

CITY OF WILDOMAR
Department of Public Works

Project Bid Documents (to include Plans) for:

***Master Drainage Plan Lateral C-1
Storm Drain Project Number 7-0-00076***

Bids due: 2:00 pm on **TBD**

At City Clerk's Office, Wildomar City Hall
23873 Clinton Keith Road, Suite 201, Wildomar, CA 92595

For pre-bid information, contact:

Matt Bennett
Deputy City Engineer
Telephone: 951-677-7751 x 208
E-mail: mbennett@cityofwildomar.org

TABLE OF CONTENTS

PART I. BIDDING REQUIREMENTS

SECTION A. INVITATION TO BID.....	1
A-1. DESCRIPTION OF WORK	1
A-2. OBTAINING CONTRACT DOCUMENTS.....	1
A-3. SUBMISSION OF PROPOSALS.....	1
A-4. PROPOSAL GURANTEE	2
A-5. CONSTRUCTION LICENSE	2
A-6. AWARD.....	2
A-7. REJECTION OF BIDS.....	2
A-8. DISQUALIFICATION OF BIDDER	3
A-9. RELIEF OF BIDDER.....	3
A-10. PREVAILING WAGES	3
SECTION B. INSTRUCTION TO BIDDERS.....	5
B-1. INTRODUCTION	5
B-2. PLANS	5
B-3. LOCAL CONDITIONS.....	5
B-4. FORM OF BID AND SIGNATURE.....	6
B-5. SUBMISSION OF BIDS	7
B-6. PREPARATION OF BIDS.....	7
B-7. BID SECURITY.....	7
B-8. LIST OF SUBCONTRACTORS	8
B-9. INTERPRETATION OF CONTRACT DOCUMENTS	8
B-10. MODIFICATION OF BIDS	9

B-11. WITHDRAWALS OF BIDS	9
B-12. DISCREPANCIES	9
B-13. SERVICING AND MAINTENANCE.....	9
B-14. DISQUALIFICATION OF BIDDERS	9
B-15. AWARD OF CONTRACT (AGREEMENT)	10
B-16. CONTRACT BONDS	10
B-17. SUBSTITUTION OF SECURITIES FOR MONIES WITHHELD	11
B-18. EXECUTION OF CONTRACT	11
B-19. RETURN OF BID SECURITIES	11
B-20. POWER OF ATTORNEY	11
B-21. TIME OF COMPLETION.....	12
B-22. LICENSING REQUIREMENTS FOR CONTRACTORS.....	12
B-23. PREVAILING WAGES	12
B-24. ESCROW OF BID DOCUMENTS	12
B-25. PRECONSTRUCTION CONFERENCE.....	12

PART II. BIDDING DOCUMENTS

SECTION A. BIDDER’S CHECKLIST	14
SECTION B. BID PROPOSAL FORM.....	17
SECTION C. BID SCHEDULE	19
SECTION D. BIDDER’S BOND	21
SECTION E. NON-COLLUSION AFFIDAVIT	22
SECTION F. EXPERIENCE/QUALIFICATIONS STATEMENT	23
SECTION G. DESIGNATION OF SUBCONTRACTORS	24

PART III. AGREEMENT FOR CONSTRUCTION SERVICES

- SHORT-FORM CONSTRUCTION CONTRACT27
- EXHIBIT “A” PLANS AND SPECIFICATIONS46
- EXHIBIT “B” SPECIAL CONDITIONS.....47
- EXHIBIT “C” CERTIFICATION LABOR CODE-SECTION 1861.....49
- EXHIBIT “D” CONTRACT MODIFICATIONS.....50

PART IV. TECHNICAL SPECIFICATIONS

- 1. SPECIAL PROVISIONS.....55
- 2. DETAILED SPECIFICATIONS62

APPENDICES

- A. EVMWD WATERLINE AND VALVE SPECIFICATIONS
- B. PROJECT SIGN
- C. SCAQMD – RULE 403
- D. STANDARD PLANS
- E. SOIL BORINGS
- F. (environmental permits)

PART I. BIDDING REQUIREMENTS

SECTION A.

INVITATION TO BID

NOTICE IS HEREBY GIVEN that sealed bids will be received at the office of the City Clerk, located at 23873 Clinton Keith Road, Suite 201, Wildomar, California 92595 until **2:00 pm** local time on **TBD**, for furnishing all labor, material, tax, transportation, equipment, and services necessary for the:

Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076

Bids will be received and the office of the City Clerk, City of Wildomar office immediately after 2:00 o'clock, on said **TBD** at which time and place the bids will be publicly opened and read aloud Bids shall be prepared in strict conformance with the Instructions to Bidders. Any bids received after the time specified shall be returned unopened.

A-1. Description of Work

The proposed work shall be performed in accordance with the plans, specifications and other contract documents and shall consist of the following:

- ***Installation of approximately 2,600 LF of reinforced concrete pipe ranging in diameter from 18" to 90" including appurtenant laterals and catchments.***
- ***Concrete Structures Construction***
- ***Asphalt Concrete Paving***
- ***Waterline Relocation***

A-2. Obtaining Contract Documents

Plans, specifications and other contract documents may be examined and/or obtained at the office of the Public Works, located at 23873 Clinton Keith Road, Suite 201, Wildomar, California 92595. A copy of bid documents may be obtained electronically (PDF format) at the City website, or at the office upon request and payment of **\$TBD**. The amount of the payment is non-refundable.

A-3. Submission of Proposals

All proposals must be submitted not later than the time prescribed. The bidder is wholly responsible to see that the bid is submitted at the time and place designated for the opening of bids. Any bid received after the time and date specified shall not be considered and shall be returned unopened. Any bid may be withdrawn prior to the scheduled time for opening bids.

Each bid must conform and be responsive to this notice and shall be made on the official proposal forms furnished with the contract documents.

Hand delivered bids on the day of the bid opening shall be made to the City Clerk at the address set forth above. Mailed bids must be received by the City prior to the hour and date of the bid opening and shall be addressed to the City Clerk at the address set forth above.

Attention is directed to the provisions of Business and Professions Code section 7028.15, which makes it a misdemeanor for any person without a valid contractor's license (with specific exceptions) to submit a bid to act as a Contractor to a public agency.

A-4. Proposal Guarantee

Each bid must be sealed and accompanied by cash, a cashier's check, certified check or bid bond, executed on the prescribed form, in an amount not less than ten (10) percent of the total bid price payable to the City of Wildomar.

The cash, cashier's check, certified check or bid bond shall be given as a guarantee that the successful bidder will enter into a written contract within ten (10) days after being requested to do so and will be considered as the stipulated amount of liquidated damages in the event the bidder is unable to or refuses to execute a contract for the work. Upon an award to the successful bidder, the security of unsuccessful bidders shall be returned in a reasonable period of time.

Bidders are hereby notified that in accordance with the provisions of Public Contracts Code section 22300, securities may be substituted for any monies, which the City may withhold pursuant to the terms of this Contract to ensure performance.

If the bidder elects to provide a bid bond, the bond shall be furnished by a company that is authorized and licensed by the Insurance Commissioner as an "admitted surety insurer."

A-5. Construction License

The successful bidder must possess a current **General Engineering (Type A) or Pipeline Contractor (Type C-34)** Contractor's License issued by the State of California.

A-6. Award

The award shall be made to the lowest responsible bidder submitting the lowest responsive bid. The award of Contract will be made by the City Council. The Contractor shall execute the Contract within ten (10) days after he has received the Contract from the City.

The City reserves the right to waive any irregularity in the proposals. No bid may be withdrawn for a period of sixty (60) days after the opening of bids.

A-7. Rejection of Bids

The City reserves the right to: reject any or all bids; make award to the lowest responsible bidder and reject all other bids; waive any minor irregularity in the bidding; accept any bid and

additive or deductive items as specifically identified in the plans, specifications and contract documents; and take all bids under advisement for a period of sixty (60) days. Bids will be compared on the basis of the Engineer's estimate of the quantities of the several items of work as shown on the plans, specifications and contract documents. Only such plans, specifications, and items of work as are appropriate shall apply to the work as bid. **All bids shall be valid for a period of sixty (60) days after date of bid opening.**

A-8. Disqualification of Bidder

If there is a reason to believe that collusion exists among any bidders, none of the bids of the participants in such collusion will be considered and the City may likewise elect to reject all bids received.

A-9. Relief of Bidder

Attention is directed to the provisions of Public Contracts Code section 5101 and following, concerning relief of bidders and in particular to the requirements therein that if the bidder claims a mistake was made in his bid, the bidder shall give the City written notice, within five (5) calendar days after the opening of bids of the alleged mistake, specifying in the notice, in detail, how the mistake occurred.

A-10. Prevailing Wages

Bidders are hereby notified that the California Director of Industrial Relations has determined the general prevailing rate of per diem wages and the rates for overtime and holiday work in the locality in which the work is to be performed for each craft, classification, or type of worker needed to execute the contract which will be awarded to the successful bidder. Copies of the prevailing wage rates are on file with and available upon request from the City Engineer. The requirement to pay these wage rates and rates not so specified is further detailed in Section 31 of the Agreement for Construction Services (Agreement). It shall be mandatory for the Contractor and any subcontractor under him to pay not less than the specified rates to laborers and workmen employed by them in the execution of the Contract.

A-11. Bonds

The successful bidder will be required to furnish, prior to the performance of any work hereunder, a payment bond in an amount equal to one hundred percent (100.0%) of the Contract price, and a faithful performance bond in an amount equal to one hundred percent (100.0%) of the Contract price. The bonds must be approved by the City. Each bond must be furnished by a company, acceptable to the City, that is authorized and licensed by the Insurance Commissioner as an "admitted surety insurer" and which maintains at least one officer in California for conducting business. Prior to such approval, the Surety shall provide the City with at least one of the following: (1) a print-out of information from the web-site of the Department of Insurance confirming the Surety is an admitted surety insurer and attaching it to the bond; or (2) a certificate from the Riverside County Clerk that the certificate of authority of the Surety has not been surrendered, revoked, cancelled, annulled or suspended and confirming that the Surety is an admitted surety and attaching the certificate to the bond. (See Cal. Code Civ. Proc. Code § 995.311).

CITY OF WILDOMAR, CALIFORNIA

Date: _____

By: _____

Dan York, PE
Public Works Director/City Engineer
23873 Clinton Keith Road, Suite 201
Wildomar, California 92595

SECTION B.

INSTRUCTION TO BIDDERS

B-1. Introduction

Each bid shall be in accordance with the Contract Documents. The Invitation to Bid will specify whether Contract Documents are available on a purchase or deposit basis. Where payment for such sets is specified, no refund will be made.

B-2. Plans

Additional copies of full-scale plans or individual plan sheets may be obtained at the Public Works Office, located at 23873 Clinton Keith Road, Suite 201, Wildomar, California for the cost of reproduction and mailing. A copy of bid documents may be obtained electronically (PDF format) at the City website, or at the office upon request and payment of **\$TBD**. The amount of the payment is non-refundable.

B-3. Local Conditions

The quantities of work or material stated in the unit price items of the Bidding Schedule are given only as a basis for the comparison of Bids, and the City does not represent or warrant that the actual amount of work or material will correspond therewith, but reserves the right to increase or decrease the quantity of any unit price item of the work as may be deemed necessary or expedient by the City Engineer or designated representative.

The Bidder shall examine carefully the site of the work contemplated and the Contract Documents. The submission of a proposal shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and the materials to be furnished, and as to the requirements of the Contract Documents.

