in addition to the following:

A. Provide all necessary test and sampling valves and fittings in the pipeline as required for disinfection.

B. Perform residual sampling per AWWA C651 standards.

C. Obtain all necessary permits prior to pipeline disinfection.

D. Contractor shall coordinate and notify Engineer 24 hours prior to commencement of pipeline disinfection. Engineer and/or Owner's representative shall be present to witness and record results of all disinfection testing.

E. All chlorinated water used for testing, flushing, or disinfecting water pipelines shall be disposed of safely. Contractor shall confirm acceptable levels of chlorine with local, state, or federal authorities.

F. Neutralize chlorine before disposal per AWWA C651 or obtain permit or authorization for direct disposal.

G. Flush line until chlorine content equals system chlorine levels. Owner will furnish all water used.

H. Bacteria sampling will be performed by Owner's representative or approved independent water laboratory 24 hours after pipelines are flushed. Owner shall pay for all expenses for first test, and subsequent testing shall be paid for by the contractor.

I. Contractor shall at his sole expense perform all necessary repairs to correct deficiencies found during the disinfection tests. Contractor shall re-test the pipelines at the direction of the Engineer.

J. The pipelines shall at no time be placed into active service until the final testing results have been reviewed and approved by the Engineer or Owner.

END OF SECTION

SECTION 15115

DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Ductile Iron Pipe

B. Cement Mortar Lining and Coatings

C. Ductile Iron Pipe Joints

D. Ductile Iron Pipe Fittings

1.2 REFERENCES

A. ANSI/AWWA C151 - Ductile - Iron Pipe, centrifugally cast, for water or other liquids.

B. ANSI/AWWA C110 - Ductile Iron and Gray Iron Fittings, 3 in Through 48 in., for Water

C. ANSI/AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances

D. ANSI/AWWA C104 - Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water

E. ANSI/AWWA C153 - Ductile Iron Compact Fittings, 3 in. Through 64 in. for Water Service

F. ANSI/AWWA C116 - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gray Iron Fittings for Water Supply Service.

G. SSPWC “Greenbook,” Section 207-9, 2012 Edition - Iron Pipe and Fittings

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature for all Contractor supplied materials shall be promptly submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Payment for ductile iron pipe shall be made at the contract unit price bid and shall include fittings, restrained joints, excavation, bedding, pipe installation, testing, and disinfection.

The above unit price shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the supply and installation of ductile iron pipe and fittings in accordance with the Contract Documents, except for those fittings included in other bid items. The unit price for ductile iron pipe shall include excavations of the trench; the control of ground and surface waters; the preparation of subgrade, placing and joining pipe, backfilling the trench, testing, disinfection, and all other work necessary to install the pipe, complete in place. Ductile iron pipe material will be furnished by the Tribe. Contractor shall furnish all required fittings.

Ductile iron fittings shown in Connection Details on the Plans shall be included in the lump sum price bid for that connection, per the Bid Schedule. Said lump sum price shall include all labor, materials, tools, equipment, transportation, coordination, and incidentals for the connections to existing pipelines, including but not limited to, furnishing and installing fittings and valves shown in Connection Details, cutting and removing of interfering pipes and fittings, draining of water main segments, excavations, control of ground and surface waters, temporary steel plating, backfill, and all other work necessary to make connections to the existing water system, complete and in place.

Warning tape and #12 A.W.G. tracer wire payment shall be included in the unit price payment for ductile iron pipe. Copper locating wire within valve boxes shall be long enough to extend 6” above cover. Tracer wire shall be placed along the top of the main alignment. Warning tape shall be placed 24” above the top of the main alignment.

PART 2 PRODUCTS

2.1 PIPE MATERIAL

A. Ductile iron pipe for water or other liquids shall be furnished in the sizes, classes, grades, or nominal thicknesses and joint types as shown on the Drawings.

B. Ductile iron pipe shall comply with AWWA C151 Standards.

C. Ductile iron pipe material will be furnished by the Owner.

2.2 PIPE JOINTS

A. Iron pipe joints shall comply with the following standards for the types shown on the Drawings:

Joint Type	Standard
Rubber Gasket Push-on Joint	AWWA C-111
Mechanical Joint	AWWA C-111
Flanged Joint	AWWA C-110
Flanged Joint (Threaded Flanges)	AWWA C-115

B. Restrained joint fittings and the restraining components shall be Ductile Iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and /or C153/A21.53 with the exception of the manufacturer's proprietary design dimensions. Push-on joints for such fitting shall be in accordance with ANSI/AWWA C111/A21.11.

Restrained joint pipe and fitting shall be U.S. Pipe's TR FLEX Pipe and Fittings or approved equal . Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER Ring, TR FLEX Pipe field weldments or approved equal.

Restrained push-on joints for pipe and fittings shall be designed or a water working pressure of 350 psi for sizes 4" through 24", 250 psi for sizes 30" through 48", and 200 psi for sizes 54" through 64".

2.3 FITTINGS

A. All ductile iron fittings shall be flanged, unless otherwise noted, and in conformance with AWWA C110.

B. Restrained ductile iron fittings shall be restrained using mechanical restraints as specified in Section 15131, Piping Specialties.

C. Contractor shall furnish and install all fittings required to maintain the alignment shown on the Plans, whether or not the fitting is called out on the Plans.

2.4 CEMENT – MORTAR LINING OF DUCTILE IRON PIPE AND FITTINGS

Cement mortar lining of ductile iron pipe and fittings shall conform to AWWA C104.

2.5 COATING

All ductile iron pipe and fittings shall have a bituminous coating approximately one mil thick.

2.6 CERTIFICATE OF COMPLIANCE

The manufacturer shall furnish written certification for Engineer's review that the supplied ductile iron pipe and fittings are in conformance with the previous aforementioned AWWA Standards.

PART 3 EXECUTION

3.1 INSTALLATION

General provisions provided in specification Section 15010 shall be strictly followed in addition to the following:

A. Pipe joints shall be where shown on the Drawings except where field conditions dictate changes and such changes are approved by the Engineer. The Contractor shall be responsible for insuring proper alignment and fit of all ductile iron piping.

B. The cutting of pipe for installing valves or fittings shall be done in a neat and workmanlike manner without damage to the pipe or lining. All pipe cutting shall be at the Contractor's expense.

C. Installation of ductile iron water main shall be in conformance with AWWA C600.

3.2 TESTING

A. Pressure testing shall be a minimum of 2 hours.

B. Test pressure shall be at 200 psi or 1.5X the maximum working pressure (whichever is greater).

C. Allowable leakage shall conform to AWWA C600 standards Table 6A.

D. Contractor shall supply all materials and labor to perform the required pressure testing and/or re-testing as required by the Engineer should the pressure testing fail.

END OF SECTION

This page intentionally left blank

SECTION 15120

PVC PIPE AND FITTINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. PVC Pipe

B. Joints

C. Fittings

D. Tracer Wire

1.2 REFERENCES

A. ANSI/AWWA C900 - PVC Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. for Water Distribution

B. ANSI/AWWA C905 - PVC Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In., for Water Transmission and Distribution

C. PVC Pipe - Design and Installation Manual of Water Supply Practices, M23

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature for all Contractor supplied materials shall be promptly submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

PVC pipe shall be measured along the longitudinal axis between the ends as laid and shall include the actual pipe in place and length of valves and fittings.

Payment for removal of PVC pipe shall be made at the contract unit price bid and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the removal and stockpiling of PVC pipe and ductile iron fittings, for disposal by the Tribe, in accordance with the Contract Documents. Removed pipe materials shall be taken to a site on the Reservation mutually agreed upon.

PART 2 PRODUCTS

2.1 PIPE MATERIAL

A. PVC pipe shall be used for buried potable water service application.

B. PVC pipe size shall be as shown on the Drawings and shall conform to the following:

Pipe Size	Pressure Class	Standard
12”	200	AWWA C-900
16”	235	AWWA C-905

2.2 PIPE JOINTS

A. PVC pipe joints shall be rubber gasket push-on bell and spigot joints.

B. Rubber rings shall conform to ASTM D1869.

C. Lubrication of the spigot end of the pipe shall be of a lubricant approved for water service and as recommended by the pipe manufacturer.

2.3 FITTINGS

A. Fittings for PVC water pipe shall be ductile iron mechanical joint fittings in accordance with specification Section 15115, Ductile Iron Pipe and Fittings. Restrained ductile iron fittings connected to plain end PVC pipe shall be restrained using mechanical restraints per specifications Section 15131, Piping Specialties.

B. Contractor shall provide all fittings required to maintain the alignment shown on the Plans, whether or not the fitting is called out on the Plans.

2.4 CERTIFICATE OF COMPLIANCE

A. Contractor shall submit for Engineer’s review, written certification that the supplied PVC pipe conforms to the aforementioned AWWA Standards in Section 1.2.

2.5 TRACER WIRE

A. Tracer wire shall be 12 gauge type UF, 600V single strand copper wire. Splices in wire shall be "3M" Type DBY-6 low voltage for direct bury, and shall be waterproof gel cap type connectors.

PART 3 EXECUTION

3.1 INSTALLATION

A. General provisions provided in Specification Section 15010 shall be strictly followed in addition to the following:

Pipe joints shall be where shown on the Drawings except where field conditions dictate changes and such changes are approved by the Engineer. The Contractor shall be responsible for insuring proper alignment and fit of all PVC piping.

Contractor shall be responsible for supplying all materials and labor to properly test and disinfect the PVC water distribution pipeline prior to placing the water pipeline into active service. Testing procedures and disinfection sampling results shall be reviewed and approved by the Engineer.

C. PVC pipe installation shall be per manufacturer's installation instructions and manual of Water Supply Practices, M23.

D. PVC pipe color shall be white or blue for potable water.

E. Field location of buried PVC potable water piping shall be performed by attaching 12 AWG insulated wire to the top of pipe. In addition, a 6-inch wide plastic marker tape labeled "CAUTION POTABLE WATER LINE BELOW" shall be used.

3.2 TESTING

A. Hydrostatic pressure and water main transmission leakage testing of PVC pipelines shall be performed per AWWA M23, AWWA C900, and AWWA C905.

B. A separate hydrostatic pressure test at 1.5X maximum operation pressure or 150 psi (whichever is greater) shall be performed over a 1-hour period.

C. A separate leakage test shall be performed for a minimum duration of 2-hours. If the leakage test is conducted simultaneously with the hydrostatic pressure test, the test shall be conducted over a 2-hour period.

D. Leakage allowance shall be in accordance with Table 8-1 of AWWA M23.

3.3 DISINFECTION

A. All potable water pipelines shall be disinfected prior to being put into service. The disinfection should take place after the initial cleaning and after completion of the hydrostatic and leakage testing.

B. Disinfection shall comply with AWWA C-651 standards and specification Section 15105.

C. All chlorinated water used for testing, flushing, or disinfecting water transmission pipelines shall be safely disposed of. Contractor shall confirm acceptable levels of chlorine with local, state or federal authorities.

END OF SECTION

SECTION 15125

CEMENT-MORTAR LINED AND COATED (CML&C) STEEL PIPE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel Pipe

B. Cement Mortar Lining and Coatings

C. Steel Pipe Joints

D. Steel Pipe Fittings

1.2 REFERENCES

A. AWWA C200 Steel Water Pipe 6-inches and larger

B. AWWA C205 Cement-mortar protective lining and coating

C. AWWA C206 Field Welding for Steel Water Pipe Fittings

D. AWWA C207 Steel Pipe Flanges

E. AWWA C208 Dimensions for Fabricated Steel Water Pipe Fittings

F. AWWA C602 Cement-Mortar Lining of Water Pipelines 4-inch and Larger-In Place

G. AWWA M11 Steel Water Pipe - A Guide for Design and Installation

H. AWS Standard Qualification Procedure for Manual Welding Operators

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature for all Contractor supplied materials shall be promptly submitted to the Engineer for approval in accordance with Section 01300.

The following shall be submitted in compliance with Section 01300.

A. Submit Shop Drawings, material lists, manufacturer’s literature and catalog cuts of, but not limited to, the following:

a. Shop Drawings
b. Layout Schedule
c. Manufacturer's tests
d. Mill Reports or Plant Test Reports
e. Fabrication Details
f. Dimensional Checks
g. Protective Coatings
h. Welding Rods for Field Welding

B. Shop Drawings shall be submitted and approved prior to manufacture of pipe. The layout schedule shall indicate the order of installation, the length and location of each pipe section and special, the station and elevation of the pipe invert at all changes in grade, and all data on curves and bends for both horizontal and vertical alignment.

C. Submit data used by the Contractor in manufacture and quality control.

D. Test reports showing the physical properties of the rubber used in the gaskets shall be submitted.

E. Certification stating that all pipe, special fittings, and other products or materials furnished under this Section of the Specifications comply with AWWA C200 and C205.

F. Welders Certificates

1.4 WELDING

A. All welding procedures used to fabricate pipe shall be prequalified under the provisions of AWS D1.1.

B. Welding procedures shall be required for, but not necessarily limited to, longitudinal and girth or spiral welds for pipe cylinders, spigot and bell ring attachments, reinforcing plates and ring flange welds, and plates for lug connections.

C. All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the methods and materials to be used.

D. Welders shall be qualified under the provisions of AWS D1.1 by an independent local, approved testing agency not more than 6 months prior to commencing work on the pipeline. Machines and electrodes similar to those used in the Work shall be used in qualification tests.

E. The Contractor shall furnish all material and bear the expense of qualifying welders.

1.5 TESTING

A. Except as modified herein, all materials used in the manufacture of the pipe shall be tested in accordance with the requirements of AWWA C200 and C205, as applicable.