Where the City Engineer has made investigations of surface and subsurface conditions in areas where work is to be performed under the Agreement, or in other areas, some of which may constitute possible local material sources, such investigations were made only for the purpose of study and design. Where such investigations have been made, bidders or Contractor may, upon written request, inspect the records of the City Engineer as to such investigations subject to and upon the conditions hereinafter set forth. Such inspection of records may be made at the office of the City Engineer.

The records of such investigations are not a part of the Agreement and are made available for inspection solely for the convenience of the bidder or Contractor. It is expressly understood and agreed by bidder or Contractor that neither the City nor the City Engineer assumes any responsibility whatsoever with respect to the sufficiency or accuracy of the investigations thus made, the records thereof, or of the interpretation set forth therein or made by the City Engineer in its use thereof and there is no representation, warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are correct or representative of those existing throughout such areas or any part thereof, or that unanticipated

developments may not occur or that materials other than, or in proportions different from, those indicated may not be encountered.

When a log of test borings showing a record of the data obtained by the City Engineer's investigation of the subsurface conditions is included with the drawings, it is expressly understood and agreed by bidder that the log of test borings does not constitute a part of the Agreement, represents only the opinion of the City Engineer as to the character of the materials encountered in the test borings, is included with the plans only for the convenience of bidders and its use is subject to all of the conditions and limitations set forth in this Section. Water levels that may be shown on a log of test borings are valid only for the stated date of observation. The water level may change from season to season and from year to year.

The availability or use of information described in this Section or the special conditions (Exhibit "B") is not to be construed in any way as a waiver of the provisions of this Section and a bidder or Contractor is cautioned to make such an investigation and examination as it deems necessary to satisfy itself as to conditions to be encountered in the performance of the work and, with respect to possible local material sources, the quality and quantity of material available from such property and the type and extent of processing that may be required in order to produce material conforming to the requirements of the Specifications.

No information derived from such inspection of records of investigations or compilations thereof made by the City Engineer or its assistants will in any way relieve the bidder or Contractor from any risk or from properly fulfilling the terms of the Agreement.

Information derived from inspection of topographic maps, or from Plans showing location of utilities and structures will not in any way relieve the Contractor from any risk, or from properly examining the site and making such additional investigations as it may elect, or from properly fulfilling all the terms of the Agreement.

Each bidder shall inform itself of, and the bidder awarded an Agreement, shall comply with, Federal, State and Local laws, relative to the execution of the work. This requirement includes, but is not limited to, applicable laws and regulations concerning employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non burning requirements, permits, fees, and similar subjects.

B-4. Form of Bid and Signature

Bids shall be submitted only on the forms attached hereto and shall be enclosed in a sealed envelope and marked and addressed as hereinafter directed. The Bidder shall state in figures the unit prices or the specific sums as the case may be, for which it proposes to supply the labor, materials, supplies or machinery, and perform the work required by the Specifications. If the Bid is made by an individual, it shall be signed by the individual and the individual's full name and address shall be given; if it is made by a partnership, it shall be signed with the co-partnership name by a member of the partnership, who shall also sign the member's own name, and the name and address of each member of such partnership shall be given; and, if it is made by a corporation, the name of the corporation shall be given and it shall be signed by its

duly authorized officer or officers attested by the corporate seal, the name and titles of all officers of the corporation shall be given, and the address of the corporation and the state in which incorporated shall be stated.

Bids will be considered only from persons licensed as required under applicable provisions of the Contractors License Law (California Business and Professions Code section 7000, et seq.) and regulations adopted pursuant thereto; and each bidder shall insert his type of contractor's license, license number, and other requested information in the place provided in the bid. No oral, telephonic or telegraphic Bid or modification of a Bid will be considered.

B-5. Submission of Bids

All Bids must be submitted not later than the time prescribed, at the place and in the manner set forth in the Invitation to Bid. Bids must be made on the prescribed Bid forms. A complete Bid requires submission of fully completed contract documents. Each Bid must be submitted in a sealed envelope addressed to the City Clerk and designated as a Bid bearing the name of the bidder and name of the project. The bidder is wholly responsible to see that its Bid is submitted at the time and place named for the opening of bids.

Bids shall include all addenda or clarifications issued during the bidding period acknowledged by the bidder's signature thereon. Failure to so include or acknowledge an addendum or clarification will result in the Bid being rejected as not responsive.

Bids shall be opened at the time and place specified in the Invitation to Bid, unless changed by addendum.

B-6. Preparation of Bid

Blank spaces in the Bid shall be properly completed. The phraseology of the Bid must not be changed and no additions shall be made to the items mentioned therein. Unauthorized conditions, limitations or provisions attached to a Bid will render it unresponsive and will cause its rejection. If erasures, interlineations or other changes appear on the form, each erasure, interlineation or change must be initialed by the person signing the Bid. Alternative bids will not be considered unless specifically provided for in the Bidding Schedule. No Bid received after the time fixed, or received at any place other than the place stated in the Invitation to Bid will be considered. All bids will be opened and read publicly. Bidders, their representatives and other interested parties are invited to be present at the opening. Where bonds are required, the bidder shall name in its Bid the surety or sureties who have agreed to furnish said bonds.

B-7. Bid Security

All Bids shall be accompanied by a Bid Security. Such Bid Security shall include cash, cashier's or certified check made payable to the City or a Bid Bond executed by an admitted surety insurer. The Bid Security must be enclosed in the same envelope with the Bid. The amount of the Bid Security shall be not less than ten percent (10%) of the total amount of the Bid.

The Attorney-in-Fact (resident agent) who executes the Bid Bond on behalf of the surety company must attach a copy of his Power of Attorney as evidence of his authority. A notary shall acknowledge the power as of the date of execution of the surety bond which it covers.

Bid Bonds must be provided on the Bid Bond form set forth in Part II, Section D, Bidder's Bond. The Bid Bond must be furnished by a company, acceptable to the City, that is authorized and licensed by the Insurance Commissioner as an "admitted surety insurer" and that maintains at least one office in California for conducting business.

B-8. List of Subcontractors

(a) Each bidder shall set forth in his Bid on the form provided the following information in accordance with the provisions of Public Contract Code sections 4100-4113:

(1) The name and the location of the place of business of each Subcontractor who will perform work or labor or render service to the prime Contractor in or about the construction of the work or improvement, or a Subcontractor licensed by the State of California who, under subcontract to the prime Contractor, specifically fabricates and installs a portion of the work or improvement according to the Contract Documents, in any amount in excess of one-half of one percent (0.5%) of the prime Contractor's total Bid, or, in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of one percent (0.5%) of the Contractor's total bid or ten thousand dollars (\$10,000), whichever is greater.

The portion of the work which will be done by each such Subcontractor, only one Subcontractor shall be listed for each such portion of the work as defined in the Bid.

The bidder is considered the prime contractor and shall perform at least fifty-one percent (51.0%) of the work, as determined by a percentage of the value of the work.

(b) If the bidder fails to specify a Subcontractor for any portion of the work to be performed under the Contract pursuant to Section B-8(a) above, the bidder agrees to perform that portion of the work itself.

B-9. Interpretation of Contract Documents

Any explanation desired by the bidders regarding the meaning or interpretation of any of the Contract Documents must be requested in writing, with sufficient allowance of time for receipt of reply before the time set for opening of Bids. Any such explanations or interpretations will be made in the form of addenda to the documents and will be furnished to all bidders who shall submit all addenda with their Bids. Neither the City Engineer nor any representative of the City is authorized to give oral explanations or interpretations of Contract Documents, and a submission of a Bid constitutes agreement by the bidder that it has placed no reliance on any such oral explanation or interpretation. However, the City Engineer may, upon inquiry by bidder, orally direct the bidder's attention to specific provisions of the Contract Documents which cover the subject of the inquiry.

B-10. Modification of Bids

A bidder may modify its Bid by written communication provided such communication is received by the City prior to the closing time for receipt of Bids. The written communication should not reveal the Bid price but should state the addition or subtraction or other modification so that the final prices or terms will not be known by the City until the sealed bid is opened.

B-11. Withdrawals of Bids

Bids may be withdrawn without prejudice by written or telegraphic requests received from bidder prior to the time for opening of Bids, and Bids so withdrawn will be returned to bidders unopened when reached in the process of opening Bids. No bid may be withdrawn after the hour affixed for opening Bids without rendering the accompanying Bid Security subject to retention as liquidated damages in like manner as in the case of failure to execute the Agreement after award, as in the Contract Documents herein provided. Negligence on the part of the bidder preparing his bid shall not constitute a right to withdraw the Bid subsequent to the opening of Bids. The bonds must be approved by the City. Prior to such approval, the Surety shall provide the documentation required by California Code of Civil Procedure section 995.660.

B-12. Discrepancies

In the case of discrepancy between unit prices and totals, unit prices will prevail. In case of discrepancy between words and figures, words will prevail.

B-13. Servicing and Maintenance

Each bidder must, if requested, furnish evidence that there is an efficient service organization which regularly carries a stock of repair parts for the proposed equipment to be furnished and installed in the work and that the organization is conveniently located for prompt service.

B-14. Disqualification of Bidders

More than one Bid from an individual, firm, partnership or corporation under the same or different names will not be considered. Reasonable grounds for believing that any individual, firm, partnership or corporation is interested in more than one Bid for the work contemplated may cause the rejection of all Bids in which the individual, firm, partnership or corporation is interested. If there is reason for believing that collusion exists among the bidders, any or all Bids may be rejected. Bids in which the price is obviously unbalanced may be rejected.

All bidders are put on notice that any collusive agreement fixing the prices to be bid so as to control or affect the awarding of this Contract is in violation of the competitive bidding requirements of the Public Contract Code and may render void any Contract let under such circumstances.

B-15. Award of Contract (Agreement)

The City reserves the right to accept or reject any and all Bids for a period of sixty (60) days after the date of opening, and to waive any informality or irregularity in any Bid. No Bid can be withdrawn during that period.

The City reserves the right to reject any or all Bids, including, without limitation, the right to reject any non-conforming, non-responsive, unbalanced, or conditional bids.

Before a Bid is considered for award, the City may, in addition to the Experience Qualifications form set forth in Part II, Section F, below, require a bidder to submit a statement of facts and detail as to his business, technical organization and financial resources and equipment available and to be used in performing the work. Additionally, the City may require evidence that the bidder has performed other work of comparable magnitude and type. The City expressly reserves the right to reject any Bid if it determines that the business and technical organization, equipment, financial and other resources or other experience of the bidder (including the bidder's Subcontractors) is not sufficiently qualified for the work bid upon and, therefore, justifies such rejection.

The award of the Contract, if it is awarded, will be to the responsible bidder submitting the lowest responsive bid. Within seven (7) days after the date of bid opening, the responsible low responsive bidder shall deliver to the City, in a form acceptable to the City, a complete cost breakdown for the project herein bid.

The issuance by the City of a notice to the successful bidder of the award of the Contract ("Notice of Award") shall be deemed the Award of Contract.

B-16. Contract Bonds

The successful bidder shall furnish both a Performance Bond and a Payment Bond in the amounts specified in the forms attached hereto.

These Bonds shall be furnished in the forms enclosed following the Contract and shall be satisfactory to the City and shall be obtained from a responsible corporate surety (or sureties) acceptable to the City, which is licensed by the State of California to act as surety upon bonds and undertakings and which maintains in this State at least one office for the conduct of its business. The surety (or sureties) shall furnish reports as to its financial condition from time to time as requested by the City. The premiums for said Bonds shall be paid by the successful bidder.

These Bonds shall be furnished by companies who are authorized and licensed by the Insurance Commissioner as an "admitted surety insurer." The surety shall provide the City with the documentation required by Section 995.660 of the California Code of Civil Procedure.

If any surety becomes unacceptable to the City or fails to furnish reports as to its financial condition as requested by the City, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the City and of persons supplying labor or materials in the prosecution of the work contemplated by this Contract.

In the event of any conflict between the terms of the Contract and the terms of the Bonds, the terms of the Contract shall control and the Bonds shall be deemed to be amended thereby. Without limiting the foregoing, the City shall be entitled to exercise all rights granted to it by the Contract in the event of default, without control thereof by the surety, provided that the City gives the surety notice of such default at the time or before the exercise of any such right by the City, and, regardless of the terms of said Bonds, the exercise of any such right by the City shall in no manner affect the liability of the surety under said Bonds.

B-17. Substitution of Securities for Monies Withheld

Bidders are hereby notified that in accordance with the provisions of Public Contract Code section 22300, securities may be substituted for any monies which the City may withhold pursuant to the terms of the Contract to insure performance.

B-18. Execution of Contract

The successful bidder will be notified in writing by the City of the award of the Contract within sixty (60) days after opening of Bids. Accompanying the City's Notice of Award will be the Contract, in triplicate, which the successful bidder will be required to execute and return, together with the Performance and Payment Bonds, and the required certificates and policies of insurance together with the required endorsements thereto (or equivalent) for the Contractor and the workers' compensation certificate (see Section 22-C of the Agreement or Exhibit "C"), to the City within ten (10) days following receipt of such Notice of Award. Failure to do so shall be just cause for annulment of the award and for forfeiture of the Bid Bond which shall be retained as liquidated damages, and it is agreed that the bond sum is a fair estimate of the amount of damages that the City will sustain by reason of such failure. The City will promptly determine whether such Contract, Bonds and insurance are as required by the Contract Documents, and upon such determination will forward a fully executed copy of the Contract and a Notice to Proceed with the work to the successful bidder. Signature by both parties constitutes execution of the Contract. In the event of failure of the lowest responsible bidder to sign and return the Contract with acceptable Bonds and insurance as prescribed herein, the City may award the Contract to the next lowest responsible bidder, and, in the event that bidder fails to sign and return the Contract with acceptable Bonds and insurance, the City may award the Contract to the then next lowest responsible bidder, etc.

B-19. Return of Bid Securities

All Bid Securities will be held until the Contract has been finally executed, after which all Bid Securities, other than any Securities which have been forfeited, will be returned to the respective bidders.

B-20. Power of Attorney

The Attorney-in-Fact (resident agent) who executes the Performance Bond and Payment Bond on behalf of the surety company must attach a copy of his Power of Attorney as evidence of his authority. A notary shall acknowledge the power as of the date of the execution of the surety bond which it covers.

B-21. Time of Completion

The time of completion of the work to be performed hereunder is the essence of this Contract. Delays and extensions of time may be allowed in accordance with the provisions of the Agreement for Construction Services. The time allowed for the completion of the work is **TBD** working days.

B-22. Licensing Requirements for Contractors

All bidders, including general contractors and specialty contractors, shall hold such licenses as may be required by the laws of the State of California for the performance of the work specified in the Contract Documents.

B-23. Prevailing Wages

Copies of the prevailing rate of per diem wages shall be on file at the office of the City Clerk, 23873 Clinton Keith Road, Suite 201, Wildomar, California 92595, as well as the local office of the State Department of Industrial Relations and will be made available to any interested party on request. Copies of the prevailing rate of per diem wages shall also be on file at each job site.

B-24. Escrow of Bid Documents

Upon award of the job to the successful bidder, and at the time of execution of this Contract, Contractor shall present all documentation used by the successful bidder in arriving at the bid upon which the Contract was awarded ("Bid Documentation") to the City Engineer's office. Such documentation shall be presented in a sealed envelope or box. Notice to Proceed will not be granted until City receives notice that such documentation has been received. This Bid Documentation shall include, but not be limited to any documents, pictures, or writings which relate to, arise out of, or constitute in any way notes, memoranda, phone logs, subcontractor and material men estimates, computations, or the like used by, complied by, or drafted by the successful bidder or its agents in arriving at its bid for the Project.

B-25. Preconstruction Conference

A preconstruction conference will be convened after the Contractor has delivered the necessary bonds, insurance certificates and signed agreement in proper form as required in the invitation to bid, bid proposal and general conditions of these specifications. Prior to any work, the Contractor shall provide the City Engineer with a list of key personnel assigned to the project and the telephone numbers where they may be reached at any time. The list shall be made available in sufficient copies and presented at the preconstruction conference.

PART II. BIDDING DOCUMENTS

SECTION A.

BIDDER'S CHECKLIST

All items on the Bidder's Checklist must be initialed and dated for the Proposal to be considered complete. The City of Wildomar reserves the right to award a Contract in a manner and on the basis which will best serve the City, taking into consideration the information in the statement of bidder's Experience/Qualifications and past work history with the City.

The bidders' attention is especially called to the following forms which must be executed in full as required:

A-1. Bid Schedule and Bid Form

Bid Schedule

The unit prices bid must be shown in the space provided. The total bid price must be shown in the space provided.

Initial: _____ Date: _____

Bid Form

To be filled in and signed by the bidder.

Initial: _____ Date: _____

A-2. Bond Accompanying Bid

This bond is to be executed by the bidder and the surety company unless bid is accompanied by cash or certified check. The amount of this bond shall be not less than ten (10) percent of the total amount bid and may be shown in dollars or on a percentage basis.

Initial: _____ Date: _____

A-3. Non-Collusion Affidavit

A Non-Collusion Affidavit must be filled out, signed, and submitted with the bid proposal for the bid documents to be considered complete.

Initial: _____ Date: _____

A-4. Experience/Qualifications

A statement of the Bidder's Experience/Qualifications must be filled out, signed, and submitted with the bid proposal for the bid documents to be considered complete.

Initial: _____ Date: _____

A-5. Designation of Subcontractors

A Designation of Subcontractors must be filled out and submitted with the bid proposal for the bid documents to be considered complete.

Initial: _____ Date: _____

A-6. Insurance Requirements

Part III, Section 22 of the Agreement for Construction Services, for this project have been read and understood.

Initial: _____ Date: _____

A-7. Project Inspection

The bidder certifies that he has toured the project site and is familiar with the work involved.

Initial: _____ Date: _____

A-8. Bond Requirements

The bidder understands that a performance bond issued by an approved surety equaling one hundred percent (100.0%) of the Contract amount will be required. A payment bond equaling one hundred percent (100.0%) of the Contract amount will also be required.

Initial: _____ Date: _____

A-9. Completion

The City makes no guarantee as to the method of work chosen by the bidder. It is the bidder's responsibility to plan and schedule the work in order to complete the work in the time specified.

Initial: _____ Date: _____

A-10. Addenda

The bidder acknowledges that he must sign and attach any applicable addenda to the bid proposal.

Initial: _____ Date: _____

SECTION B.

BID PROPOSAL FORM

Proposal To: The Honorable Mayor and City Council

City of Wildomar

Wildomar, California

The undersigned bidder hereby proposes to furnish and deliver all necessary labor, tools, material, tax, transportation, services, equipment and other means of construction to perform the work required for the completion of the project entitled **Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076** in accordance with the plans, specifications and other contract documents, together with all Addenda issued by the City of Wildomar prior to the opening of the bid proposals, if any, now on file at the office of the City Clerk located at 23873 Clinton Keith Road, Suite 201, Wildomar, California 92595. The amount set forth on the Bid Schedule includes all labor, materials, transportation and services necessary to complete said work, including State of California and local sales or use taxes, license or permit fees, if any.

Said bidder declares that it has read the accompanying Invitation to Bid and Instructions to Bidders, has carefully examined the location(s) of the proposed work, and has examined all contract documents, drawings and addenda issued by the City, and that it will contract with the City to construct and complete the project in satisfactory condition, has completed the Bidder's checklist and all other bid documents set forth in Part II, Sections B through G.

If awarded the Contract, the bidder expressly agrees to begin work not later than fifteen (15) days after being notified in writing by the City Engineer to commence work on the project. The Bidder further agrees to complete all work required under the Contract within **TBD (TBD)** working days, as that term is defined in Section 4 of the Agreement, upon the issuance of the Notice to Proceed, and to accept in full payment therefore the price indicated on the Bid Schedule.

The bidder acknowledges it understands that a waiting period from time of bid opening until award may be sixty (60) days during which time the bid may not be withdrawn. The bidder further acknowledges that it has adjusted the bid price to include all possible items which may influence the proposal during the waiting period. Requests for bid price change due to the delay shall not be agreed to by the City.

As provided in the Bidder's Checklist, enclosed is a () cash deposit, () cashier's check, () surety bid bond () certified check (check as appropriate) in an amount of not less than ten percent (10.0%) of the amount of the bid. If a bid bond was submitted, the name of the Surety is _____ in an amount not less than ten percent (10%) of the amount bid. If the enclosure is a check or bond, it is made payable to the City of Wildomar.

The undersigned bidder agrees that the enclosed cash deposit, cashier's check, certified check or surety bond accompanying this proposal, shall be left on deposit with the fund out of which the expenses of preparation and printing of the plans and specifications, estimates of cost,

and publication of notice are paid. The undersigned bidder further agrees that this amount is the measure of the liquidated damages which the City will sustain by the default of the undersigned through failure to execute and deliver the above agreement and bonds within ten (10) days of written notice of the award of the contract to the undersigned and that the money or surety bond so deposited shall be collectible and become the property of the City in case of such default.

As required by the Public Contract Code section 4104, the subcontractors listed on the Designation of Subcontractors form constitute each subcontractor and the address and location of place of business of the mill, shop or office of each subcontractor who will perform work or labor or render service to the undersigned bidder in or about the construction of the work hereinabove described in excess of one-half of one percent (0.5%) of the total bid or, in the case of bids or offers for the construction of streets or highways, including bridges in excess of one-half of one percent (0.5%) of the Contractor's total bid or ten thousand dollars (\$10,000.00), whichever is greater, and the portion of said work which will be done by each subcontractor, if the contract for the said work is awarded to the undersigned.

All bidders shall complete all of the following:

Contractor's Name (Printed): _____

Bidders Signature: _____

Bidder's Name (Printed): _____

Bidders Title: _____

Address: _____

Phone Number: _____

Date: _____

Contractor's License Number: _____

Contractor's License Classification: _____

Contractor's License Exp. Date: _____

Signature of Bidder – This must be Notarized

THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS BID PROPOSAL FORM SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL

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

SECTION C.

BID SCHEDULE

The following quantities are approximate only and are given for the purpose of comparing proposals. The City does not expressly or by implication agree that the actual amount of work will correspond with quantities given herein, but reserves the right to increase or decrease the amount of any class or portion of the work as may be deemed necessary or advisable by the City Engineer. Payment will be based upon the actual quantities installed or constructed, unless otherwise specified.