1. Shop Testing of Steel Pipe

   a. After the joint configuration is completed and prior to lining with cement-mortar, each length of pipe of each diameter and pressure class shall be shop-tested and certified to a pressure of at least 80 percent of the yield strength of the pipe steel.

   b. Production weld tests shall be conducted in compliance with AWWA C200. In addition to the frequency of tests required in AWWA C200, weld tests shall be conducted on each 2,000 feet of production welds and at any other times there is a change in the welding procedure or welding equipment.

2. Shop Testing of Steel Plate Special

   a. Upon completion of welding, but before lining and coating, each special shall be bulkheaded and tested under a hydro-static pressure of not less than 1-1/2 times the design pressure; provided, that if straight pipe used in fabricating the specials has been previously tested and meets the requirements of the applicable piping Section, no further hydrostatic testing will be required; or provided, that all other welded seams are tested by the liquid penetrant inspection procedure conforming to ASTM E165, under Method “B” and “Leakage Testing” or where applicable by the soap and compressed air method at an air pressure of 25 psi. Any pin holes or porous welds which may be revealed by the test shall be chipped out and rewelded and the special retested.

   b. No outside coating shall be applied over a seam prior to testing; however, mortar lining may be applied over a seam prior to hydrostatic testing, but under such conditions said pressure test shall be held on the pipe or fitting for a period of not less than 30 minutes.

B. The Contractor shall perform said material tests at no additional cost to the Owner. The Engineer shall have the right to witness all testing conducted by the Contractor; provided, that the Contractor’s schedule is not delayed for the convenience of the Engineer.

C. In addition to those tests specifically required, the Engineer may request additional samples of any material including mixed concrete and lining and coating samples for testing by the Engineer. The additional samples shall be furnished at no additional cost to the Engineer.

D. All expenses incurred in making samples for certification of tests shall be borne by the Contractor.

1.6 MEASUREMENT AND PAYMENT

Payment for steel pipe shall be made included in the lump sum price bid for the Culvert Crossing on Morongo Road and shall include all pipe, fittings, welded joints, protective coverings, excavation, and backfill.

The above unit price shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the supply and installation of steel pipe and fittings in accordance with the Contract Documents.

Warning tape and #12 A.W.G. tracer wire payment shall be included in the unit price payment for ductile iron pipe. Copper locating wire within valve boxes shall be long enough to extend 6” above cover. Tracer wire shall be placed along the top of the main alignment. Warning tape shall be placed 24” above the top of the main alignment.

PART 2 PRODUCTS

2.1 GENERAL

A. Mortar lined and coated steel pipe shall conform to AWWA C200 and C205, subject to the following supplemental requirements. The pipe shall be of the diameter and thickness shown, shall be furnished complete with welded joints, as indicated in the Contract Documents, and all specials and bends shall be provided as required for a complete piping system.

B. Specials are defined as fittings, closure pieces, bends, reducers, wyes, tees, crosses, outlets, manifolds, and other steel plate specials, wherever located, and all piping above ground or in structures.

C. The steel for the cylinder shall be designed for a minimum of 300 psi working pressure and 36,000 psi minimum yield strength conforming to requirements for ASTM A36.

D. Dimensions of fabricated steel pipe fittings shall comply with AWWA C208.

E. Fittings for steel pipe shall conform to the dimensions of AWWA C208 and shall be made of segmentally welded sections of hydrostatically tested pipe

(same material and thickness), with ends compatible for type of joints shown. The minimum radius of elbows shall be 2.5 times the pipe diameter and the maximum miter angle on each section of elbow shall not exceed 11.25 degrees. Fittings shall be equal in pressure design strength and shall have the same lining and coating as the abutting pipe.

F. Pipe 14 inches in diameter and larger, the inside diameter after lining shall not be less than the nominal diameter specified or shown.

G. Pipe smaller than 14 inches in diameter may be furnished in standard outside diameters.

H. The pipe lining shall have smooth dense interior surfaces and shall be free from fractures, excessive interior surface crazing and roughness.

I. Closures and correction pieces shall be provided as required so that closures may be made due to different headings in the pipe laying operation and so that correction may be made to adjust the pipe laying to conform to pipe stationing shown on the Drawings.

J. The Contractor shall be fully liable for the cost of replacement or repair of pipe and specials which are damaged.

K. The Contractor shall legibly mark all pipes and specials in accordance with the laying schedule and marking diagram. Each pipe shall be numbered in sequence and said number shall appear on the laying schedule and marking diagram in its proper location for installation.

L. All special pipe sections and fittings shall be marked at each end indicating the top. The word “top” shall be painted or marked on the outside top spigot end of each pipe section.

M. Each special and each length of straight pipe shall be plainly marked at the bell end to identify the design pressure and the proper location of the pipe or special by reference to layout schedule.

N. Exposed portion of joint rings shall be protected from corrosion by the manufacturer's standard coating.

2.2 PIPE DESIGN CRITERIA

A. General

1. The pipe shall be steel pipe, mortar-lined and mortar-coated, with field welded joints as shown. The pipe shall consist of steel cylinder, either shop-

lined or lined-in-place with portland cement mortar with an exterior coating of cement mortar.

2. The pipe shall be designed, manufactured, tested, inspected, and marked according to applicable requirements of AWWA C200 except as hereinafter modified.

3. The pipe shall be of the diameter and indicated pressure class. The minimum steel cylinder thickness for each pipe size shall be as indicated.

4. Maximum pipe lengths for laying shall be 40 feet with shorter lengths provided as required.

Nominal Pipe Minimum Cylinder Diameter (in.)	Thickness (in.)
6” – 30”	0.135
36”	0.150
42”	0.175
48”	0.200
54”	0.225

2.3 DESIGN SPECIALS

A. Except as otherwise provided herein, materials, fabrication and shop testing of straight pipe shall conform to the requirements of AWWA C200. Dimensions for fittings shall conform to AWWA C208.

2.4 MATERIALS

A. All steel used for the fabrication of pipe shall have a maximum carbon content of 0.25 percent, a maximum sulfur content of 0.015 percent, and shall have a minimum elongation of 22 percent in a 2-inch gauge length.

B. Steel shall be fine-grained, fully kilned and manufactured by the continuous casting process.

C. Cement for mortar shall conform to the requirements of AWWA C205; provided that cement for mortar lining shall be Type II and mortar lining shall be Type II. Fly ash or pozzolan shall not be used as a cement replacement.

2.5 JOINT DESIGN

A. GENERAL

1. The standard field joint for steel pipe shall be a single-welded lap joint. Double welded joints with air taps for air pressure testing shall be provided where shown.

2. Mechanically coupled, or flanged joints shall be required where shown.

3. Butt-strap joints shall be used only where required for closures or where shown, or approved by the Owner and Engineer.

4. The joints furnished shall have the same or higher pressure rating as the abutting pipe.

5. Shop-applied interior linings and exterior coatings shall be held back from the ends of the pipe as indicated or as otherwise acceptable to the Owner and Engineer.

6. Where indicated, restrained joints shall be field-welded joints. Designs shall include considerations of stresses induced in the steel cylinder, the joint rings, and any field welds, caused by thrust at bulkheads, bends, reducers, and line valves resulting from the design working pressure. All joints to be field welded for thrust restraint shall have the joint rings attached to the cylinder with double fillet welds. Calculations for the number of joints that need to be welded on each side of all vertical and horizontal angle points shall be furnished to the Owner at no additional cost to the Owner.

7. For field welded joints, design stresses shall not exceed 50 percent of the indicated minimum yield strength of the grade of steel utilized, or 16,500 psi, whichever is less, for the part being examined when longitudinal thrust is assumed to be uniformly distributed around the circumference of the joint. At the Contractor's option, the steel cylinder area may be progressively reduced from the point of maximum thrust to the end of the restrained length.

B. Lap Joints

1. Preparation for field welding shall be in accordance with AWWA C200.

2. The method used to form, shape and size bell ends shall be such that the physical properties of the steel are not substantially altered. Unless otherwise approved by the Engineer, bell ends shall be formed by an expanding press or by being moved axially over a die in such a manner as to stretch the steel plate beyond its elastic limit to form a truly round bell of suitable diameter and shape. No process will be permitted in which the bell is formed by rolling. Faying surfaces of the bell shall be essentially parallel, but in no case shall the bell slope vary more than 2 degrees from the longitudinal axis of the pipe.

C. Bell and Spigot Ends

1. The Contractor shall require the pipe manufacturer to submit details complete with significant dimensions and tolerances and also to submit performance data indicating that the proposed joint has performed satisfactorily under similar conditions. In the absence of a history of field performance, the results of a test program shall be submitted.

2. The method used to form, shape and size bell ends shall be such that the physical properties of the steel are not substantially altered.

3. Unless otherwise approved by the Engineer, bell ends shall be formed by an expanding press or by being moved axially over a die in such a manner as to stretch the steel plate beyond its elastic limit to form a truly round bell of suitable diameter and shape. No process will be permitted in which the bell is formed by rolling.

4. Unless otherwise approved by the Engineer, spigot ends with rolled gasket grooves shall be non-destructively tested by the dye penetrant or magnetic particle method for the full circumference, especially at the weld seam area.

5. Faying surfaces of the bell and spigot shall be essentially parallel, but in no case shall the bell slope vary more than 2 degrees from the longitudinal axis of the pipe.

6. Actual yield strength of the steel used in the spigot rolling operation (i.e. yield strength values in mill certifications and subsequent destructive test results) shall be limited to 50,000 psi.

7. Full and complete information regarding location, type, size, and extent of all welds shall be shown on the shop drawings. The shop drawings shall distinguish between shop and field welds. Shop drawings shall indicate by welding symbols or sketches the details of the welded joints, and the preparation of parent metal required to make them. Joints or groups of joints in which welding sequence or technique are especially important shall be carefully controlled to minimize shrinkage stresses and distortion.

D. Flanged Joints

1. Provide steel flanges, welded to pipe where indicated. Flanges shall be in accordance with AWWA C207 Class F.

2. Bolts on buried flanges shall be Type 316 stainless steel with coal tar epoxy applied after installation.

2.6 CEMENT-MORTAR LINING OF PIPE

A. General

1. Except as otherwise required, interior surfaces of all steel pipe, fittings, and specials shall be cleaned and lined in the shop with cement-mortar lining applied centrifugally in conformity with AWWA C205.

2. Linings or coatings shall be continuous to the end of the pipe or back of the flange.

3. The progress of the application of mortar lining shall be regulated in order that all hand work, including the repair of defective areas is cured in accordance with the provisions of AWWA C205.

4. During the lining operation and thereafter, the pipe shall be maintained in a round condition by suitable bracing or strutting.

5. The lining machine shall be of a type that has been used successfully for similar work.

6. If lining is damaged or found faulty at delivery site, the damaged or unsatisfactory portions shall be replaced with lining conforming to these Specifications at no additional cost to the Owner.

B. The minimum lining thickness shall be in accordance with AWWA C200, Table 1 of Section 4.

C. The pipe shall be left bare where field joints occur as indicated. Ends of the linings shall be left square and uniform. Feathered or uneven edges will not be permitted.

D. Defective linings, as determined by the Engineer, shall be removed from the pipe wall and shall be replaced to the full thickness required. Defective linings shall be cut back to a square shoulder in order to avoid feathered edged joints.

E. Cement-mortar for patching shall be the same materials as the mortar for machine lining, except that a finer grading of sand and mortar richer in cement shall be used when field inspection indicates that such mix will improve the finished lining of the pipe.

F. For all pipe and fittings with plant-applied cement-mortar linings, the pipe manufacturer shall provide a polyethylene or other suitable bulkhead on the ends of the pipe and on all special openings to prevent drying out of the lining. All bulkheads shall be substantial enough to remain intact during shipping and storage until the pipe is installed.

G. Cement-Mortar Lining for Field Application

1. The materials and design of in-place cement-mortar lining shall be in accordance with AWWA C602 and the following supplementary requirements.

   a. Portland cement shall conform to Type II, ASTM C150.
   b. Pozzolanic material shall not be used in the mortar mix.
   c. Admixtures shall contain no calcium chloride.
   d. The minimum lining thickness shall be as indicated for shop-applied cement-mortar lining and the finished inside diameter after lining shall be as shown.

2.7 CEMENT MORTAR COATING OF PIPE

A. All pipe for buried service, including bumped heads, shall be coated with a 1-inch minimum thickness of reinforced cement-mortar coating.

1. Exterior surfaces of pipe or fittings passing through structure walls shall be cement-mortar coated six (6) inches beyond the inside wall face.

2. Unless otherwise specified, the reinforcement for the coating of pipe sections may be spiral wire, wire fabric, or wire mesh in accordance with AWWA C205.

3. The welded wire fabric shall be securely fastened to the pipe with welded clips or strips of steel.

4. The wire spaced 2 inches on centers shall extend circumferentially around the pipe. The ends of reinforcement strips shall be lapped 4 inches and the free ends tied or looped to assure continuity of the reinforcement.

B. After the welding is completed, the outside annular spaces between pipe sections shall be completely filled with grout. The grout shall be poured in such a manner that all exposed portions of the metal joint shall be completely protected with cement mortar. Grout used on the outside of joints shall be non-shrink grout, sufficiently fluid to permit it to be poured down one side of the pipe and allowed to flow up the other side. The outside mortar joints shall be properly formed by the use of heavy-duty diapers or grout bands.