PROJECT NAME AND #					
Item No.	Description	Units	Estimated Quantity	Unit Price	Total Price
1	Mobilization / Demobilization	LS	1		
2	Water Control	LS	1		
3	Traffic Control	LS	1		
4	Clearing and Miscellaneous Work	LS	1		
5	1.5" Deep Cold Mill	SF	17022		
6	Transition Structure No. 1	LS	1		
7	Modified Transition Structure No. 1	LS	1		
8	Junction Structure No. 1	EA	1		
9	Lateral C-1/C-1A Junction Structure	EA	1		
10	Concrete Collar Per RCFC&WCD Std M803	EA	1		
11	Manhole No. 1 per Std MH251	EA	2		
12	Manhole No. 2 per Std. MH 252	EA	5		
13	Manhole No. 3 per Std MH253	EA	2		

PROJECT NAME AND #

Item No.	Description	Units	Estimated Quantity	Unit Price	Total Price
14	6'x6'x6" Concrete Pad	EA	6		
15	Concrete Bulkhead per RCFC&WCD Std Dwg M816	EA	2		
16	Catch Basin No. 1 per Std CB100	EA	2		
17	Gutter Depression per Std Dwg LD201	EA	2		
18	Concrete Drop Inlet per RCFC&WCD Std Dwg CB110	EA	1		
19	90" RCP (D-1600) (5000 psi)	LF	479		
20	84" RCP (D-1800) (5000 psi)	LF	739		
21	84" RCP (D-1400) (5000 psi)	LF	500		
22	72" RCP (D-1800)	LF	425		
23	72" RCP (D-1200)	LF	97		
24	36" RCP (D-Load 1600)	LF	8		
25	18" RCP (Class IV)	LF	400		
26	18" HDPE Pipe	LF	127		
27	Construct Aggregate Base, Class 2	CY	95		
28	Hot Mix Asphalt - Type III B2-PG64-10 AC	TONS	225		
29	Remove, Salvage and Replace Existing Fence	LF	857		
30	Install Temporary Fence at TCE	LF	1273		

PROJECT NAME AND #					
Item No.	Description	Units	Estimated Quantity	Unit Price	Total Price
31	Remove and Replace Existing Private 30" RCP	LS	1		
32	Remove Existing Retaining Wall, Footing and Rip-Rap	LS	1		
33	Remove Interfering Portions of 84" RCP	LS	1		
34	Retrofit Existing Catch Basin	LS	1		
35	Protect Existing Pine Tree In place, Deadwood Canopy, Apply Root Stimulator	EA	1		
36	Remove Trees, Bushes and Irrigation System in R/W Sta 20+40 to Sta 24+30	LS	1		
37	Remove Exist Rip-Rap and Headwall, Bulkhead abandoned SD and Backfill	LS	1		
38	Construct Flared End Section - Caltrans D94A	EA	1		
39	Install 18"x6" 45 Deg Reducing HDPE WYE Cleanout	EA	1		
40	Construct Type G1 Inlet per Caltrans RSP D73	EA	1		
41	Install Riprap Energy Dissipater	EA	1		
42	Dust Abatement	LS	1		
43	Hydroseeding	AC	0.95		
44	Storm Water and Non-Storm Water Pollution Control	LS	1		
45	Relocate Existing 8" Water	LS	1		

TOTAL BID: _____

NOTE: "**TOTAL BID**" is only on the last page of the BID SCHEDULE.
The basis of comparison of bids shall be by evaluation of the TOTAL BID.

SECTION D.

BIDDER'S BOND

We _____ as Principal, and _____ as Surety are bound unto the City of Wildomar, hereafter referred to as "Obligee", in the penal sum of ten percent (10%) of the total amount of the bid of the Principal submitted to the Obligee for the work described below, for the payment of which sum we bind ourselves, jointly and severally,

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal is submitting a bid to the Obligee, for _____

(Copy here the exact description of work, including location, as it appears on the proposal)

for which bids are to be opened at _____
(Insert place where bids will be opened)
_____ on _____

NOW, THEREFORE, if the Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Obligee, one to guarantee faithful performance (if specified in the contract) of the contract and the other to guarantee payment for labor and materials as provided by law, then this obligation shall be null and void; otherwise, it shall remain in full force.

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

Dated: _____, 2015 _____

By _____ *By _____
Principal Surety

Business Address _____ Business Address _____

CERTIFICATE OF ACKNOWLEDGMENT

City of Wildomar

County of _____ SS

On this _____ day of _____ in the year 2015 _____ before me, a notary public in and for the county and state aforesaid, personally appeared _____

Attorney-in-Fact
known to me to be the person whose name is subscribed to the within instrument and known to me to be the Attorney-in-Fact of _____, and acknowledgment to me that he (she) subscribed the name of the said company thereto as surety, and his (her) own name as Attorney-in-Fact.

(SEAL)

Notary Public

***Note: The signature of the Surety must be done before a Notary Public and acknowledgements with appropriate seals attached hereto. Also the Surety must be authorized and licensed by the California Insurance Commissioner as an "admitted surety insurer."**

SECTION F.

EXPERIENCE/QUALIFICATIONS STATEMENT

The bidder has been engaged in the contracting business, under the present business name for _____ years. Experience in work of a nature similar to that covered in the proposal extends over a period of _____ years.

The bidder, as a Contractor, has never failed to satisfactorily complete a Contract awarded to him, except as follows:

The following contracts have been satisfactorily completed in the last three (3) years for the persons, firm or authority indicated, and to whom reference is made:

Year	Type of Work	Contract Amount	Owner/Agency for Whom Work was Performed

The following is a list of plant and equipment owned by the bidder, which is definitely available for use on the proposed work as required.

Quantity	Name, Type and Capacity	Condition	Location

SECTION G.

DESIGNATION OF SUBCONTRACTORS

In compliance with the provisions of Section 4100-4114 of the Public Contracts Code of the State of California, and any amendments thereof, each bidder shall set forth below the name and location of the mill, shop, or office of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement to be performed under these specifications in excess of one-half of one percent (0.5%) of the prime Contractor's total bid or, in the case of bids or offers for the construction of streets or highways including bridges in excess of one-half of one percent (0.5%) of the Contractor's total bid of ten thousand dollars (\$10,000.00), whichever is greater. The prime Contractor shall list the portion of the work which will be done by such subcontractor.

If the Contractor fails to specify a subcontractor for any portion of the work to be performed under the Contract, he shall be deemed to have agreed to perform such portion himself, and he shall not be permitted to subcontract that portion of the work except under the conditions hereinafter set forth.

Subletting or subcontracting of any portion of the work as to which no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the awarding authority setting forth the facts constituting the emergency or necessity.

Subcontractor Name:

Address:

License No. and Class:

Dollar Value and Percent of
Total Contract:

Specific Items of Work:

Subcontractor Name:

Address:

License No. and Class:

Dollar Value and Percent of
Total Contract:

Specific Items of Work:

Subcontractor Name:

Address:

License No. and Class:

Dollar Value and Percent of

Total Contract:

Specific Items of Work:

Subcontractor Name:

Address:

License No. and Class:

Dollar Value and Percent of

Total Contract:

Specific Items of Work:

PART III. AGREEMENT FOR CONSTRUCTION SERVICES

SHORT-FORM CONSTRUCTION CONTRACT
BETWEEN
THE CITY OF WILDOMAR
AND

This Agreement for Construction Services (“Agreement”), is made and entered into this ___ day of _____, 20 __, by and between the City of Wildomar, a California general municipal corporation organized under the laws of the State of California with its principal place of business at 23873 Clinton Keith Road, Suite 201, Wildomar, California (“City”) and _____, a California (partnership, limited partnership, corporation, etc.) (“Contractor”).

SECTION 1. RECITALS

- A. City is a general municipal corporation organized under the laws of the State of California, with power to contract for services necessary to achieve its purpose.
- B. Contractor is a professional contractor, experienced in providing **Large Diameter Storm Drain Construction** services and is familiar with the plans of the City.
- C. City desires to engage Contractor to **construct public improvements associated with the Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076** as set forth herein.
- D. Contractor has obtained, and delivers concurrently herewith, **[INSERT APPLICABLE PERFORMANCE BOND, PAYMENT BOND, INSURANCE DOCUMENTS AND OTHER CERTIFICATIONS]** as required by the Contract.

SECTION 2. INCORPORATION OF DOCUMENTS

This Contract includes and hereby incorporates in full by reference the following documents, including all exhibits, drawings, specifications and documents therein, and attachments and addenda thereto: **[LIST]**.

SECTION 3. SCOPE OF WORK

- A. Contractor’s Basic Obligation; Scope of Work. Contractor promises and agrees, at its own cost and expense, to furnish to the Owner all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately complete the **Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076**, including all structures and facilities necessary for the Project or described in the Contract (hereinafter the "Work" or "Project"), for a Total Contract Price as specified pursuant to this Contract. All Work shall be subject to, and performed in accordance with the above referenced documents, as well as the exhibits attached hereto and incorporated herein by reference. The plans and specifications for the Work are further described in Exhibit "A"

attached hereto and incorporated herein by this reference. Special conditions, if any, relating to the Work are described in Exhibit "B" attached hereto and incorporated herein by this reference.

B. Change in Scope of Work Any change in the scope of the Work, method of performance, nature of materials or price thereof, or any other matter materially affecting the performance or nature of the Work shall not be paid for or accepted unless such change, addition or deletion is approved in advance and in writing by a valid change order executed by the City.

SECTION 4. PERIOD OF PERFORMANCE AND LIQUIDATED DAMAGES

Contractor shall perform and complete all Work under this Contract within **TBD working days**, beginning the effective date of the Notice to Proceed ("Contract Time"). Contractor shall perform its Work in strict accordance with any completion schedule, construction schedule or project milestones developed by the City. Such schedules or milestones may be included as part of Exhibits "A" or "B" attached hereto, or may be provided separately in writing to the Contractor. Contractor agrees that if such Work is not completed within the aforementioned Contract Time and/or pursuant to any such completion schedule, construction schedule or project milestones developed pursuant to provisions of the Contract, it is understood, acknowledged and agreed that the City will suffer damage. Since it is impractical and infeasible to determine the amount of actual damage, it is agreed that the Contractor shall pay to the City as fixed and liquidated damages, and not as a penalty, the sum of **TBD Dollars (\$TBD) per day** for each and every calendar day of delay beyond the Contract Time or beyond any completion schedule, construction schedule or Project milestones established pursuant to the Contract.

SECTION 5. STANDARD OF PERFORMANCE

Contractor shall perform all Work under this Contract in a skillful and workmanlike manner, and consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Contractor represents and maintains that it is skilled in the professional calling necessary to perform the Work. Contractor warrants that all employees and subcontractors shall have sufficient skill and experience to perform the Work assigned to them. Finally, Contractor represents that it, its employees and its subcontractors have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Work, and that such licenses and approvals shall be maintained throughout the term of this Contract. Any employee who is determined by the City to be uncooperative, incompetent, a threat to the safety of persons or the Work, or any employee who fails or refuses to perform the Work in a manner acceptable to the City, shall be promptly removed from the Project by the Contractor and shall not be re-employed on the Work.

SECTION 6. CONTROL AND PAYMENT OF SUBORDINATES; CONTRACTUAL RELATIONSHIP

City retains Contractor on an independent contractor basis and Contractor is not an employee of City. Any additional personnel performing the work governed by this Contract on behalf of Contractor shall at all times be under Contractor's exclusive

direction and control. Contractor shall pay all wages, salaries, and other amounts due such personnel in connection with their performance under this Contract and as required by law. Contractor shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security taxes, income tax withholding, unemployment insurance, and workers' compensation insurance.

SECTION 7. CITY'S BASIC OBLIGATION

City agrees to engage and does hereby engage Contractor as an independent contractor to furnish all materials and to perform all Work according to the terms and conditions herein contained for the sum set forth above. Except as otherwise provided in the Contract, the City shall pay to Contractor, as full consideration for the satisfactory performance by the Contractor of the services and obligations required by this Contract, the above referenced compensation in accordance with compensation provisions set forth in the Contract.