2.8 FABRICATION OF SPECIALS

A. General

1. Specials and fittings shall conform to dimensions stipulated in AWWA C208.

2. Reinforcement for wyes, tees, outlets, and nozzles shall be designed in accordance with AWWA Manual M-11. Reinforcement shall be designed for the pressure indicated and shall be in accordance with the Standard Details.

3. Specials and fittings shall be equal in pressure design strength and shall have the same lining and coating as the adjoining pipe.

4. Unless otherwise specified, the minimum radius of elbows shall be 2.5 times the pipe diameter and the maximum miter angle on each section of the elbow shall not exceed 11-1/4 degrees.

B. Fittings may be fabricated from pipe that has been mechanically lined or coated.

C. All threaded outlets shall be forged steel suitable for 3000 psi service.

D. Outlets 12-inch and smaller may be fabricated from Schedule 30 or heavier steel pipe in the standard outside diameters, i.e. 12-3/4 inch, 10-3/4 inch, 8-5/8 inch, 6-5/8 inch, and 4-1/2 inch.

E. The design of outlet reinforcement shall be in accordance with the procedures given in Chapter 12 of AWWA Manual M-11, except that the design pressure, P, used in the M-11 procedure shall equal the greater of 1.25 Pw or 0.9376 Pt. Unless otherwise indicated, outlets 2 inches in diameter and smaller need not be reinforced.

F. In lieu of saddle or wrapper reinforcement as required by the design procedure in Manual M-11, pipe or specials with outlets may be fabricated in their entirety of steel plate having a thickness equal to the sum of the pipe wall plus the required reinforcement.

G. Where required by the M-11 design procedure crotch plate reinforcement shall be furnished.

H. Steel welding fittings shall conform to ASTM A234.

I. Ends for Mechanical-Type Couplings

1. Except as otherwise required, where mechanical-type couplings are indicated, the ends of pipe shall be banded with Type C collared ends using double fillet welds. Where pipe 12-inch and smaller is furnished in standard schedule thicknesses, and where the wall thickness equals or exceeds the coupling manufacturer’s minimum wall thickness, the pipe ends may be grooved.

J. Lining

1. All requirements pertaining to thickness, application and curing of lining indicated for straight pipe shall apply to specials, with the following proviso. If the special cannot be lined centrifugally, it shall be lined by hand. In such case, the lining shall be reinforced with 2-inch by 4-inch No. 12 welded wire fabric positioned approximately in the center of the lining. The wires spaced 2-inches on center shall extend circumferentially around the pipe with the fabric securely fastened to the pipe. Splices shall be lapped 4 inches and the free ends tied or looped to assure continuity.

K. Coating

1. All requirements pertaining to thickness, application and curing of coating for straight pipe shall apply to specials. Pipe above ground or in structures shall be field painted as required in Section 09900.

L. Specials and fittings that cannot be mechanically lined and coated shall be lined and coated by hand-application, using the same materials as are used for the pipe and in accordance with the applicable AWWA C602 Standards. Coating and lining applied in this manner shall provide protection equal to that indicated for the pipe.

M. Areas of lining that have been damaged by such fabrication shall be repaired by hand-applications in accordance with applicable AWWA C602 Standards.

PART 3 EXECUTION

3.1 INSTALLATION OF PIPE

A. Immediately before placing each section of pipe in final position for jointing, the bedding for the pipe shall be checked for firmness and uniformity of surface to support the pipe for its full length.

B. When the pipe is being laid, it shall be turned and placed where possible, so that any slightly damaged portion will be on top. The damaged area shall be repaired for the protection of any exposed steel.

C. All damaged areas along the pipe shall be repaired using materials and methods acceptable to the Engineer.

D. Moderate deflections and long radius curves may be made by means of beveled joint rings, by pulling standard joints, by using short lengths of pipe, or a combination of these methods; provided that pulled joints shall not be used in combination with bevels.

E. The maximum total allowable angle for beveled joints shall be 5 degrees per pipe joint.

F. The maximum allowable angle for pulled joints shall be in accordance with the manufacturer's recommendations or the angle which results from a ¾ inch pull out from normal joint closure, whichever is less.

G. All horizontal deflections or fabricated angles shall fall on the alignment.

H. All vertical deflections shall fall on the alignment and at locations adjacent to underground obstructions, points of minimum earth cover, and pipeline outlets and structures. The pipe angle points shall match the angle points indicated.

I. For pipe wall thicknesses of 3/8-inch or less, the maximum radial offset (misalignment) for submerged arc and gas metal arc welded pipe shall be 0.1875 times the wall thickness or 1/16-inch, whichever is larger.

J. For pipe wall thickness greater than 3/8-inch, the maximum radial offset shall be 0.1875 times the wall thickness or 5/32-inch, whichever is smaller.

K. Bevels shall be provided on the bell ends.

L. Mitering of the spigot ends will not be permitted.

M. Struts in pipe smaller than 24 inches may be removed immediately after laying, provided that the deflection of the pipe during and after backfilling does not exceed that indicated. After the backfill has been placed, the struts shall be removed and shall remain property of the Contractor.

N. The openings of all pipe and specials where the pipe and specials have been cement-mortar lined in the shop shall be protected with suitable bulkheads to maintain a moist atmosphere and to prevent unauthorized access by persons, animals, water or any undesirable substance. The bulkheads shall be so designed to prevent drying out of the interior of the pipe. The Contractor shall introduce water into the pipe to keep the mortar moist where moisture has been lost due to damaged bulkheads.

O. Trench Preparation: Earthwork shall be carried out in accordance with Section 02225, Trenching, Bedding, and Backfill, and the Project Geotechnical Report. Pipe laying shall be scheduled so that the bell end of the pipe faces in the direction of laying. Pipe installation on slopes steeper than 20% shall be laid in an uphill direction. Prior to laying the pipe, the bottom of the trench shall be graded and prepared to provide uniform bearing throughout the entire length of each joint of pipe. Suitable bell holes shall be excavated at each joint and a shallow lateral depression shall be scooped out half a pipe length from the last pipe laid to allow for easy removal of the belt pipe sling and thus avoid any movement of the pipe after it is placed on proper line and grade.

P. Welded Joints: Welded joints shall be completed after the pipe is in final position. Welded joints shall be a lap-welded slip joint. Any recess between the bell and spigot shall be caulked with a rod to facilitate the welding. Welders assigned to the Work shall be qualified under the AWS standard qualification procedure.

1. Joints to be welded shall be cleaned, preferably prior to placing the pipe in the trench, of all loose scale, heavy rust, paint, cement, and grease. At least a 1/2-inch recess shall be provided between adjacent mortar-covered surfaces to place the weld. In all hand welding, the metal shall be deposited in successive layers and the minimum number of passes or beads in the completed weld shall be as follows:

Steel Cylinder Thickness (Inches) Fillet Weld	Minimum Number of Passes
Smaller than 3/16”	1
3/16 and ¼”	2
5/16”	3
3/8”	3

2. After the joints have been welded, the joint shall be grouted with cement mortar in the same manner as specified for rubber-ring joints.

3.2 PREVENTING FOREIGN MATTER FROM ENTERING THE PIPE

At all times when pipe laying is not in progress, the open end of the pipe shall be closed with a tight-fitting cap or plug to prevent the entrance of foreign matter into the pipe. These provisions shall apply during the noon hour as well as overnight. In no event shall the pipeline be used as a drain for removing water which has infiltrated into the trench. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the Engineer.

3.3 PRESSURE TEST

All pipelines shall be tested in accordance with Section 15100, Pressure Testing of Water Pipelines. Zero leakage is allowed and all visible leaks must be repaired regardless of the results of the leakage allowance measurements.

3.4 DISINFECTION

Disinfection shall be in accordance with Section 15105, Disinfection of Water Pipelines.

3.5 HANDLING AND SHIPMENT

A. Pipe and special fittings shall be handled carefully, and blocking and holddowns used during shipment shall prevent movement or shifting. Both ends of pipe and

fittings on trucks or rail cars shall be bulkheaded or covered in order to prevent excessive drying of the interior lining.

B. Any pipe damaged during handling, hauling, storage, or installation shall be repaired or replaced.

END OF SECTION

This page intentionally left blank

SECTION 15131

PIPING SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Mechanical pipe couplings

B. Insulating flange kits

C. Pipe supports

D. Air release and vacuum valves

E. Flexible couplings and coupling adapters

F. Flexible expansion joints

G. Thrust Restraints (Mechanical)

H. Service Connections

I. Fire Hydrants

J. Blowoff Assembly

1.2 REFERENCES

A. AWWA C153 - Ductile Iron Compact Fittings

B. AWWA C213 - Fusion Bonded Epoxy Coating for Interior and Exterior of Steel Pipelines

C. AWWA C606 - Grooved and Shouldered Joints

D. ASTM A-36 - Structural Steel

E. AWWA C512 – Air-Release, Air/Vacuum and Combination Air Valves for Waterworks Service

F. AWWA C115 – Flanged Ductile Iron Pipe with Ductile Iron or Gray Iron Threaded Flanges

G. AWWA C901 – Polyethylene (PE) Pressure Pipe and Tubing, ½ in. Through 3 in., for Water Service

1.3 SUBMITTALS

Submit in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Measurement and payment for the supply and installation of piping specialties shall be made at the unit price or lump sum as noted in the bid schedule.

The above contract unit price or lump sum (where applicable) shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the supply and installation of piping specialties, in accordance with the Contract Documents.

PART 2 PRODUCTS

2.1 MECHANICAL PIPE COUPLINGS

Victaulic couplings meeting requirements of AWWA C606 shall be steel couplings as manufactured by Victaulic Company of America or approved Equal. The victaulic coupling shall be epoxy lined. Size and type are indicated on the Drawings.

2.2 INSULATING FLANGE KITS

A. Insulating flange kits including gaskets and bolt sleeves shall be installed at all dissimilar metal flange interfaces.

B. Insulating gaskets between dissimilar metals shall be dielectric, neoprene-faced phenolic, the same ID and OD as the adjoining flanges. PSI Products, Inc. Type E, Code N, or approved Equal.

C. Flange bolts shall be provided with a dielectric (insulating) sleeve. Two steel washers shall be used for each bolt. Two dielectric (insulating) washers shall be used for non-buried installations and only one dielectric (insulating) washer shall be used for buried installations.

2.3 PIPE SUPPORTS

A. Pipe supports shall conform to the details as shown on the Drawings.

B. Structural steel shall conform to ASTM A-36.

2.4 AIR RELEASE VALVES

A. Air release valves shall be installed at pipeline highpoints where indicated on the Drawings. The valve shall be mounted in the vertical position.

B. All air release valves shall conform to AWWA C512 standards.

C. Air release valves shall be of the float operated, direct lever or compound lever design, capable of automatically releasing accumulated air from a pressurized water pipeline.

D. Valve Size: As indicated on the Drawings
Main Valve Body and Cover: Ductile Iron
Main Valve Trim: Stainless Steel
Pressure Rating: 200 psi
Seat Material: Buna-N
Bolting Material: Stainless Steel
End connection: Threaded

E. Acceptable manufacturer/model: APCO/Model 50 or Equal.

2.5 COMBINATION AIR RELEASE AND VACUUM VALVES

A. All combination air release and vacuum valves shall be so designed as to insure the release of air from a pipeline when such air is above atmospheric pressure such as during filling operations. They shall also assure the entrance of air into the pipeline when the pressure inside the line is below atmospheric pressure such as during draining operations. Both of these functions shall be automatically performed by the same valve in conjunction with operating conditions of the pipeline.

B. Valves shall be designed for a maximum water working pressure of 200 psi, and shall have the joining of all parts so designed to withstand any stresses developed by the working pressures.

C. All materials used in the valves shall conform to ASTM standards. All surfaces subject to moving contact by other surfaces, including valves seats, shall be made of corrosion resistant material and of material as durable as possible under the conditions to which the valves will be subjected.

D. The interior of the valve body shall be epoxy coated as follows:

A 10 mil or thicker even coat of holiday-free, high-impact, non-shattering, high-adhesive, tasteless, odorless, non-toxic epoxy resin shall be applied on

all ferrous metal surfaces of the valves according to manufacturer's instructions, after irregularities, burrs and grease have been removed and immediately after sandblasting to white metal, followed by air blowing to remove dust. The epoxy resin shall be either "Specoat" or "Keysite 740", or shall be epoxies applied under the "Fusecote" fusion process, or approved Equal.

E. Valves shall be designed so that the through flow of air or water will not interfere with the designed performance of the valving mechanism.

F. Valve vent or discharge pipe shall be an inverted U screened with a stainless steel insert screen meeting the requirement of the Department of Health Services (DHS).

G. Acceptable manufacturer/model: APCO/model 145C or Equal.

2.6 FLEXIBLE COUPLINGS AND COUPLING ADAPTERS

A. All flexible couplings (including transition, reducing, etc.) and coupling adapters (including flange-couplings, etc.) which are used in the work shall be designed for not less than the same water working pressure as the water main to which they connect. All flanges, bells, sleeves, etc., shall be of the same pressure class and appropriate size and shape as the water main or fitting to which they connect. Sleeves shall have tapered ends to facilitate entry of the connecting pipe. Flanges shall be flat-faced. All appropriate gaskets, rubber rings and other minor items recommended by the manufacturer for proper assembly and operation of the flexible couplings and coupling adapters shall be included.

B. A 10 mil or thicker even coat of holiday-free, high-impact, non-shattering, high-adhesion, tasteless, odorless, non-toxic epoxy resin shall be applied on all surfaces of flexible couplings and coupling adapters, according to manufacturer's instructions, after irregularities, burrs and grease have been removed and immediately after sandblasting to white metal, followed by air blowing to remove dirt. The epoxy resin shall be either "Specoat" or "Keysite 740", or shall be epoxies applied under the "Fusecote" fusion process, or an approved equal.

C. Flexible couplings and coupling adapters manufactured by the following companies are acceptable: ROMAC, Ford, Smith Blair and Dresser Manufacturing Division, or approved Equal.

2.7 FLEXIBLE EXPANSION JOINTS

Flexible expansion joints shall be manufactured of ductile-iron conforming to the material properties of ANSI/AWWA C153/A21.53. All flexible expansion joints shall be capable of deflecting and expanding simultaneously to the amounts shown on the drawings or indicated in the specifications, but in no case shall be less than 15 degrees of deflection and 8 inches of expansion. All flexible expansion joints shall have the expansion capability designed as an integral part of the ductile-iron ball castings. All pressure containing parts shall be lined with a minimum of 15 mils of Fusion Bonded Epoxy conforming to the applicable requirements of AWWA C213 and shall be holiday tested with a 1500 volt spark test conforming to said specification. All flexible expansion joints shall be "Flex-Tend" as manufactured by EBAA Iron Inc. or approved Equal.

2.8 SERVICE CONNECTIONS

A. All pipe saddles for service line connections of 1 inch shall be brass or ductile iron, and shall be furnished with brass or stainless steel straps in either a double-strap configuration with a minimum strap width of 2 inches each or single strap with a minimum of 3 inches including Buna-N O-ring style. Saddles shall have an epoxy or nylon coating and be furnished with stainless steel washers and nuts. Acceptable saddles are Ford 202BS, FS202, Romac 202N, 202B, or approved equal. Service saddles for 1 ½ or greater shall be Smith Blair 317 Double Strap or approved equal.

B. Corporation stops shall be bronze body, Mueller H-15028 (1 inch) and H-15023 (2 inch) or approved equal, with iron pipe inlet. Angle shut off valves shall be Mueller H-14258 (1 inch) and H-14277 (2 inch) or approved equal.

C. Service lines shall be polyethylene (PE3408), or approved equal, conforming to AWWA C901. Tubing shall meet ASTM D2239 and ANSI/NSF 61 requirements.

2.9 FIRE HYDRANTS

A. In general, the size of fire hydrants shall be determined by the Morongo Fire Department and/or the design engineer. Fire hydrants shall have at minimum one 4 ½ inch outlet and two 2 ½ inch hose outlets with National Standard Thread unless otherwise noted on approved plans and have a working pressure of 200 psig and shall conform to AWWA C502 standards.

B. Fire hydrants shall be of the dry barrel type. In general, Fire hydrants shall be furnished with outlet threads conforming to local fire department requirements. The maximum bury depth for a fire hydrant as measured from the bottom of the hydrant shoe to the hydrant flange shall be 6 feet unless otherwise approved. Valves shall open to the left or counterclockwise.

Hydrants shall be furnished with suitable caps and be painted safety yellow with industrial enamel paint.

C. Dry barrel shall conform to AWWA C502-80.

D. Make/Model: 4 ½ x 2 ½ x 2 ½ Mueller A-421, or approved equal

E. Furnish catalog and maintenance data (including illustrations and a schedule of parts and the materials of which they are made) to use in maintenance of the hydrants, as well as in ordering repair parts if hydrants other than those specified are proposed to be used.

2.10 BLOWOFF ASSEMBLY

A. The hydrant on the 4” blow-off assembly shall be a model J-344 by James Jones Company with a 4” inlet and 2 ½” fire hose connection outlet, or approved equal. The 2" blow-off assembly shall be a model J-342 Jones with a 2" inlet and a 2 ½” fire hose connection outlet, or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. General

1. See specification Section 15010 for general installation methods.

2. Mechanical pipe couplings shall be installed per manufacturer’s instructions.

3. Insulating flange gaskets and bolt sleeves shall be installed and the nuts tightened, in accordance with the manufacturer's instructions; a copy of which shall be furnished to the Engineer by the Contractor.

4. Flexible couplings and coupling adapters shall be installed per manufacturer's instructions.

5. All fittings shall be protectively covered with polyethylene type materials, 8 mils thickness such as manufactured from DuPont Alathon Resin or U.S.I. petrothene resins or approved Equal.

6. Tape used to join polyethylene material shall be 2" wide APolyken@ #900 or Scotchwrap #5 or approved Equal.

B. Pipe Supports

1. Metalwork shall be installed as shown or as directed. Metalwork which is bent, broken or otherwise damaged shall be repaired or replaced by the Contractor at his sole expense to the satisfaction of the Engineer.

2. The surfaces of metalwork in contact with concrete shall be thoroughly cleaned of all rust, dirt, grease, loose scale, grout, mortar and other foreign matter. A hardware list shall be approved by the Engineer prior to installation.

3. Fabrication and workmanship shall be done in accordance with AISC Specifications for Fabrication and Erection. Contractor shall not field cut or alter structural members without the approval of the Engineer.

4. Welding shall be done by certified welders who have been qualified by tests as prescribed by the AWS in Standard Qualification Procedure to perform the type of work required. The quality of welding shall conform to AWS Code for Arc Welding in Building Construction Section 4, Workmanship.

5. All pipe supports shall be painted in accordance with Section 09900.

C. Combination Air Release and Vacuum Valves

1. Air and vacuum assemblies shall be installed at the locations indicated on the Plans at sites adjacent to the roadway or on back lot lines as selected by the Tribe to be completely accessible and protected from possible damage from vehicles or equipment. The assemblies shall be installed in accordance with details shown on the Plans, in a workmanlike manner and in accordance with accepted waterworks standards. Pipe joints shall be assembled in a proper manner to assure that they are free of leaks.

D. Flexible Expansion Joints

1. Flexible expansion joints shall be installed per manufacturer's instructions.

2. Flexible expansion joints shall be restrained during testing. The laying length shall be per manufacturer's instructions.

E. Service Connections

1. At all proposed service connections, the Contractor shall install new

service saddles, laterals, and corporation stop and associated appurtenances per the plans. Existing water meters and meter boxes are to be protected in place.

2. Install new polyethylene service connections per the Plans and Specifications. Service laterals shall be one continuous length of pipe with no fittings. Service connections shall be disinfected prior to final connection to the water meters.

3. Installation of service connections shall be performed so as to minimize service disruptions to existing customers. Contractor shall be responsible for installing a service connection from the proposed water main pipe saddle to upstream of the water meter (inclusive of meter). Each homeowner shall be responsible for making final plumbing connections from downstream of the water meter to their private residence.

4. All services shall be installed at a 45 degree angle, have a minimum of 30 inches of cover and extend 24 inches beyond the face of curb or designated property line.

F. Fire Hydrants

1. Fire hydrants shall be installed at the locations shown on the Plans in accordance with details shown on the Plans, and positioned to provide complete accessibility and to minimize the possibility of damage from vehicles or injury to pedestrians. The size and type of hydrant shall correspond to the designation shown on the Plans. The entire hydrant assembly shall be plumb. The face of the 4-inch nozzle shall be parallel to the street centerline. The hydrant shall be located so that centerline of the riser or barrel is not less than 18 inches or more than 24 inches in back of the curb face or face of berm on the edge of the street pavement in areas where the sidewalk is adjacent to the curb; the hydrant shall be located immediately behind the sidewalk.

2. Provide and install all necessary fire hydrants bury extensions to permit installation of the hydrant assembly to proper grade as per plan.

3. Make certain that the automatic drain openings of the dry barrel fire hydrants are kept open before and during installation. Provide a gravel pocket adjacent to the drain opening to extend to the surface of the ground in such a manner as to properly clear the fire hydrant assembly.

4. Upon completion of the water main and system installation, and after the field tests have been performed, each fire hydrant shall be operated

in the presence of the Field Inspector. Operation shall consist of opening the fire hydrant assemblies and allowing water to flow freely from one or more of its outlets. Upon completion of this sequence the fire hydrants shall be turned off and all protection caps properly placed on each outlet.

H. Blow-off Assemblies

1. Blow-offs shall be installed at the locations shown on the Plans and in accordance with the details shown on the Plans. The entire assembly shall be plumb with nozzles at right angle to the street or as directed by the Tribe or its agent.

2. Blow-offs shall be located to provide complete accessibility and to minimize the possibility of damage from vehicles or injury to pedestrians. Upon completion of the water main and system installation, each blow-off shall be operated in the presence of the Field Inspector. Operation shall consist of opening the hydrant head on the assembly and allowing water to flow freely from its outlet. Upon completion of this sequence, the blow-off assembly shall be turned off and all protection caps placed on the outlet.

END OF SECTION

This page intentionally left blank

SECTION 15155

BUTTERFLY VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES

Butterfly Valves

1.2 REFERENCES

AWWA C504 - Rubber Seated Butterfly Valves

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature shall be submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Measurement and payment for the supply and installation of mainline butterfly valves shall be made on a contract unit price per each.

Measurement and payment for the supply and installation of butterfly valves at intersections or connection points, shall be included in the lump sum price bid for said connection, per the Bid Schedule, and as shown in the Connection Detail on the Plans.

The above contract unit price shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the supply and installation of butterfly valves, in accordance with the Contract Documents.

PART 2 PRODUCTS

2.1 VALVES

A. Service Application: Butterfly valves shall be used for above or below grade water service application as indicated in the Drawings.

B. Rubber-seated butterfly valves shall be installed as shown on the Contract Drawings and shall be furnished to conform with the ANSI/AWWA C504 Standard and the following specifications. All valves furnished shall open counter clockwise. The valves shall be Class 150 or class as indicated on the

plans. Valves shall be designed for tight shut-off with no water leaks when subjected to a maximum differential pressure across the disc of 200 psi for valves 4-inch and larger.

C. Valve bodies shall be cast iron or ductile iron with flange joint ends.

D. Valve shafts shall consist of one-piece units extending through the discs of 18-8 stainless steel Type 303 or 304. Shaft diameter shall be in accordance with Table 3 of ANSI/AWWA C504 standard.

E. The valve disc shall be constructed of alloy cast iron or ductile iron. Disc seating edges shall be either 316 stainless steel or Ni-Chrome. Resilient seats on valve disc will not be permitted.

F. Valve seats shall be of a Buna N compound. The seats shall be simultaneously molded in, bonded, or vulcanized to the valve body for 20-inch diameter pipe and below. The seats shall be mechanically retained in the body for 24-inch diameter pipe and above. The use of rubber seats with metal inserts or rubber spools will not be permitted. The use of snap rings to retain seat ring will not be permitted. The overall rubber seat thickness shall be 1-inch minimum and shall not exceed 1-1/2 inches for 24-inch diameter pipe and above.

G. Valves shall be fitted with sleeve type bearings. The bearings shall be corrosion resistant and self-lubricating. The bearing load shall not exceed 2500 psi.

H. Shaft seals shall be designed for the use of standard split-V type packing or for standard O-ring seals.

I. A minimum 10 mil coat of holiday-free, high impact, non-shattering, high adhesion, odorless, non-toxic epoxy resin shall be applied on all interior ferrous metal surfaces of the valve, according to manufacturer's instructions, after irregularities, burrs and grease have been removed and immediately after sandblasting to white metal, followed by air blowing to remove dust. The epoxy resin shall be either "Specoat" or "Engard 460", or shall be epoxies applied under the "Fusecote" fusion process or an approved equal.

J. Actuators shall be manual actuators. Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be equipped with mechanical stop-limiting devices to prevent overtravel of the disc in the open and closed positions. Valves shall close with a (clockwise) rotation. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 lb. on the handwheel or chainwheel. Actuator components shall withstand an input of 450 Ft.-Lbs. at

extreme actuator position without damage.

K. A certification of compliance with AWWA C504 from the valve manufacturer shall be delivered to the Engineer for review.

L. Acceptable manufacturer/model: Henry Pratt Company/MKII Model or Equal.

PART 3 EXECUTION

3.1 INSTALLATION

Installation requirements shall be in accordance with AWWA C504 Appendix A: “Installation Operation and Maintenance of Rubber Seated Valves” and the manufacturer’s installation instructions and requirements.

END OF SECTION

This page intentionally left blank

SECTION 15160

GATE VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES

Gate Valves

1.2 REFERENCES

ANSI/AWWA C509 – Resilient- Seated Gate Valves for Water Supply Service

1.3 SUBMITTALS

Shop drawings and manufacturer's product literature shall be submitted to the Engineer for approval in accordance with Section 01300.

1.4 MEASUREMENT AND PAYMENT

Measurement and payment for the supply and installation of gate valves shall be made on a contract unit price per each.

Measurement and payment for the supply and installation of gate valves at intersections or connection points, shall be included in the lump sum price bid for said connection, per the Bid Schedule, and as shown in the Connection Detail on the Plans.

The above contract unit price shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for the supply and installation of gate valves, in accordance with the Contract Documents.

PART 2 PRODUCTS

2.1 VALVES

A. Service Application: Gate valves shall be used for above or below grade water service application as indicated in the Drawings.

B. Gate valves shall be installed as shown on the Contract Drawings and shall be furnished to conform with ANSI/AWWA C509 standards and the following specifications. The valves shall be class 200 unless otherwise noted on the

Drawings. All valves furnished shall open left (counter-clockwise).

C. Valve bodies shall be ductile iron with flange joint ends.

D. The valve stem shall be non-rising type with O-ring stem seal.

E. Stem, wedge gate, and body materials of construction shall be standard per AWWA C509. Bonnet bolts shall be hexagon head type 316 stainless steel.