SECTION 8. COMPENSATION AND PAYMENT

A. Amount of Compensation. As consideration for performance of the Work required herein, City agrees to pay Contractor the Total Contract Price of **[INSERT DOLLARS]** Dollars and **[INSERT CENTS]** Cents (\$_____) ("Total Contract Price") provided that such amount shall be subject to adjustment pursuant to the applicable terms of this Contract or written change orders approved and signed in advance by the City.

B. Payment of Compensation. If the Work is scheduled for completion in thirty (30) or less calendar days, City will arrange for payment of the Total Contract Price upon completion and approval by City of the Work. If the Work is scheduled for completion in more than thirty (30) calendar days, City will pay Contractor on a monthly basis as provided for herein. On or before the fifth (5th) day of each month, Contractor shall submit to the City an itemized application for payment in the format supplied by the City indicating the amount of Work completed since commencement of the Work or since the last progress payment. These applications shall be supported by evidence which is required by this Contract and such other documentation as the City may require. The Contractor shall certify that the Work for which payment is requested has been done and that the materials listed are stored where indicated. Contractor may be required to furnish a detailed schedule of values upon request of the City and in such detail and form as the City shall request, showing the quantities, unit prices, overhead, profit, and all other expenses involved in order to provide a basis for determining the amount of progress payments.

City shall review and pay all progress payment requests in accordance with the provisions set forth in Section 20104.50 of the California Public Contract Code. No progress payments will be made for Work not completed in accordance with this Contract.

SECTION 9. CONTRACT RETENTIONS

From each approved progress estimate, five percent (5%) will be deducted and retained

by the City, and the remainder will be paid to Contractor. All Contract retainage shall be released and paid to the Contractor and subcontractors pursuant to California Public Contract Code Section 7107.

SECTION 10. OTHER RETENTIONS

In addition to Contract retentions, the City may deduct from each progress payment an amount necessary to protect City from loss because of: (1) liquidated damages which have accrued as of the date of the application for payment; (2) any sums expended by the City in performing any of Contractor's obligations under the Contract which Contractor has failed to perform or has performed inadequately; (3) defective Work not remedied; (4) stop notices as allowed by state law; (5) reasonable doubt that the Work can be completed for the unpaid balance of the Total Contract Price or within the scheduled completion date; (6) unsatisfactory prosecution of the Work by Contractor; (7) unauthorized deviations from the Contract; (8) failure of the Contractor to maintain or submit on a timely basis, proper and sufficient documentation as required by the Contract or by City during the prosecution of the Work; (9) erroneous or false estimates by the Contractor of the value of the Work performed; (10) any sums representing expenses, losses, or damages as determined by the City, incurred by the City for which Contractor is liable under the Contract; and (11) any other sums which the City is entitled to recover from Contractor under the terms of the Contract or pursuant to state law, including Section 1727 of the California Labor Code. The failure by the City to deduct any of these sums from a progress payment shall not constitute a waiver of the City's right to such sums.

SECTION 11. SUBSTITUTIONS FOR CONTRACT RETENTIONS

In accordance with California Public Contract Code Section 22300, the City will permit the substitution of securities for any monies withheld by the City to ensure performance under the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the City, or with a state or federally chartered bank in California as the escrow agent, and thereafter the City shall then pay such monies to the Contractor as they come due. Upon satisfactory completion of the Contract, the securities shall be returned to the Contractor. For purposes of this Section and Section 22300 of the Public Contract Code, the term "satisfactory completion of the contract" shall mean the time the City has issued written final acceptance of the Work and filed a Notice of Completion as required by law and provisions of this Contract. The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon. The escrow agreement used for the purposes of this Section shall be in the form provided by the City.

SECTION 12. PAYMENT TO SUBCONTRACTORS

Contractor shall pay all subcontractors for and on account of work performed by such subcontractors in accordance with the terms of their respective subcontracts and as

provided for in Section 10262 of the California Public Contract Code. Such payments to subcontractors shall be based on the measurements and estimates made and progress payments provided to Contractor pursuant to this Contract.

SECTION 13. TITLE TO WORK

As security for partial, progress, or other payments, title to Work for which such payments are made shall pass to the City at the time of payment. To the extent that title has not previously been vested in the City by reason of payments, full title shall pass to the City at delivery of the Work at the destination and time specified in this Contract. Such transferred title shall in each case be good, and free and clear from any and all security interests, liens, or other encumbrances. Contractor promises and agrees that it will not pledge, hypothecate, or otherwise encumber the items in any manner that would result in any lien, security interest, charge, or claim upon or against said items. Such transfer of title shall not imply acceptance by the City, nor relieve Contractor from the responsibility to strictly comply with the Contract, and shall not relieve Contractor of responsibility for any loss of or damage to items.

SECTION 14. DISPUTE RESOLUTION

Any separate demand by Contractor for the payment of money or damages shall be resolved in accordance with Public Contract Code Sections 20104 et seq., if applicable.

SECTION 15. TERMINATION

This Contract may be terminated by City at any time by giving Contractor three (3) days advance written notice. In the event of termination by City for any reason other than the fault of Contractor, City shall pay Contractor for all Work performed up to that time as provided herein. In the event of breach of the Contract by Contractor, City may terminate the Contract immediately without notice, may reduce payment to the Contractor in the amount necessary to offset City's resulting damages, and may pursue any other available recourse against Contractor. Contractor may not terminate this Contract except for cause.

In the event this Contract is terminated in whole or in part as provided, City may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated. Further, if this Contract is terminated as provided, City may require Contractor to provide all finished or unfinished documents, data, diagrams, drawings, materials or other matter prepared or built by Contractor in connection with its performance of this Contract.

SECTION 16. COMPLETION OF WORK

When the Contractor determines that it has completed the Work required herein, Contractor shall so notify City in writing and shall furnish all labor and material releases required by this Contract. City shall thereupon inspect the Work. If the Work is not acceptable to the City, the City shall indicate to Contractor in writing the specific

portions or items of Work which are unsatisfactory or incomplete. Once Contractor determines that it has completed the incomplete or unsatisfactory Work, Contractor may request a re-inspection by the City. Once the Work is acceptable to City, City shall pay to Contractor the Total Contract Price remaining to be paid, less any amount which City may be authorized or directed by law to retain. Payment of retention proceeds due to Contractor shall be made in accordance with Section 7107 of the California Public Contract Code.

SECTION 17. CITY'S REPRESENTATIVE

The City hereby designates the **City Engineer**, or his or her designee, to act as its representative for the performance of this Contract ("City's Representative"). City's Representative shall have the power to act on behalf of the City for all purposes under this Contract. Contractor shall not accept direction or orders from any person other than the City's Representative or his or here designee.

SECTION 18. CONTRACTOR'S REPRESENTATIVE

Before starting the Work, Contractor shall submit in writing the name, qualifications and experience of its proposed representative who shall be subject to the review and approval of the City ("Contractor's Representative"). Following approval by the City, the Contractor's Representative shall have full authority to represent and act on behalf of the Contractor for all purposes under this Contract. The Contractor's Representative shall supervise and direct the Work, using his best skill and attention, and shall be responsible for all construction means, methods, techniques, sequences and procedures and for the satisfactory coordination of all portions of the Work under this Contract. Contractor's Representative shall devote full time to the Project and either he or his designee, who shall be acceptable to the City, shall be present at the Work site at all times that any Work is in progress and at any time that any employee or subcontractor of Contractor is present at the Work site. Arrangements for responsible supervision, acceptable to the City, shall be made for emergency Work which may be required. Should Contractor desire to change its Contractor's Representative, Contractor shall provide the information specified above and obtain the City's written approval.

SECTION 19. CONTRACT INTERPRETATION

Should any question arise regarding the meaning or import of any of the provisions of this Contract or written or oral instructions from City, the matter shall be referred to City's Representative, whose decision shall be binding upon Contractor.

SECTION 20. LOSS AND DAMAGE

Contractor shall be responsible for all loss and damage which may arise out of the nature of the Work agreed to herein, or from the action of the elements, or from any unforeseen difficulties which may arise or be encountered in the prosecution of the Work until the

same is fully completed and accepted by City. However, Contractor shall be responsible for damage proximately caused by Acts of God, within the meaning of Section 4150 of the Government Code, only to the extent of five percent (5%) of the Total Contract Price as specified herein. In the event of damage proximately caused by "Acts of God," the City may terminate this Contract upon three (3) days advanced written notice.

SECTION 21. INDEMNIFICATION

A. Indemnification. Contractor shall defend, indemnify and hold the City, its officials, officers, employees, volunteers and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury, in law or equity, to property or persons, including wrongful death, in any manner arising out of or incident to any alleged acts, omissions or willful misconduct of Contractor, its officials, officers, employees, agents, consultants and contractors arising out of or in connection with the performance of the Services, the Project or this Agreement, including without limitation the payment of all consequential damages and attorneys fees and other related costs and expenses. Contractor shall defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against City, its directors, officials, officers, employees, agents or volunteers. Contractor shall pay and satisfy any judgment, award or decree that may be rendered against City or its directors, officials, officers, employees, agents or volunteers, in any such suit, action or other legal proceeding. Contractor shall reimburse City and its directors, officials, officers, employees, agents and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. Contractor's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the City, its directors, officials officers, employees, agents or volunteers.

B. General Indemnification. Contractor agrees to obtain executed indemnity agreements with provisions identical to those set forth here in this section from each and every subcontractor or any other person or entity involved by, for, with or on behalf of Contractor in the performance of this Agreement. In the event Contractor fails to obtain such indemnity obligations from others are required here, Contractor agrees to be fully responsible according to the terms of this section. Failure of City to monitor compliance with these requirements imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder. This obligation to indemnify and defend City as set forth here is binding on the successors, assigns or heirs of Contractor and shall survive the termination of this Agreement or this section.

SECTION 22. INSURANCE

Prior to the beginning of and throughout the duration of the Work, Contractor will maintain insurance in conformance with the requirements set forth below. Contractor will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth here, Contractor agrees to amend, supplement or endorse the existing coverage to do so. Contractor acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds in excess of the limits and coverage required in this Agreement and which are applicable to a given loss, will be available to the City.

Contractor shall provide the following types and amounts of insurance:

A. Commercial General Liability Insurance using Insurance Services Office “Commercial General Liability” policy form CG 00 01 or the exact equivalent. Defense costs must be paid in addition to limits. There shall be no cross liability exclusion for claims or suits by one insured against another. Limits are subject to review but in no event less than \$1,000,000 per occurrence for all covered losses and no less than \$2,000,000 general aggregate.

B. Business Auto Coverage on ISO Business Auto Coverage form CA 00 01 including symbol 1 (Any Auto) or the exact equivalent. Limits are subject to review, but in no event to be less than \$1,000,000 per accident. If Contractor owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Contractor or Contractor’s employees will use personal autos in any way on this project, Contractor shall provide evidence of personal auto liability coverage for each such person.

C. Workers Compensation on a state-approved policy form providing statutory benefits as required by law with employer’s liability limits no less than \$1,000,000 per accident or disease.

D. Excess or Umbrella Liability Insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Any such coverage provided under an umbrella liability policy shall include a drop down provision providing primary coverage above a maximum \$25,000 self-insured retention for liability not covered by primary but covered by the umbrella. Coverage shall be provided on a “pay on behalf” basis, with defense costs payable in addition to policy limits. Policy shall contain a provision obligating insurer at the time insured’s liability is determined, not requiring actual payment by the insured first. There shall be no cross liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to City for injury to employees of Contractor, subcontractors or others involved in the Work. The scope of coverage provided is subject to approval of City following receipt of proof of insurance as required herein. Insurance procured pursuant to these requirements shall be written by insurers that are admitted carriers in the State of California and with an A.M. Best rating of A or better and a minimum financial size VII.

E. General conditions pertaining to provision of insurance coverage by Contractor. Contractor and City agree to the following with respect to insurance provided by Contractor:

(1) Contractor agrees to have its insurer endorse the third party general liability coverage required herein to include as additional insureds City, its officials, employees and agents, David Romagnolo, and CAFH Order of Wildomar, Inc. using standard ISO endorsement No. CG 2010 with an edition prior to 1992. Contractor also agrees to require all contractors, and subcontractors to do so likewise.

(2) No liability insurance coverage provided to comply with this Agreement shall prohibit Contractor, or Consultant’s employees, or agents, from waiving the right of subrogation prior to a loss. Contractor agrees to waive subrogation rights against City regardless

of the applicability of any insurance proceeds, and to require all contractors and subcontractors to do likewise.

(3) All insurance coverage and limits provided by Contractor and available or applicable to this Agreement are intended to apply to the full extent of the policies. Nothing contained in this Agreement or any other agreement relating to the City or its operations limits the application of such insurance coverage.

(4) None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to City and approved in writing.

(5) No liability policy shall contain any provision or definition that would serve to eliminate so-called "third party action over" claims, including any exclusion for bodily injury to an employee of the insured or any contractor or subcontractor.

(6) All coverage types and limits required are subject to approval, modification and additional requirements by the City, as the need arises. Contractor shall not make any reductions in scope of coverage (e.g. elimination of contractual liability or reduction of discovery period) that may affect City's protection without City's prior written consent.

(7) Proof of compliance with these insurance requirements, consisting of certificates of insurance evidencing all of the coverages required and an additional insured endorsement to Contractor's general liability policy, shall be delivered to City at or prior to the execution of this Agreement. In the event such proof of any insurance is not delivered as required, or in the event such insurance is canceled at any time and no replacement coverage is provided, City has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests under this or any other agreement and to pay the premium. Any premium so paid by City shall be charged to and promptly paid by Contractor or deducted from sums due Contractor, at City option.

(8) Certificate(s) are to reflect that the insurer will provide 30 days notice to City of any cancellation of coverage. Contractor agrees to require its insurer to modify such certificates to delete any exculpatory wording stating that failure of the insurer to mail written notice of cancellation imposes no obligation, or that any party will "endeavor" (as opposed to being required) to comply with the requirements of the certificate.

(9) It is acknowledged by the parties of this Agreement that all insurance coverage required to be provided by Contractor or any subcontractor, is intended to apply first and on a primary, non-contributing basis in relation to any other insurance or self insurance available to City.

(10) Contractor agrees to ensure that subcontractors, and any other party involved with the project that is brought onto or involved in the project by Contractor, provide the same minimum insurance coverage required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Contractor agrees that upon request, all agreements with subcontractors and others engaged in the project will be submitted to City for review.

(11) Contractor agrees not to self-insure or to use any self-insured retention's or deductibles on any portion of the insurance required herein except as disclosed to and approved by the City and further agrees that it will not allow any contractor, subcontractor, Architect, Engineer or other entity or person in any way involved in the performance of work on the project contemplated by this Agreement to self-insure its obligations to City. City expressly approves maintenance by the Contractor of a \$100,000 deductible on its current Professional Liability insurance policy.

(12) The City reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Contractor ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the City will negotiate additional compensation proportional to the increased benefit to City.

(13) For purposes of applying insurance coverage only, this Agreement will be deemed to have been executed immediately upon any party hereto taking any steps that can be deemed to be in furtherance of or towards performance of this Agreement.

(14) Contractor acknowledges and agrees that any actual or alleged failure on the part of City to inform Contractor of non-compliance with any insurance requirement in no way imposes any additional obligations on City nor does it waive any rights hereunder in this or any other regard.

(15) Contractor will renew the required coverage annually as long as City, or its employees or agents face an exposure from operations of any type pursuant to this Agreement. This obligation applies whether or not the Agreement is canceled or terminated for any reason. Termination of this obligation is not effective until City executes a written statement to that effect.

(16) Contractor shall provide proof that policies of insurance required herein expiring during the term of this Agreement have been renewed or replaced with other policies providing at least the same coverage. Proof that such coverage has been ordered shall be submitted prior to expiration. A coverage binder or letter from Contractor's insurance agent to this effect is acceptable. A certificate of insurance and/or additional insured endorsement as required in these specifications applicable to the renewing or new coverage must be provided to City within five days of the expiration of the coverages.

(17). The provisions of any workers' compensation or similar act will not limit the obligations of Contractor under this Agreement. Contractor expressly agrees not to use any statutory immunity defenses under such laws with respect to City, its employees, officials and agents.

(18) Requirements of specific coverage features or limits contained in this section are not intended as limitations on coverage, limits or other requirements nor as a waiver of any coverage normally provided by any given policy. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue, and is not intended by any party or insured to be limiting or all-inclusive.

(19) These insurance requirements are intended to be separate and distinct from any other provision in this Agreement and are intended by the parties here to be interpreted as such.

(20). The requirements in this Section supersede all other sections and provisions of this Agreement, except Exhibit “D” “Modifications to Contract Documents”, to the extent that any other section or provision conflicts with or impairs the provisions of this Section.

(21) Contractor agrees to be responsible for ensuring that no contract used by any party involved in any way with the project reserves the right to charge City or Contractor for the cost of additional insurance coverage required by this Agreement. Any such provisions are to be deleted with reference to City. It is not the intent of City to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against City for payment of premiums or other amounts with respect thereto.

(22) Contractor agrees to provide immediate notice to City of any claim or loss against Contractor arising out of the work performed under this Agreement. City assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve City.

SECTION 23. BONDS

A. Performance Bond. If specifically requested by City in the Bidding Documents, attached hereto and incorporated herein by reference, Contractor shall execute and provide to City concurrently with this Agreement a Performance Bond in the amount of the total, not-to-exceed compensation indicated in this Agreement, and in a form provided or approved by the City. If such bond is required, no payment will be made to Contractor until it has been received and approved by the City.

B. Payment Bond. If required by law or otherwise specifically requested by City in the Bidding Documents, attached hereto and incorporated herein by reference, Contractor shall execute and provide to City concurrently with this Agreement a Payment Bond in the amount of the total, not-to-exceed compensation indicated in this Agreement, and in a form provided or approved by the City. If such bond is required, no payment will be made to Contractor until it has been received and approved by the City.

C. Bond Provisions. Should, in City's sole opinion, any bond become insufficient or any surety be found to be unsatisfactory, Contractor shall renew or replace the affected bond within 10 days of receiving notice from City. In the event the surety or Contractor intends to reduce or cancel any required bond, at least thirty (30) days prior written notice shall be given to the City, and Contractor shall post acceptable replacement bonds at least ten (10) days prior to expiration of the original bonds. No further payments shall be deemed due or will be made under this Agreement until any replacement bonds required by this Section are accepted by the City. To the extent, if any, that the total compensation is increased in accordance with the Agreement, the Contractor shall, upon request of the City, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the City. To the extent available, the bonds shall further provide that no change or alteration of the

Agreement (including, without limitation, an increase in the total compensation, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor, will release the surety. If the Contractor fails to furnish any required bond, the City may terminate this Agreement for cause.

D. Surety Qualifications. Only bonds executed by an admitted surety insurer, as defined in Code of Civil Procedure Section 995.120, shall be accepted. The surety must be a California-admitted surety with a current A.M. Best's rating no less than A:VIII and satisfactory to the City. If a California-admitted surety insurer issuing bonds does not meet these requirements, the insurer will be considered qualified if it is in conformance with Section 995.660 of the California Code of Civil Procedure, and proof of such is provided to the City.

SECTION 24. SAFETY

Contractor shall execute and maintain its work so as to avoid injury or damage to any person or property. Contractor shall comply with the requirements of the specifications relating to safety measures applicable in particular operations or kinds of work. In carrying out its Work, the Contractor shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the Work and the conditions under which the Work is to be performed. Safety precautions as applicable shall include, but shall not be limited to, adequate life protection and life saving equipment; adequate illumination for underground and night operations; instructions in accident prevention for all employees, such as machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, fall protection and other safety devices, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; and adequate facilities for the proper inspection and maintenance of all safety measures. Furthermore, Contractor shall prominently display the names and telephone numbers of at least two medical doctors practicing in the vicinity of the Project, as well as the telephone number of the local ambulance service, adjacent to all telephones at the Project site.

SECTION 25. WARRANTY

Contractor warrants all Work under the Contract (which for purposes of this Section shall be deemed to include unauthorized work which has not been removed and any non-conforming materials incorporated into the Work) to be of good quality and free from any defective or faulty material and workmanship. Contractor agrees that for a period of one year (or the period of time specified elsewhere in the Contract or in any guarantee or warranty provided by any manufacturer or supplier of equipment or materials incorporated into the Work, whichever is later) after the date of final acceptance, Contractor shall within ten (10) Days after being notified in writing by the City of any defect in the Work or non-conformance of the Work to the Contract, commence and prosecute with due diligence all Work necessary to fulfill the terms of the warranty at his sole cost and expense. Contractor shall act sooner as requested by the City in response to an emergency. In addition, Contractor shall, at its sole cost and

expense, repair and replace any portions of the Work (or work of other contractors) damaged by its defective Work or which becomes damaged in the course of repairing or replacing defective Work. For any Work so corrected, Contractor's obligation hereunder to correct defective Work shall be reinstated for an additional one year period, commencing with the date of acceptance of such corrected Work. Contractor shall perform such tests as the City may require verifying that any corrective actions, including, without limitation, redesign, repairs, and replacements comply with the requirements of the Contract. All costs associated with such corrective actions and testing, including the removal, replacement, and reinstatement of equipment and materials necessary to gain access, shall be the sole responsibility of the Contractor. All warranties and guarantees of subcontractors, suppliers and manufacturers with respect to any portion of the Work, whether express or implied, are deemed to be obtained by Contractor for the benefit of the City, regardless of whether or not such warranties and guarantees have been transferred or assigned to the City by separate agreement and Contractor agrees to enforce such warranties and guarantees, if necessary, on behalf of the City. In the event that Contractor fails to perform its obligations under this Section, or under any other warranty or guaranty under this Contract, to the reasonable satisfaction of the City, the City shall have the right to correct and replace any defective or non-conforming Work and any work damaged by such work or the replacement or correction thereof at Contractor's sole expense. Contractor shall be obligated to fully reimburse the City for any expenses incurred hereunder upon demand.

SECTION 26. LAWS AND REGULATIONS

Contractor shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Contract or the Work, including all Cal/OSHA requirements, and shall give all notices required by law. Contractor shall be liable for all violations of such laws and regulations in connection with Work. If the Contractor observes that the drawings or specifications are at variance with any law, rule or regulation, it shall promptly notify the City in writing. Any necessary changes shall be made by written change order. If the Contractor performs any work knowing it to be contrary to such laws, rules and regulations and without giving written notice to the City, the Contractor shall be solely responsible for all costs arising there from. Contractor shall defend, indemnify and hold City, its officials, directors, officers, employees and agents free and harmless, pursuant to the indemnification provisions of this Contract, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.

SECTION 27. PERMITS AND LICENSES

Contractor shall be responsible for securing, at its own expense, and paying for all permits and licenses necessary to perform the Work described herein.