F. All valves shall be interior lined and exterior coated with epoxy coat conforming to Federal specifications TT-C-4046 for water based enamel coating, or black asphalt coatings, or ANSI/AWWA C550 for epoxy coatings, or Equal.

G. Actuators shall be manual actuators. Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering.

H. A statement of compliance with AWWA C509 from the valve manufacturer shall be delivered to the Engineer for all valves.

I. Acceptable manufacturer/model: Mueller/"2360 Series" Resilient Wedge Gate Valve or Equal.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be as shown on the Drawings. The manufacturer's installation instructions and specifications Section 15010 shall be strictly followed.

END OF SECTION

APPENDIX A

GEOTECHNICAL REPORT

This page intentionally left blank

WILLDAN Geotechnical | extending your reach

July 9, 2013

Mr. Ray Wellington
Willdan Engineering
2401 E. Katella Avenue, Suite 450
Anaheim, CA 92806

Subject: **Report of Geotechnical Investigation**
Trunk Water Main Replacement Project
Morongo Reservation, California
Willdan Geotechnical Project No. 101564-1015

Dear Mr. Wellington,

Willdan Geotechnical (Willdan) is pleased to present this geotechnical investigation report for the Trunk Water Line Replacement project located at Morongo Reservation adjacent to the City of Banning, California. We understand that the project consists of the replacement of approximately 8600 feet of C-905 16-in water main and all related appurtenances (services, fire hydrants, fire services, valves, tie in's, etc.) identified as Phases 1 and 2. Phase 1 covers Potrero and Morongo Roads and is approximately 5300 feet long, while Phase 2 includes Martin Road and is approximately 3300 feet long.

Based on the results of our investigation, the proposed project is feasible from a geotechnical standpoint. This report presents the results of our investigation and recommendations for trench excavation and shoring, trench backfill, and other earthwork associated with the construction of the proposed new water lines. This report also includes recommendations for reconstruction of the road pavement in trench areas.

We appreciate the opportunity to assist you and look forward to future projects. If you have any questions, please contact us.

Respectfully submitted,
WILLDAN GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER
ROSS KHIABANI
No. GE2202
Exp. 6/30/14
GEOTECHNICAL
STATE OF CALIFORNIA

Ross Khiabani, PE, GE
Director of Geotechnical Services
C 37156, GE 2202

Distribution: (1) Addressee (electronic copy in PDF format)

This page intentionally left blank

REPORT

GEOTECHNICAL INVESTIGATION
TRUNK WATER MAIN REPLACEMENT PROJECT
MORONGO RESERVATION, CALIFORNIA

Prepared for

Willdan Engineering
2401 E. Katella Avenue, Suite 450
Anaheim, CA 92806

Prepared by

Willdan Geotechnical
1515 South Sunkist Street, Suite E
Anaheim, California 92806
Willdan Geotechnical Project No. 101564-1015

July 9, 2013

This page intentionally left blank

TABLE OF CONTENTS

Section Page

1.0 INTRODUCTION 1

1.1 Purpose and Scope of Services 1
1.2 Site Description and Proposed Development 2

2.0 GEOLOGY 3

2.1 Geological Setting 3
2.2 Regional and Local Faults 3

3.0 GEOTECHNICAL INVESTIGATIONS 5

3.1 Field Investigation 5
3.2 Laboratory Testing 5
3.3 Soil Profile and Subsurface Conditions 6
3.4 Groundwater 6

4.0 SEISMIC HAZARDS 7

4.1 Site Characterization – Site Class 7
4.2 Ground Shaking 7
4.3 Soil Liquefaction 7
4.4 Seismically Induced Settlement of Unsaturated Sands 7
4.5 Lateral Spreading 8
4.6 Ground Lurching 8

5.0 CONCLUSIONS AND RECOMMENDATIONS 9

5.1 Open Cut excavations 9
5.1.1 Pipe Trench Bedding and Backfill 9
5.1.2 Bulking and Shrinkage 10
5.1.3 Lateral Resistance 11
5.2 Seismic design Parameters 11
5.3 Pavement Design 12
Soil Corrosivity and Sulfate Attack Potential 13
5.4 13
5.5 Review of Construction Plans 13
5.6 Geotechnical Observation and Testing 14

6.0 CLOSURE 15

7.0 REFERENCES 16

TABLE OF CONTENTS (Cont'd)

List of Table — Page

Table 1. Seismic Design Parameters – 2010 CBC 11
Table 2. Flexible Pavement Design 12

List of Figures — Page

Figure 1. Site Location Map 17
Figure 2. Boring Location Map 18

APPENDICES

Appendix A. Log of Borings and Summary of Laboratory Test Results

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering investigation conducted for the proposed Morongo Trunk Water Main Replacement project located at Morongo Reservation, California.

As we understand, the project consists of the replacement of approximately 8600 feet of C-905 16-in water main. Figure 1, Site Location Map, shows the limits of subject project sites, the approximate locations of the soil borings drilled for this investigation are shown on Figure 2, Boring Location Plan. Appendix A shows log of test borings and summary of laboratory test results. Geotechnical laboratory test graphs are also provided.

This report includes geotechnical conclusions and recommendations for site preparation and earthwork procedures associated with installation of new water main pipes, including trench excavation and shoring, trench backfill, and pavement sections design.

1.1 PURPOSE AND SCOPE OF SERVICES

This investigation was conducted to explore and evaluate the site soil and groundwater conditions to depths that will significantly be influenced by the proposed construction. We performed the following scope of services:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- Review of selected published geologic maps, reports and literature pertinent to the site and surrounding area.
- A field investigation consisting of drilling six (6) mechanical hand auger and manual hand auger borings to evaluate subsurface conditions within the pipe zone at the site. The borings were drilled to the maximum depth of 6 feet below existing ground surface (bgs).
- Performance of laboratory tests on representative soil samples obtained from the shallow subsurface to evaluate the physical properties of the soils – primarily gradation characteristics.
- Laboratory tests on three (3) soil samples collected from within the pipe zone to assess corrosivity of the soil as it pertains to buried metal and to soil/cement reactivity.

- R-value testing of representative, bulk samples to determine parameters for pavement design.
- Engineering evaluation of the data obtained from the field investigation and laboratory testing program.
- Preparation of this report summarizing our investigation and findings, results of geotechnical laboratory testing, and our conclusions and recommendations for trench excavation, including shoring requirements, trench backfill, and pavement sections design.

Environmental assessment services, such as chemical analysis of soil and groundwater for hazardous substances, were not included in our scope of services. Geotechnical services related to soil corrosivity have been limited to screening three (3) representative soil samples collected from within the pipe zone. Thorough corrosivity evaluation with respect to the potential for on-site soils to affect buried metal pipe was not included in our scope of services for this project.

1.2 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The project site lies within the Morongo Reservation, California. We understand that the project consists of the replacement of approximately 8600 feet of C-905 16-in water main and all related appurtenances (services, fire hydrants, fire services, valves, tie in's, etc.) identified as Phases 1 and 2. Phase 1 covers approximately 5300 feet of water main replacement project in the following sections:

- Potrero Road between Morongo Road and Foothill Road, and
- Morongo Road between Potrero Road and Malki Road.

Phase 2 consists of approximately 3300 feet water main replacement project in Martin road between Malki Road and Ruiz Road. The mentioned roads are all paved, with varying pavement sections thicknesses, predominantly asphalt concrete (AC) overlying silty sand and/or poorly graded sand subgrade.

2.0 GEOLOGY

2.1 GEOLOGICAL SETTING

The geology of Morongo Indian Reservation is varied and complex. Those parts of reservation north of San Gorgonio Pass are within the San Bernardino Mountains, part of the eastern Transverse Ranges geologic province. Those parts south of the pass are in the San Jacinto Mountains which are located in the northernmost part of the Peninsular Ranges geologic province.

North of the pass, most of the reservation is underlain by an undifferentiated complex assemblage of metamorphic rock and lesser amounts of plutonic rock. This assemblage is composed primarily of gray gneiss with lesser amounts of schist and intermediate composition plutonic rocks. South of the San Gorgonio Pass, the reservation parcels are underlain by near-equal amounts of granitic rock of southern California batholitic and prebatholitic schist and gneiss. The dark-gray schist occurring as masses of many sizes engulfed in granitic rock.

The surficial geology of the entire study area of this project consists of sandy grayish brown unconsolidated alluvium and alluvium fan deposit which are mainly coarse cobbly alluvium (U.S. Bureau of Mines and Geological Survey, 1982).

2.2 REGIONAL AND LOCAL FAULTS

In general terms, fault related ground surface displacement; either sudden as in an earthquake or gradual as in fault creep is caused when strain energy in rocks is released by movement along a plane of weakness. Surface rupture usually occurs along the traces of known active or potentially active faults, although many historic events have occurred on faults not previously known to be active.

Strong to severe ground shaking will be experienced in the project area if a large magnitude earthquake occurs on one of the nearby active or potentially active faults and should be anticipated within the life expectancy of the structure. The site is located in southern California which is considered by most geologists as a seismically active region. Seismic risk can be considered high as compared to other areas of California because of the proximity to local active faulting.

Maps of designated Earthquake Fault Zones have been published by the California Geological Survey in accordance with the Alquist-Priolo Special Studies Zones Act of 1972, which regulates development near active faults. Based on our review of these maps, the site does not lie within an Alquist-Priolo (AP) Earthquake Fault Zone.

3.0 GEOTECHNICAL INVESTIGATIONS

3.1 FIELD INVESTIGATION

Field exploration for this investigation consisted of drilling and sampling six (6) mechanical hand auger and/or manual hand auger borings. Borings were advanced to the maximum depth of 6 feet bgs. Approximate locations of the borings are shown on Figure 2, Boring Location Plan. These locations were estimated by our personnel in the field by measuring from the limits of existing site features.

Prior to field exploration, a site visit was performed to mark the boring locations and evaluate access conditions for drilling equipment. Underground Service Alert (USA) of Southern California was then notified for clearance of underground utilities in the vicinity of the subsurface exploration locations (USA Ticket Numbers: A31710930, A31710957). Table A-1 provides approximate locations, elevations, summary of subsurface conditions, and summary of laboratory test results for the above borings.

Soil borings for the current investigations were advanced using a 4-inch diameter mechanical auger. Pavements were also cored using a 5-inch core barrel. Bulk soil samples were collected from each soil boring during drilling. Visual classification of the soils encountered in our exploratory borings was made in general accordance with the Unified Soil Classification System (ASTM D2488).

Upon completion of drilling, the borings were backfilled with soil cuttings and tamped. Pavement surfaces were repaired using cold-patch asphalt. Soil samples collected from the field were delivered to Willdan's laboratory for testing.

3.2 LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. Laboratory testing included determination of in-situ moisture, percent passing #200 sieve, sieve analysis (gradation), R-value, and corrosion potential of soils collected from within the pipe placement zone. Laboratory tests were conducted in general accordance with American Society for Testing of Materials (ASTM, 2013) Standards or California Test Methods. Laboratory test results are summarized in Table A-1 and graphically presented in Appendix A, Borings Logs and Laboratory Test Results.

3.3 SOIL PROFILE AND SUBSURFACE CONDITIONS

The subsurface materials encountered underlying the pavement section in all of our borings advanced for this investigation consist predominantly of silty sand with gravel (SM) and poorly graded sand with silt and gravel (SP-SM). The sands are fine to medium grained. The conditions of pavement sections and subsurface soils encountered at the boring locations are provided in Table A-1.

3.4 GROUNDWATER

Historical ground water level at the site is not available. The borings conducted for the current investigation were monitored for visible signs of free groundwater during and immediately after completion of the borehole. No groundwater was seen in any of the six (6) shallow borings advanced during the current investigation. Groundwater for the nearby sites were recorded as more than 100 feet below ground surface (Geoscience Support Services, Inc, 2007)

4.0 SEISMIC HAZARDS

4.1 SITE CHARACTERIZATION – SITE CLASS

The subsurface soil profile at the site can be classified from a seismic standpoint based on the conditions encountered in our exploratory borings, and anticipated within the upper 100 feet of the site based on geologic mapping, as being a relatively stiff soil with undrained shear strength of at least 1,000 pounds per square foot (psf) and SPT N values of 15 to 50 blows per foot. Based on the soils encountered within the upper 6 feet of the subject site and with consideration of the geologic units mapped in the area, it is our opinion that the site soil profile corresponds to Site Class D as per Table 1613.5.2 of the California Building Code (CBC, 2010).

4.2 GROUND SHAKING

Although ground rupture is not a major concern in this project, the sites will likely be subject to moderate to severe seismic shaking during the lifetime of the water lines. Some degree of pipe structural damage due to stronger seismic shaking should be expected at the site, but the risk can be reduced through adherence to seismic design codes. Using the seismic hazard assessment program developed by the United States Geologic Survey (USGS, 2013), the design ground motion is taken as 0.42g which is considered as two-thirds of the Maximum Considered Earthquake (MCE) ground motion.

4.3 SOIL LIQUEFACTION

The data collected during the present investigation indicate that sandy materials present in the pipe zone are not likely to undergo liquefaction because the historical groundwater depth within the subject project site is expected to be more than 100 feet below ground surface.

4.4 SEISMICALLY INDUCED SETTLEMENT OF UNSATURATED SANDS

Strong seismic shaking can cause settlement or compaction of sands above the groundwater as well. Seismic-induced settlement of sands above the groundwater can potentially result in settlement of the soils supporting the proposed water lines. The estimated settlement under the design seismic scenario of the sandy layers encountered in the shallow subsurface is estimated to be less than one-third of an inch.