SECTION 28. TRENCHING WORK

If the Total Contract Price exceeds \$25,000 and if the Work governed by this Contract entails excavation of any trench or trenches five (5) feet or more in depth, Contractor shall comply with all applicable provisions of the Labor Code, including Section 6705. To this end, Contractor shall submit for City's review and approval a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

SECTION 29. HAZARDOUS MATERIALS AND DIFFERING CONDITIONS

As required by Public Contract Code Section 7104, if this Contract involves digging trenches or other excavations that extend deeper than four (4) feet below the surface, Contractor shall promptly, and prior to disturbance of any conditions, notify City of: (1) any material discovered in excavation that Contractor believes to be a hazardous waste that is required to be removed to a Class I, Class II or Class III disposal site; (2) subsurface or latent physical conditions at the site differing from those indicated by City; and (3) unknown physical conditions of an unusual nature at the site, significantly different from those ordinarily encountered in such contract work. Upon notification, City shall promptly investigate the conditions to determine whether a change order is appropriate. In the event of a dispute, Contractor shall not be excused from any scheduled completion date and shall proceed with all Work to be performed under the Contract, but shall retain all rights provided by the Contract or by law for making protests and resolving the dispute.

SECTION 30. UNDERGROUND UTILITY FACILITIES

To the extent required by Section 4215 of the Government Code, City shall compensate Contractor for the costs of: (1) locating and repairing damage to underground utility facilities not caused by the failure of Contractor to exercise reasonable care; (2) removing or relocating underground utility facilities not indicated in the construction drawings; and (3) equipment necessarily idled during such work. Contractor shall not be assessed liquidated damages for delay caused by failure of City to provide for removal or relocation of such utility facilities.

SECTION 31. PREVAILING WAGES

Contractor is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 1600, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is \$1,000 or more, Contractor agrees to fully comply with such Prevailing Wage Laws. City shall provide Contractor with a copy of the prevailing rates of per diem wages in effect at the commencement of this Agreement. Contractor shall make copies

of the prevailing rates of per diem wages for each craft, classification or type of worker needed to execute the Services available to interested parties upon request, and shall post copies at the Contractor's principal place of business and at the project site. Contractor shall defend, indemnify and hold the City, its elected officials, officers, employees and agents free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

SECTION 32. APPRENTICEABLE CRAFTS

When Contractor employs workmen in an apprenticed craft or trade, Contractor shall comply with the provisions of Section 1777.5 of the Labor Code with respect to the employment of properly registered apprentices upon public works. The primary responsibility for compliance with said section for all apprenticed occupations shall be with Contractor.

SECTION 33. HOURS OF WORK

Contractor is advised that eight (8) hours labor constitutes a legal day's work. Pursuant to Section 1813 of the Labor Code, Contractor shall forfeit a penalty of \$25.00 per worker for each day that each worker is permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week, except when payment for overtime is made at not less than one and one-half (1-1/2) times the basic rate for that worker.

SECTION 34. PAYROLL RECORDS

In accordance with the requirements of Labor Code Section 1776, Contractor shall keep accurate payroll records which are either on forms provided by the Division of Labor Standards Enforcement or which contain the same information required by such forms. Responsibility for compliance with Labor Code Section 1776 shall rest solely with Contractor, and Contractor shall make all such records available for inspection at all reasonable hours.

SECTION 35. CONTRACTOR'S LABOR CERTIFICATION

By its signature hereunder, Contractor certifies that he is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and agrees to comply with such provisions before commencing the performance of the Work. A certification form for this purpose, which is attached to this Contract as Exhibit "C" and incorporated herein by reference, shall be executed simultaneously with this Contract.

SECTION 36. LABOR AND MATERIAL RELEASES

Contractor shall furnish City with labor and material releases from all subcontractors performing work on, or furnishing materials for, the work governed by this Contract prior to final payment by City.

SECTION 37. EQUAL OPPORTUNITY EMPLOYMENT

Contractor represents that it is an equal opportunity employer and that it shall not discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, sex, age or other interests protected by the state or Federal Constitutions. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

SECTION 38. ANTI-TRUST CLAIMS

This provision shall be operative if this Contract is applicable to California Public Contract Code Section 7103.5. In entering into this Contract to supply goods, services or materials, the Contractor hereby offers and agrees to assign to the City all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2, commencing with Section 16700, of Part 2 of Division 7 of the Business and Professions Code) arising from purchases of goods, services, or materials pursuant to the Contract. This assignment shall be made and become effective at the time the City tender final payment to the Contractor, without further acknowledgment by the parties.

SECTION 39. NOTICES

All notices hereunder and communications regarding interpretation of the terms of the Contract or changes thereto shall be provided by the mailing thereof by registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

CITY

City of Wildomar
23873 Clinton Keith Avenue, Suite 201
Wildomar, CA 92595
Attn: Dan York

CONTRACTOR

[INSERT NAME]
[INSERT ADDRESS]
Attn: [INSERT NAME]

Any notice so given shall be considered received by the other party three (3) days after deposit in the U.S. Mail as stated above and addressed to the party at the above address. Actual notice shall be deemed adequate notice on the date actual notice occurred,

regardless of the method of service.

SECTION 40. ENTIRE CONTRACT; MODIFICATION

This Agreement, including the attached Exhibits “A” through “D” is the entire, complete, final and exclusive expression of the parties with respect to the matters addressed therein and supersedes all other agreement or understandings, whether oral or written, or entered into between Contractor and City prior to the execution of the agreement. No prior statements, representations or other agreements, whether oral or written, made by any parties which are not embodied herein shall be valid and binding. No amendment to this Agreement shall be valid and binding unless in writing duly executed by the parties or their authorized representatives.

SECTION 41. TIME IS OF THE ESSENCE

Time is of the essence in the performance of this Contract.

SECTION 42. ASSIGNMENT FORBIDDEN

Contractor shall not, either voluntarily or by action of law, assign or transfer this Contract or any obligation, right, title or interest assumed by Contractor herein without the prior written consent of City. If Contractor attempts an assignment or transfer of this Contract or any obligation, right, title or interest herein, City may, at its option, terminate and revoke the Contract and shall thereupon be relieved from any and all obligations to Contractor or its assignee or transferee.

SECTION 43. GOVERNING LAW

This Contract shall be governed by the laws of the State of California.

SECTION 44. COUNTERPARTS

This Contract may be executed in counterparts, each of which shall constitute an original.

SECTION 45. SUCCESSORS

The parties do for themselves, their heirs, executors, administrators, successors, and assigns agree to the full performance of all of the provisions contained in this Contract.

SECTION 46. ATTORNEYS' FEES

If either party commences an action against the other party, either legal, administrative or otherwise, arising out of or in connection with this Contract, the prevailing party in such action shall be entitled to have and recover from the losing party reasonable attorneys' fees and all other costs of such action.

SECTION 47. CLAIMS OF \$375,000 OR LESS

Notwithstanding any other provision herein, claims of \$375,000 or less shall be resolved pursuant to the alternative dispute resolution procedures set forth in Public Contracts Code 20104, et seq.

SECTION 48. PROHIBITED INTERESTS

A. Solicitation. Contractor warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Contractor, to solicit or secure this Contract. Further, Contractor warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, City shall have the right to terminate this Contract without liability.

B. Conflict of Interest. For the term of this Contract, no member, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Contract, or obtain any present or anticipated material benefit arising there from.

SECTION 49. CERTIFICATION OF LICENSE

Contractor certifies that as of the date of execution of this Contract, Contractor has a current contractor's license of the classification indicated below under Contractor's signature.

IN WITNESS WHEREOF, each of the parties has caused this Contract to be executed on the day and year first above written.

CITY OF WILDOMAR

INSERT CONTRACTOR'S NAME

By: _____
Signature

By: _____
Signature

Name

Name

Title

Title

Attest:

City Clerk

Attest:

Secretary

Classification of Contractor's License

Contractor's License Number

EXHIBIT "A" PLANS AND SPECIFICATIONS

The following plans and specifications titled: **Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076** are incorporated into this Contract herein by this reference:

The work for which this proposal is submitted is for construction in conformance with the project plans described above, including any addenda thereto, the contract annexed hereto, these Technical Specifications, and also in conformance with the City of Wildomar and the Riverside County Flood Control and Water Conservation District Standards and Specifications, latest edition (herein referred to as the Standard Construction Specifications), California Department of Transportation Standard Plans, dated 2010, the Standard Specifications, dated 2010 (herein referred to as the State Standard Specifications), and the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished.

EXHIBIT "B" SPECIAL CONDITIONS

Standard Erosion and Sediment Control Plan Notes:

1. Dust control shall conform to Section 10, "Dust Control", Section 7-1.01F, "Air Pollution Control", Section 17, "Watering", and Section 18 "Dust Palliative" of the State Standard Specifications, Rules no. 401, 402, 403 and 403.1 of the South Coast Air Quality Management District (AQMD), Riverside County Code, Chapter 8.52, "Fugitive Dust Reduction Program For Coachella Valley", all other applicable Federal and State laws, and the requirements set forth herein.
2. The Contractor is cautioned that failure to control fugitive dust may result in fines being levied by the South Coast Air Quality Management District to both the Contractor and the City of Wildomar, as owner. The Contractor shall be fully responsible for payment of all fines pertaining to air pollution control violations, resulting from Contractor's operations related to the construction contract, which may be levied against both the Contractor and the City of Wildomar by the AQMD or other regulatory agencies. The Contractor's attention is directed to Section 7-1.01, "Laws to be Observed" of the State Standard Specifications. The cost of all fines levied against the City of Wildomar will be deducted from any moneys due or which may become due to the Contractor, unless other payment arrangements are made by the Contractor.
3. Dust control of all of the contractor's operations is required 24 hours per day, 7 days a week for the duration of the contract, and until the disturbed soil is permanently stabilized. The Contractor shall take every precaution to prevent emissions of fugitive dust from the project site, from locations of stockpiled materials, from unpaved driving surfaces, from haul vehicles, from inactive construction areas, and from all other operations of the Contractor. The Contractor shall plan for and carry out proper and efficient measures to prevent his operations from producing dust in amounts damaging to property or which constitute a public nuisance, or which cause harm to persons living or working in the vicinity of the work. Of particular concern are emissions of PM10 particles, which are fine particulate matter of 10 microns or less and which are associated with sickness and death from respiratory disease.
4. The Contractor shall respond to complaints by mobilizing equipment and personnel at the construction site within 2 hours of each complaint to control fugitive dust.
5. Attention is directed to AQMD Rule 403.1, which applies to all contracts within the City of Wildomar. That AQMD Rule requires the Contractor to take specified dust control actions when prevailing wind speeds exceed 25 miles per hour. Wind forecasts, AQMD Rules and other related information are provided by AQMD at 1-800-CUT-SMOG and at www.aqmd.gov.
6. Any days on which the Contractor is prevented from working, due to the requirements of AQMD Rules, will be considered as non-working days, in accordance with Section 8-1.06, "Time of Completion" of the State Standard Specifications.
7. The Contractor shall utilize the "Best Available Control Measures" of controlling fugitive dust, as prepared by the AQMD. However, if fugitive dust crosses the project boundary, more effective control measures, including the "Best Available Control Measures" shall be implemented.