4.5 LATERAL SPREADING

Lateral spreading happens when surficial soil moves in a direction parallel to the ground surface due to liquefaction of underlying subsurface soils layers. Lateral spreading usually occurs where the ground surface has a slope less than 6 percent and may result in damage to structures or other improvements due to differential lateral movements (Naeim, 1989). Lateral spreading is not likely to occur at the project site during seismic events.

4.6 GROUND LURCHING

Ground lurching is movement of the ground surface during seismic event, resulting in cracks and ridges developing perpendicular to the slope face. Areas underlain by thick alluvium with loose granular soils or clay soils with high moisture are susceptible to ground lurching. Ground lurching often causes damage to lightly loaded structures such as pavements, walkways, pipelines, and other near-surface improvements located within the failure zone. The shallow subsurface within the subject project site consists predominately of granular materials and is generally not susceptible to ground lurching during the design earthquake event. Nonetheless, we recommend that in areas where trench excavation reveals loose materials in the pipe zone, such material to be compacted in place or removed and replace with compacted material to minimize the potential for pipe rupture due to ground lurching during a seismic event.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our geotechnical investigation, the replacement of 16-inch-diameter water main and all related appurtenances is feasible from a geotechnical viewpoint, provided the recommendations contained in this report are implemented in the design and construction of the project. Presented below are recommendations for pipeline installation, and other geotechnical aspect of the project for incorporating in the project plan and specifications.

5.1 OPEN CUT EXCAVATIONS

Installation of new pipelines can best be accomplished using the open cut excavation. Temporary excavations must be properly shored or appropriately laid back. Safety during construction is the contractor's responsibility. The contractor shall conform to all applicable occupational safety and health standards, rules, regulations, and orders established by the State of California.

Caving will likely occur in the cohesionless soils expected in the excavations. Based on the data collected during this investigation, the temporary excavations should be accomplished with the Occupational Safety and Health Administration (OSHA) requirements for Type C soils. It is recommended that sloped temporary excavations be laid back at a gradient of 1.5H: 1V or flatter.

Where space is limited due to adjacent facilities and existing buried utilities, shoring may be required. Where internally braced shoring is used, it should be designed for a uniform pressure of 30H psf, where H is the height of excavation in feet. For cantilevered shoring, a triangular pressure distribution equal to that developed by a fluid with a density of 45 pcf may be used.

5.1.1 Pipe Trench Bedding and Backfill

Bedding matetial immediately around a pipe line and to a point 12 inches above the line should consist of sand, fine-grained gravel, or cement slurry to support the line and protect it. A minimum of 4 inches bedding material shall be placed below the bottom of the pipe line, on a firm and unyielding subgrade. The bedding material should meet the specification given in the latest edition of the "Standard Specifications for Public Works Construction" (Greenbook). Sand or gravel should be compacted in accordance with Greenbook specifications.

Above the bedding, up to finished subgrade at areas other than landscape areas and up to one foot below flatwork and pavements, utility trenches should be backfilled with on-site or import

granular materials (EI less than 35) and mechanically compacted to at least 90% of the maximum dry density of the soils. For trenches within flatwork areas, the upper one foot below the bottom of concrete flatwork slabs should be filled with a minimum of 2 sack slurry.

Below pavements, a minimum relative compaction of 95% will be required in the upper one foot of the backfill. The bedding and backfill material shall be observed, tested and approved by the Geotechnical Engineer. The trench materials should be placed in accordance with Sections 306-1.2.1 and 306-1.3 of the "Standard Specification for Public Works Construction" (Greenbook).

When adjacent to any footings, utility trenches and pipes should be laid above an imaginary line measured at a gradient of 1:1 (H:V) projected down from the bottom edges of any footings. Otherwise, the pipe should be designed to accept the lateral effect from the footing load, or the footing bottom deepened as needed to comply with this requirement, to at least very dense hard soils, or bedrock.

Onsite soils are suitable for use as backfill, and, if testing done prior to placement shows that they conform to Greenbook's requirements for bedding material, they may also be used as bedding. Prior to placing the pipes, the pipe trench subgrade should be observed by a representative of the project geotechnical engineer. If the exposed subgrade is loose or unstable, the unsuitable subgrade soil must be excavated and replaced with bedding material. Bedding must be placed uniformly on each side of the pipe and mechanically compacted. . The fill should be placed in loose lifts not to exceed 8 inches, moisture-conditioned to 2 to 4 percent above optimum, and mechanically compacted to the required relative compaction in accordance with ASTM D1557. Thinner lifts may be necessary to achieve the recommended level of compaction of the backfill due to equipment limitations. Special care should be taken in the control of trench backfilling as poor compaction may cause excessive settlement resulting in damage to the pavement structural section. If excavations reveal cohesive soils conditions anywhere, compaction requirements should be reviewed by the Geotechnical Engineer as a part of the plan review process.

5.1.2 Bulking and Shrinkage

The change in volume of excavated materials upon replacement and recompaction as fill varies according to soil type, density, and location. This volume change is represented as a percentage increase (bulking) or decrease (shrinkage) in volume of fill after removal and recompaction.

Based on our field and laboratory testing data, we estimate the near-surface onsite soil will have average compaction shrinkage on the order of 5 to 10 percent. This estimate does not factor in removal of oversize material or debris, if any.

5.1.3 Lateral Resistance

For design, resistance to lateral loads from thrust blocks or other appurtenant structures will be provided by the passive earth pressure. An allowable passive earth pressure of 300 psf per foot of depth is recommended. The maximum passive resistance should not exceed 3,000 psf. For isolated thrust blocks, the allowable passive pressure may be increased by one-third, to 400 psf per foot of depth.

5.2 SEISMIC DESIGN PARAMETERS

The site class per Table 1613.5.2, of the 2010 CBC is based upon the site soil conditions. It is our opinion that Site Class D is most consistent with the subject site soil conditions. For design of the structures based on the seismic provisions of the 2010 CBC, we recommend the parameters in the following Table 1.

TABLE 1. SEISMIC DESIGN PARAMETERS – 2010 CBC

Seismic Item	Value	CBC Reference
Site Class	D	Table 1613.5.2
Site Coefficient F_a	1.0	Table 1613.5.3 (1)
S_s	1.563	Figure 1613.5 (3)
S_{MS}	1.563	Section 1613.5.3
S_{DS}	1.042	Section 1613.5.4
Site Coefficient F_v	1.5	Table 1613.5.3 (2)
S_1	0.690	Figure 1613.5 (4)
S_{M1}	1.035	Section 1613.5.3
S_{D1}	0.690	Section 1613.5.4

Site Coordinates: Latitude: 33.9408° N Longitude: 116.8226° W

5.3 PAVEMENT DESIGN

The pavement subgrade at all areas of the site predominantly consists of silty sand with gravel, poorly graded sand with silt and gravel. The subgrade soil resistance "R" value (R-value) was determined based on laboratory testing of three (3) representative bulk samples collected from near-surface soils. Although the laboratory tested R-values are 78, 73 and 69 for Potrero, Morongo and Martin Roads respectively, the design R value is capped at 50 per the recommendations contained in the Caltrans Highway Design Manual (Caltrans, 2009a).

Pavement sections developed using the pavement design method recommended by Caltrans (2009a) for a subgrade design R-value of 50 are reported in Table 2 below for a range of Traffic Index (TI) values.

TABLE 2. FLEXIBLE PAVEMENT DESIGN

TI	AC/AB (in/in)	Full Depth AC (in)
5	3.0/3.0	4.5
7	4.0/4.5	7.0
9	5.5/6.5	9.0

The Asphalt Concrete (AC) for the pavement shall be C-PG-64-10 or B-PG-70-10 as specified in the Greenbook. Aggregate Base should conform to Class II Base materials in accordance with the latest current edition of the Greenbook. Crushed Miscellaneous Base (CMB) may also be used as aggregate base for all pavement areas where base material is used. The AB/CMB should be placed in loose lifts not exceeding 8 inches and compacted to a minimum of 95 percent relative compaction in accordance with ASTM D1557. Prior to placement of AB/CMB, the subgrade soils should be prepared as recommended below.

Where asphalt pavement meets concrete or existing pavements, the concrete and/or asphalt should be sprayed with emulsion. Proper asphalt compaction next to concrete pavement, curbs, and existing pavement is important to provide a relative impermeable contact between the two materials.

The pavement subgrade should be prepared as recommended in Section 5.1.1 above. The finish subgrade should be maintained moist at all time prior to pavement construction. If there is a time lag between the end of grading and construction of pavements, Reprocessing of the exposed subgrade soil will be required in order to reestablish the recommended level of compaction and soil moisture content.

5.4 SOIL CORROSIVITY AND SULFATE ATTACK POTENTIAL

Three (3) representative bulk samples obtained from the borings drilled within the limits of the project sites including Potrero, Morongo, and Martin Roads, were tested for pH, minimum resistivity, soluble chloride content and soluble sulfate content. The test results indicate that the onsite soils have negligible sulfate concentration. As such, sulfate resistant cement is not required for concrete in contact with onsite soils. Type I or Type II Portland cement may be used. The concentration of soluble chloride indicates a slightly corrosive environment for reinforced concrete. Assuming a 50-year life-span, we recommend a minimum concrete cover of 2 inches over reinforcement for structural components in direct contact with the native subgrade soils. The measured resistivity and pH indicate that some areas of the site are moderately to mildly corrosive to buried ferrous metals. We recommend a minimum pipe thickness of 18 gage for buried metal pipes for protection against perforation over a 50 year life.

Please note that the above recommendations are based on a relatively small number of discrete samples. If a detailed corrosion evaluation of the on-site subgrade soils is desired, we recommend that a corrosion specialist be consulted for this task.

5.5 REVIEW OF CONSTRUCTION PLANS

Recommendations contained in this report are based on preliminary plans. The geotechnical consultant should review the final construction plans and specifications in order to confirm that the general intent of the recommendations contained in this report have been implemented into the final construction documents. Recommendations contained in this report may require modification or additional recommendations may be necessary based on the final design.

5.6 GEOTECHNICAL OBSERVATION AND TESTING

It is recommended that inspection and testing be performed by the geotechnical consultant during the following stages of construction:

- Excavations and backfilling for utility trenches
- Placement of compacted fill
- Preparation of pavement subgrade
- Placement of base and pavement
- When any unusual subsurface conditions are encountered

6.0 CLOSURE

This report is intended for the use by Willdan Engineering and its consultants for design and construction associated with the proposed Morongo Trunk Water Main Replacement project at Morongo Reservation, California, at the locations indicated on Figure 1, Site Location Map.

The findings and recommendations contained in this report are based on the results of the field investigation, laboratory tests, and engineering analyses, combined with an extrapolation of subsurface conditions between and beyond the boring locations.

Services performed by Willdan Geotechnical have been conducted in accordance with generally accepted professional geotechnical engineering principles and practices at this time. No other representation, express or implied, and no warranty or guarantee is included or intended.

7.0 REFERENCES

American Society for Testing and Materials (ASTM), 2013. Annual Book of Standards. Soil and Rock; Dimension Stone; Geosynthetics. Vol. 04.08.

California Building Code (CBC), 2010.

Caltrans, 2010. Seismic Design Criteria, Version 1.6, November 2010.

Caltrans, 2009a. Highway Design Manual, July 2009.

Geoscience Support Service Inc., 2007.Preliminary Geohydrologic Evaluation of Artificial Recharge Potential- Proposed Butterfield Development, Banning, California

Green Book, 2012. Standard Specifications for Public Works Construction

Ishihara, K. and M. Yoshimine, 1992. "Evaluation of Settlements in Sand Deposits Following Liquefaction During Earthquakes," Soils and Foundations, Vol. 32, No. 1, pp. 173-188.

Naeim, F, 1989. The Seismic Design Handbook, Second Edition, Springer

Tokimatsu, K., and H.B. Seed, 1987, Evaluation of Settlements in Sands Due to Earthquake Shaking, ASCE Journal of Geotechnical Engineering, Vol 113, pp 861-878.

United State Geologic Survey (USGS), 2008a. Preliminary version of the "2008 NSHMP PSHA Interactive Deaggregation" website, *at:* http://eqint.cr.usgs.gov/deaggint/2008/index.php

United States Geological Survey (USGS) 2013, Seismic Hazard Curves and Uniform Hazard Response Spectra, ASCE 7 Standard, minimum design loads for buildings and other structures (2005 ASCE 7 Standard)

U.S. Bureau of Mines and Geological Survey, 1982, Status of Mineral Resources Information for Thirty Mission Indian Reservations in Southern California, Administrative Report BIA-96.

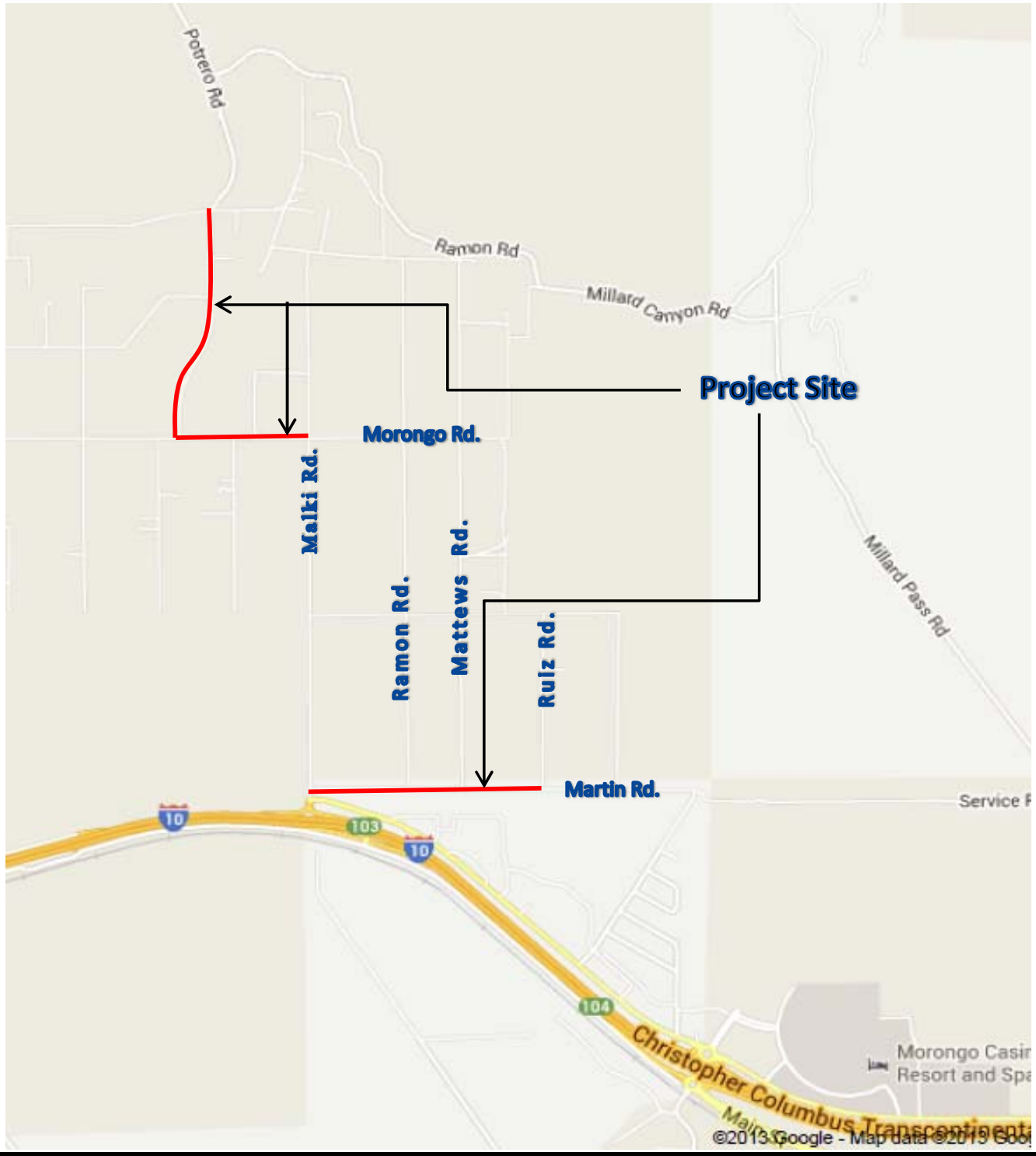
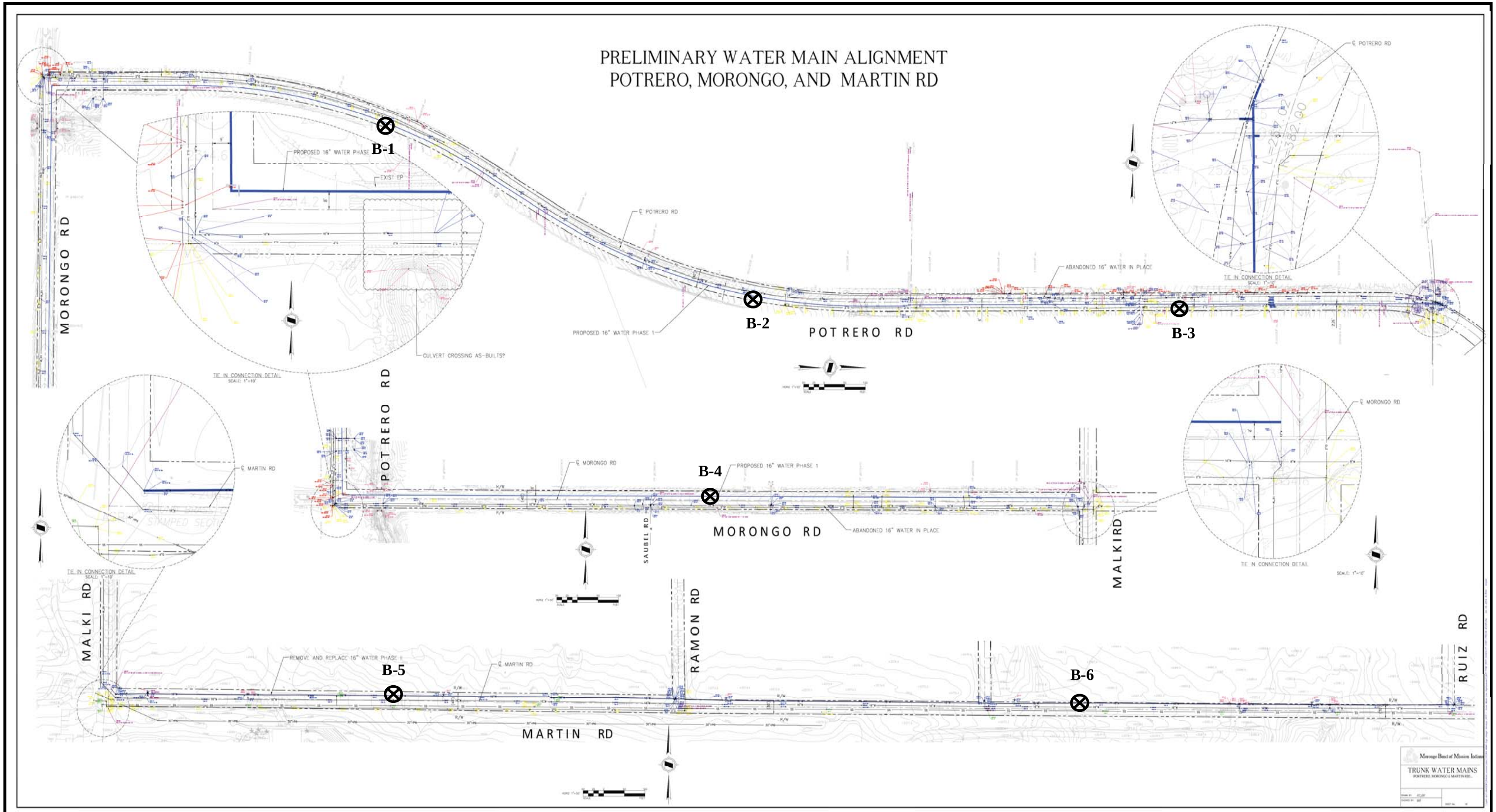


FIGURE 1: SITE LOCATION MAP

MORONGO TRUNK WATER MAIN REPLACEMENT
MORONGO RESERVATION, BANNING, CALIFORNIA

WILLDAN Geotechnical — extending your reach

Drawn By: SM	Date: 27-Jun-13
Approved By: RK	Project #. 101564-1015



⊗ **B-1: Approximate Boring Location**

FIGURE 2. BORING LOCATION PLAN

MORONGO TRUNK WATER MAIN REPLACEMENT
MORONGO RESERVATION, BANNING, CALIFORNIA

WILLDAN Geotechnical — extending your reach

Drawn By: SM	Date: June 27, 2013
Approved By: RK	Project No. 101564-1015

APPENDIX A. LOG OF BORINGS AND LABORATORY TEST RESULTS

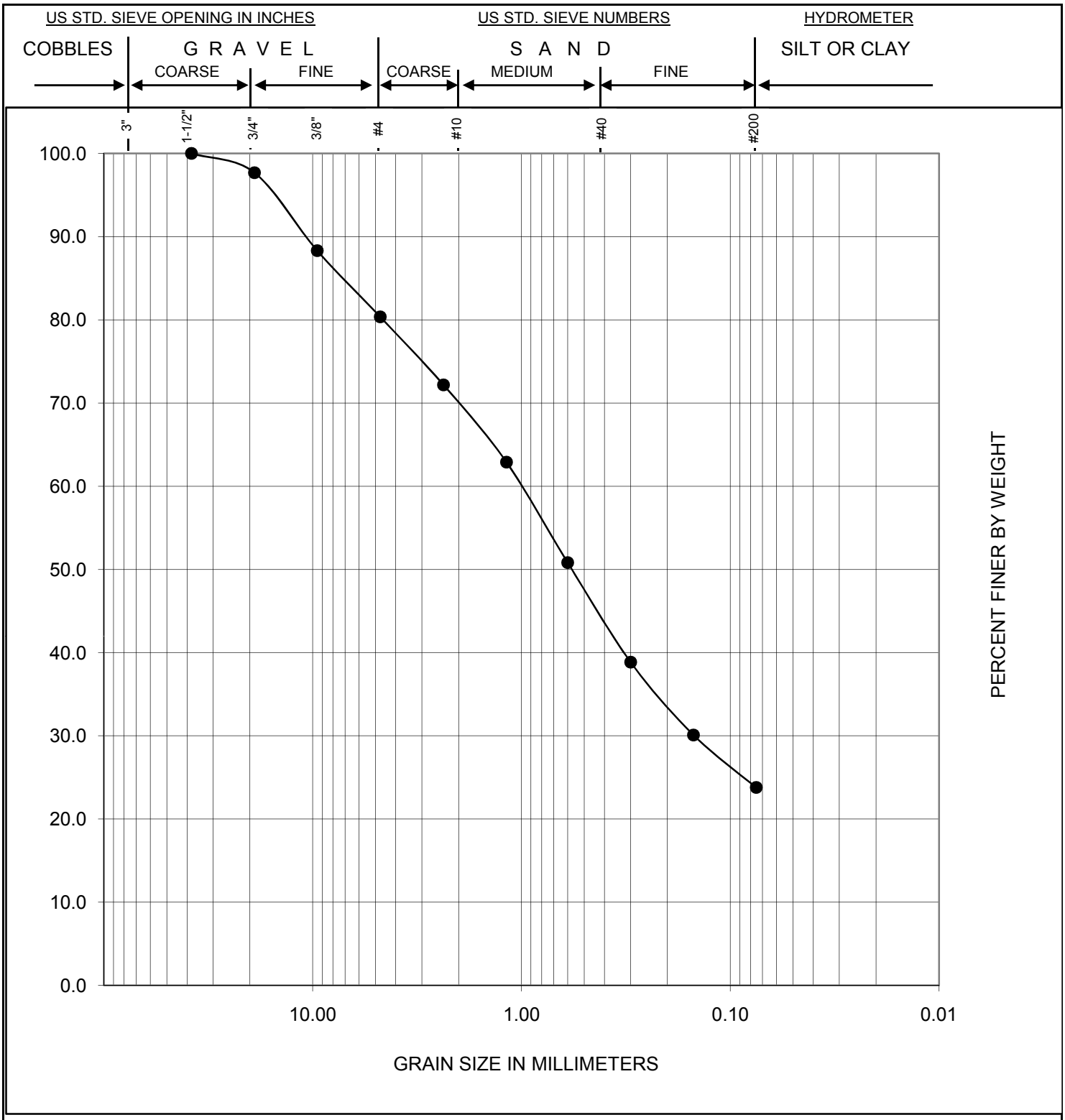
TABLE A-1: LOG OF BORINGS, Summary of Laboratory Test Results

Project :Morongo Trunk Waterline Replacement

Project No.:101564-1015

Date of Drilling:6/27/2013

BORING	ADDRESS / LOCATION & Offset	Approx. Ground Elevation (ft)	SUMMARY OF SUBSURFACE CONDITIONS			Moisture Content (%)	Gradation (ASTM D422) (% Gravel : Sand : Fines)	R Value	Corrosivity (CT-412, 417, 643)			
			Nominal Type	Thickness (in)	Layer Notes				pH	Soluble Sulfate (ppm)	Soluble Chlorides (ppm)	Minimum Resistivity (ohm-cm)
B-1	Potrero Road, ~ 900' north of Morongo Road, northbound	2348	AC:	4.5	2.5" maximum 1/2" aggregate size AC 2" maximum 1/4" aggregate size AC							
			Agg. Base:	0								
			Subgrade:	60	Silty SAND with Gravel (SM), brown, moist	2.4	20:56:24	78	7.5	18	150	11192
B-2	Potrero Road, ~1800' north of Morongo Road, northbound	2412	AC:	4	3" maximum 1/2" aggregate size AC 1" of maximum 1/4" aggregate size AC							
			Agg. Base:	0								
			Subgrade:	60	Poorly Graded SAND with Silt and Gravel (SP-SM), brown, moist	2.2	--:--:9					
B-3	Potrero Road, ~ 0.5 miles north of Morongo Road, northbound	2480	AC:	4	2" maximum 1/2" aggregate size AC 2" of maximum 1/4" aggregate size AC							
			Agg. Base:	0								
			Subgrade:	60	Silty SAND with Gravel (SM), brown, moist	1.0	--:--:13					
B-4	Morongo Road, ~ 950' east of Potrero Road, westbound	2332	AC:	4	2.5" maximum 1" aggregate size AC 1.5" of maximum 1" aggregate size AC							
			Agg. Base:	0								
			Subgrade:	60	Silty SAND (SM), brown, moist	2.5	12:55:33		7.8	38	210	7560
B-5	Martin Road, ~ 900' east of Malki Road, westbound	2064	AC:	4.5	2.75" maximum 1/2" aggregate size AC 1.75" of maximum 1/2" aggregate size AC							
			Agg. Base:	0								
			Subgrade:	60	Silty SAND(SM), brown, moist	1.5	--:--:32					
B-6	Martin Road, 0.5 miles east of Malki Road, westbound	2083.5	AC:	5	3" maximum 1/2" aggregate size AC 2" of maximum 1/2" aggregate size AC							
			Agg. Base:	4	Crushed Aggregate Base (CAB)							
			Subgrade:	60	Silty SAND (SM), brown, moist	1.8	4:56:40	69	7.7	42	180	9054



Project No. : 101564-1015

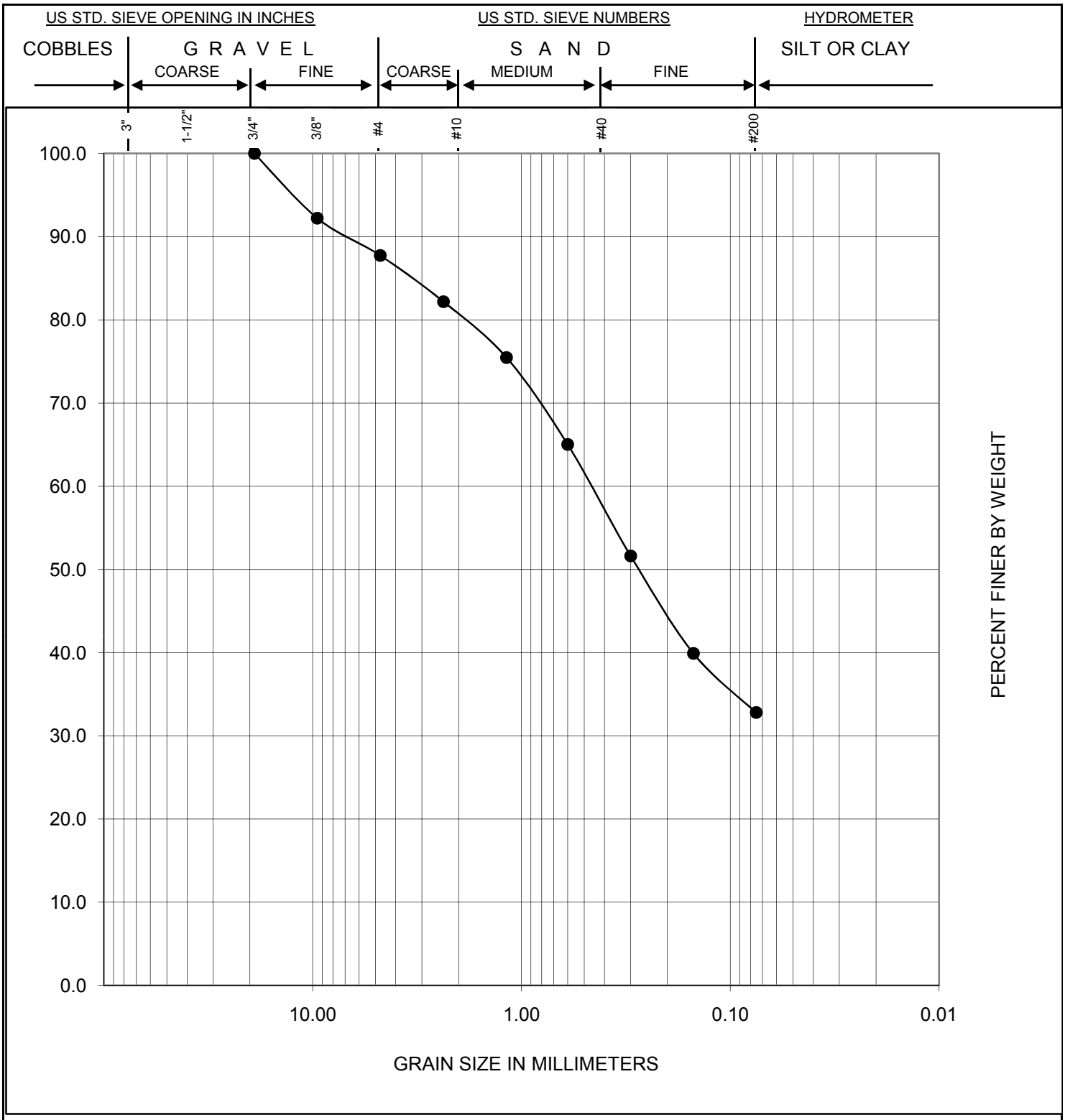
Project Name : MORONGO TRUNK W/L

Boring No.	Sample No.	Depth	Symbol	Classification	Nat.W %	LL	PL	PI
B-1	R-1	1' - 1.5'	SM	BROWN SILTY SAND WITH GRAVEL		-	-	-

GRAIN SIZE CURVE

WILLDAN Geotechnical

extending your reach



Project No. : 101564-1015

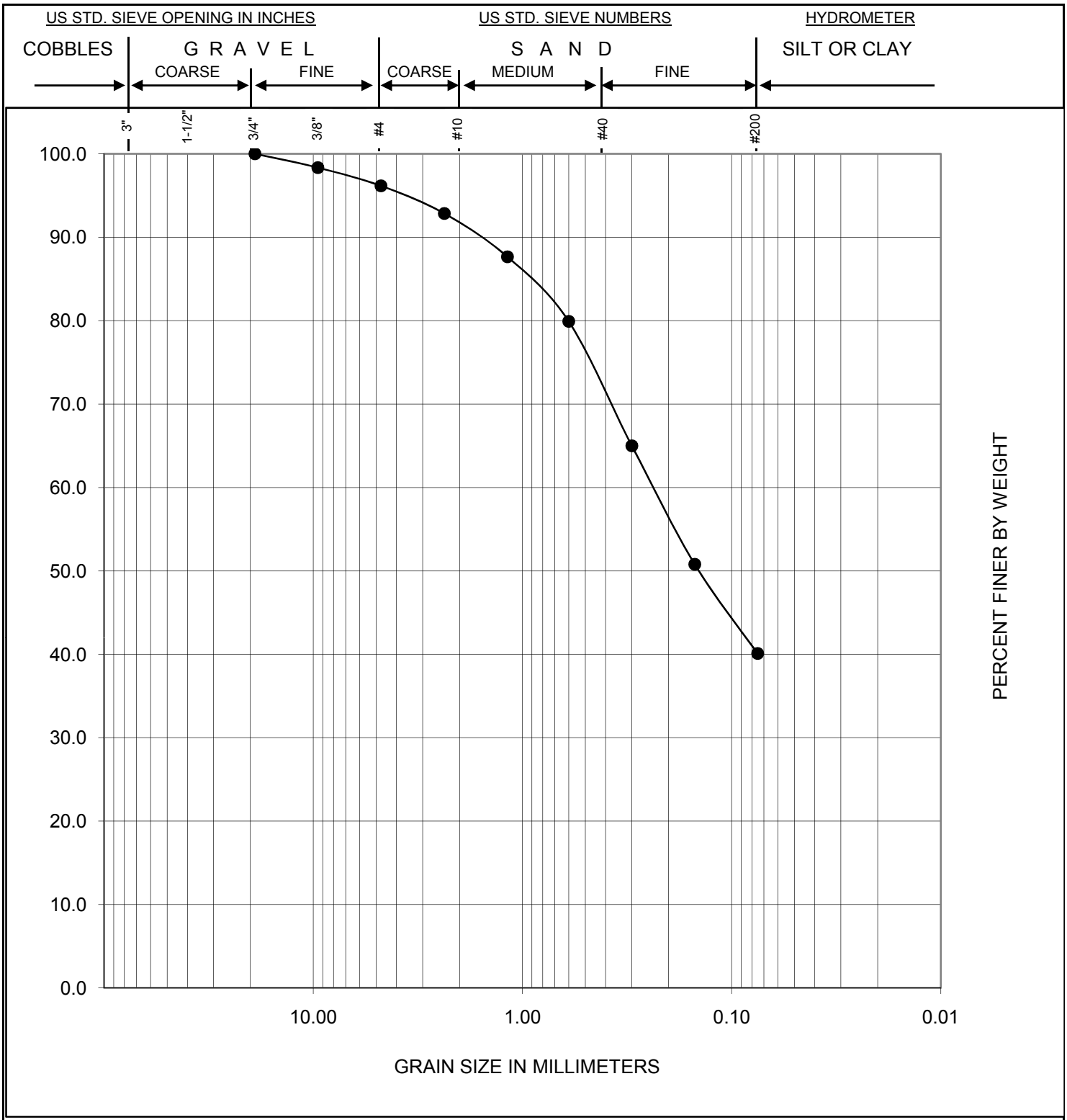
Project Name : MORONGO TRUNK W/L

Boring No.	Sample No.	Depth	Symbol	Classification	Nat.W %	LL	PL	PI
B-4	R-1	1' - 1.5'	SM	LT. BROWN SILTY SAND		-	-	-

GRAIN SIZE CURVE

WILLDAN Geotechnical

extending your reach



Project No. : 101564-1015

Project Name : MORONGO TRUNK W/L

Boring No.	Sample No.	Depth	Symbol	Classification	Nat.W %	LL	PL	PI
B-6	R-6	1' - 1.5'	SM	LT. BROWN SILTY SAND		-	-	-

GRAIN SIZE CURVE

WILLDAN Geotechnical

extending your reach

'R' VALUE CA 301

Client: Willdan Geotechnical | Date: 6/28/13 | By: LD

Client's Job No.: 101564-1015 | **Sample No.:** B-1 / Potrero Rd

GLA Reference: 2005-224 | Soil Type: Brown, Silty Sand with Gravel (SM)

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**350**	**350**	**350**	
Initial Moisture Content	%	**2.6**	**2.6**	**2.6**	
Water Added	ml	**60**	**66**	**63**	
Moisture at Compaction	%	7.7	8.2	8.0	
Sample & Mold Weight	gms	**3257**	**3263**	**3233**	
Mold Weight	gms	**2103**	**2103**	**2102**	
Net Sample Weight	gms	1154	1160	1131	
Sample Height	in.	**2.525**	**2.554**	**2.482**	
Dry Density	pcf	128.5	127.1	127.9	
Pressure	lbs	**5225**	**2570**	**3760**	
Exudation Pressure	psi	416	205	299	
Expansion Dial	x 0.0001	**0**	**0**	**0**	
Expansion Pressure	psf	0	0	0	
Ph at 1000lbs	psi	**13**	**16**	**15**	
Ph at 2000lbs	psi	**19**	**26**	**22**	
Displacement	turns	**4.4**	**4.59**	**4.51**	
R' Value		81	74	78	
Corrected 'R' Value		**81**	**74**	**78**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**78**
By Epansion Pressure :	**N/A**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Willdan Geotechnical | Date: 6/28/13 | By: LD

Client's Job No.: 101564-1015 | **Sample No.:** B-4 @ 1.0' - 5.5'

GLA Reference: 2005-224 | Soil Type: Light Brown, F.M. Silty Sand (SM)

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**350**	**350**	**350**	
Initial Moisture Content	%	**2.9**	**2.9**	**2.9**	
Water Added	ml	**70**	**62**	**66**	
Moisture at Compaction	%	8.9	8.2	8.6	
Sample & Mold Weight	gms	**3231**	**3214**	**3218**	
Mold Weight	gms	**2105**	**2104**	**2099**	
Net Sample Weight	gms	1126	1110	1119	
Sample Height	in.	**2.53**	**2.469**	**2.502**	
Dry Density	pcf	123.8	125.9	124.8	
Pressure	lbs	**1900**	**9480**	**4230**	
Exudation Pressure	psi	151	755	337	
Expansion Dial	x 0.0001	**2**	**14**	**6**	
Expansion Pressure	psf	9	61	26	
Ph at 1000lbs	psi	**17**	**14**	**15**	
Ph at 2000lbs	psi	**31**	**21**	**26**	
Displacement	turns	**4.12**	**3.95**	**4.1**	
R' Value		72	81	76	
Corrected 'R' Value		**72**	**81**	**76**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**75**
By Epansion Pressure :	**73**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Willdan Geotechnical | Date: 6/28/13 | By: LD

Client's Job No.: 101564-1015 | **Sample No.:** B-6 @ 1.0' - 6.0'

GLA Reference: 2005-224 | Soil Type: Light Brown, F.M. Silty Sand (SM)

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**350**	**350**	**350**	
Initial Moisture Content	%	**2.3**	**2.3**	**2.3**	
Water Added	ml	**80**	**74**	**77**	
Moisture at Compaction	%	9.1	8.6	8.9	
Sample & Mold Weight	gms	**3179**	**3164**	**3195**	
Mold Weight	gms	**2102**	**2103**	**2112**	
Net Sample Weight	gms	1077	1061	1083	
Sample Height	in.	**2.475**	**2.43**	**2.485**	
Dry Density	pcf	120.8	121.8	121.3	
Pressure	lbs	**3410**	**9440**	**5020**	
Exudation Pressure	psi	271	752	400	
Expansion Dial	x 0.0001	**2**	**22**	**13**	
Expansion Pressure	psf	9	95	56	
Ph at 1000lbs	psi	**20**	**15**	**18**	
Ph at 2000lbs	psi	**35**	**26**	**30**	
Displacement	turns	**4.28**	**4.21**	**4.22**	
R' Value		68	75	72	
Corrected 'R' Value		**68**	**75**	**72**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**69**
By Epansion Pressure :	**69**
TI = 5	

Geo-Logic ASSOCIATES