8. A site specific fugitive dust control plan shall be submitted to the City Engineer for review and approval at least 10 days prior to the start of construction.
9. The fugitive dust control plan shall include the “Reasonably Available Control Measures” and “Best Available Control Measures” of controlling fugitive dust, as may be appropriate and necessary, including but not limited to watering, application of chemical dust suppressants, wind fencing, covering of haul vehicles, haul vehicle bed-liners, grading, planting of vegetation, the use of a 24 hour environmental observer, and track-out controls at locations where unpaved construction accesses intersect with paved roads. The use of chemical stabilizers, which are approved by all environmental regulatory agencies, and the use of reclaimed water is encouraged. If water is intended as a primary dust control tool, the dust control plan shall provide for at least one 2,000 gallon water truck for every 4 acres of disturbed soil, unless otherwise approved by the City Engineer.
10. If the Project Inspector determines that the project scope and the forecasted weather conditions are such that the Contractor’s work is unlikely to be a source of dust emissions, the Construction Engineer has the authority to waive the requirements for submittal of a dust control plan and for placement of the dust control signs described herein. However, the Contractor’s responsibilities for the control of fugitive dust and the other requirements of this section may not be waived.
11. A completion notice will not be filled, and the final payment will not be made to the Contractor until the areas of disturbed soil on the construction site, including roadway shoulders, are suitably stabilized for long term control of fugitive dust.
12. The successful Contractor shall attend an AQMD PM10 Dust Control Program training session, and furnish evidence of attendance to the City Engineer. Attendance at AQMD training seminars can be scheduled with the AQMD at 1-866-861-DUST or by email to dustcontrol@agmd.gov. Current AQMD certification of previous attendance will be accepted. At that training session, the successful Contractor will be furnished with the AQMD prepared Rule 403 and Rule 403.1 implementation handbooks, which include the “Best Available Control Measures” and “Reasonably Available Control Measures”, and other associated information, including a listing of suggested dust control related to devices, material and chemicals.
13. This signature of the Contractor on the Proposal constitutes acknowledgement by the Contractor of the dust control enforceability of those requirements.
14. Full compensation for conformance with these dust abatement requirements, including lab equipment and materials, developing water supply and incidentals, shall be considered as included in items of work, and no additional compensation will be allowed therefore.

EXHIBIT "C" CERTIFICATION LABOR CODE-SECTION 1861

I, the undersigned Contractor, am aware of the provisions of Section 3700 et seq. of the Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of the Code, and I, the undersigned Contractor, agree to and will comply with such provisions before commencing the performance of the Work on this Contract.

[INSERT CONTRACTOR'S NAME]

By:

[INSERT NAME]

[INSERT TITLE]

EXHIBIT “D” CONTRACT MODIFICATIONS

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, WHEREAS, THE CITY OF WILDOMAR, hereinafter designated as the “City”, entered into a Contract dated _____, 20____, with _____ hereinafter designated as the “Contractor” for the work described as follows:

Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076

WHEREAS, the said Contractor is required under terms of said Contract to furnish a bond for the faithful performance of said Contract;

WHEREAS, the Contract is by reference made a part hereof;

NOW, THEREFORE, we, _____ the undersigned Contractor, as Principal, and _____ (corporate surety), a corporation organized and existing under the laws of the State of _____, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the City in the penal sum of _____ dollars (\$_____), lawful money of the United States, said sum being not less than one hundred (100) percent of the total Contract amount, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT, if the above bounded Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the said Contract and any alterations thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City, its officers and agents, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the said Contract, the above obligation in said amount shall hold good for a period of one (1) year after the completion and acceptance of the said work, during which time if the above bounded Contractor, his or its heirs, executors, administrators, successors or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the City from loss or damage made evident during said period of one year from the date of acceptance of said work, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in the said sum shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety hereunder shall continue so long as any obligation of the Contractor remains.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall, in any way, affect its obligations on this bond and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

In the event suit is brought upon this bond by the City and judgment is recovered, the Surety shall pay all costs incurred by the City in such suit, including reasonable attorney's fees to be fixed by the Court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20__.

Name of Surety

Contractor

By: _____
Title: _____

Mailing Address of Surety

and

Telephone No. of Surety

By: _____
Title: _____

By: _____
Attorney in Fact

NOTE: If Contractor is Partnership, all parties must execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in California.

NOTICE: The signature of the Surety on this bond must be acknowledged before a notary public, and this bond must be accompanied by evidence of the signatory's appointment as attorney in fact and authority to bind the Surety.

MANDATORY: The Surety shall be authorized and licensed by the California Insurance Commissioner as an "admitted surety insurer." (See Cal. Code Civ. Proc. § § 995.310, 995.311, 995.320)

APPROVAL: Bonds must be approved by the City. In order to verify the status of the Surety as an admitted surety, the Surety shall provide the City with at least one of the following: (1) a print-out of information from the web-site of the Department of Insurance confirming the Surety is an admitted surety insurer and attaching it to the bond; or (2) a certificate from the Riverside County Clerk that the certificate of authority of the Surety has not been surrendered, revoked, cancelled, annulled or suspended and confirming that the Surety is an admitted surety and attaching the certificate to the bond. (See Cal. Code Civ. Proc. Code § 995.311).

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, WHEREAS, THE CITY OF WILDOMAR, hereinafter designated as the “City”, has awarded to _____, hereinafter designated as the “Contractor” a Contract for the work described as follows:

Master Drainage Plan Lateral C-1 Storm Drain Project Number 7-0-00076

WHEREAS, the Contractor is required by the Contract and by the provisions of Division Third, Part 4, Title 15, Chapter 7 of the Civil Code to furnish a bond in connection with the Contract, as hereinafter set forth.

NOW, THEREFORE, we, _____, the undersigned Contractor, as Principal, and _____, a corporation organized and existing under the laws of the State of _____ duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the _____ in the sum of _____ dollars (\$ _____) said sum being not less than one hundred (100) percent of the total Contract amount payable by the city, under the terms of the Contract, for which payment well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT, if the Contractor, his or its heirs, executors, administrators, successors and assigns or subcontractors shall fail to pay for any materials, provisions, provender or other supplies or teams, implements or machinery used in, upon, for or about the performance of the work contracted to be done, or shall fail to pay for any work or labor thereon of any kind, or shall fail to pay any persons named in Civil Code section 3181, or shall fail to pay for amounts due under the Unemployment Insurance Code with respect to such work or labor as required by the provisions of Division Third, Part 4, Title 15, Chapter 7 of the Civil Code, or shall fail to pay for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work or labor, and provided that the claimant shall have complied with the provisions of that Code, the Surety or Sureties hereon will pay for the same in amount not exceeding the sum specified in the Contract, otherwise the above obligation shall be void. In case suit is brought upon this bond, the Surety will pay all court costs, expenses and reasonable attorney’s fee to the prevailing party to be fixed by the court.

This bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Section 3181 of the Civil Code, so as to give a right of action to them or to their assigns in any suit brought upon this bond.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contractor to the work or to the specifications.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20__.

Name of Surety

Contractor

By: _____

Title: _____

Mailing Address of Surety

and

By: _____

Telephone No. of Surety

Title: _____

By: _____
Attorney in Fact

NOTE: If Contractor is Partnership, all parties must execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in California.

NOTICE: The signature of the Surety on this bond must be acknowledged before a notary public, and this bond must be accompanied by evidence of the signatory's appointment as attorney in fact and authority to bind the Surety.

MANDATORY: The Surety shall be authorized and licensed by the California Insurance Commissioner as an "admitted surety insurer." (See Cal. Code Civ. Proc. § 995.311)

APPROVAL: Bonds must be approved by the City. In order to verify the status of the Surety as an admitted surety, the Surety shall provide the City with at least one of the following: (1) a print-out of information from the web-site of the Department of Insurance confirming the Surety is an admitted surety insurer and attaching it to the bond; or (2) a certificate from the Riverside County Clerk that the certificate of authority of the Surety has not been surrendered, revoked, cancelled, annulled or suspended and confirming that the Surety is an admitted surety and attaching the certificate to the bond. (See Cal. Code Civ. Proc. Code § 995.311).

PART IV. TECHNICAL SPECIFICATIONS

The Contractor shall be responsible to obtain referenced standard plans/drawings of various agencies from their respective office or web site.

References made in these Technical Specifications to the "Greenbook Specifications" refer to the "Greenbook" Standard Specifications for Public Works Construction, current edition, including supplements. Standard Specifications of the American Society for Testing and Materials shall be designated by ASTM and the appropriate number of the standard. Unless otherwise specified, wherever the words "Caltrans Specifications" are used in these Technical Specifications they shall mean the Standard Specifications of the State of California, Department of Transportation, current edition. Whenever the words "Caltrans Standards" are used they shall mean the Standard Plans of the State of California, Department of Transportation, 2010 edition. All work shall be performed in accordance with these Technical Specifications. Components of the work not addressed by these Technical Specifications shall be performed in accordance with the City of Wildomar Standard Construction Specifications

..In the event that discrepancies are encountered, the option that provides the method, item or material with the greatest strength or utility shall be chosen, as directed by the Engineer.

.In case of conflict between the drawings and the specifications, the drawings shall govern; in case of conflict between the referenced specifications and these specifications, the latter shall govern.

.

SPECIAL PROVISIONS

SECTION 4 - PROTECTION OF EXISTING UTILITIES

4.1 **General** - All existing underground utility lines, power poles and overhead wiring shall be protected in place at all times, except as noted otherwise on the plans. Any damage to utilities caused by the Contractor's operation shall be repaired or replaced at the Contractor's expense.

Prior to the commencement of any construction activities, the Contractor shall contact all utility companies and local municipalities servicing the project area to review as-built utility drawings and determine appropriate means of protecting utilities.

At the discretion of the CITY, the Contractor may be required to verify, by potholing, the location of potentially affected utilities.

Should any utility relocation result in delays to the Contractor's work schedule, the Contractor shall be entitled only to an equivalent extension of time for the completion of the contract, and shall not be entitled to damages due to downtime and idled equipment or additional payment over and above the agreed upon contract unit prices.

SECTION 5 - PROJECT SITE MAINTENANCE

Through all phases of construction, the Contractor shall comply with the provisions of Section 7-8 of the Greenbook Specifications. Before final acceptance of the work, the Contractor shall clean the work and the site of the work of all falsework, temporary structures, other construction materials and equipment, excess materials and rubbish, and shall leave the work and the site in a neat and presentable condition. Such final cleanup work shall be performed within the time specified for completion of all of the work.

SECTION 6 - SPECIAL REQUIREMENTS

The Contractor shall comply with the requirements of Board Order No. R9-2010-0016 (NPDES No. CAS0108766), NPDES Municipal Separate Storm Sewer System Permit (MS4s), hereafter referred to in this Section as the "Permit", issued by the California Regional Water Quality Control Board (CRWQCB) – San Diego Region. The Permit regulates both stormwater and non-stormwater discharges associated with Contractor's construction activities. The Contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Section 29 "Stormwater and Non-Stormwater Pollution Control" of the Detailed Specifications.

The Contractor's attention is directed to: 1) Section 29.2 of these Technical Specifications, "General Requirements" which allows the CITY to withhold progress payments if the Contractor fails to fully implement Section 29 "Stormwater and Non-Stormwater Pollution Control" or is deemed to be in non-compliance with the provisions of the Permit; 2) Section 29.3 "Permit Registration Documents (PRDs) Preparation and Approval" which requires that the PRDs be prepared and approved prior to the Pre-Construction meeting; and 3) Section 29.6 "SWPPP Implementation" which allows the

CITY to suspend construction operations if the Contractor fails to implement the approved SWPPP and any amendments thereto.

6.1 Sanitation - Sewage flows shall not be interrupted. Should the Contractor disrupt existing sewer facilities, sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. If pumping is required it shall be done at the expense of the Contractor. A backup pumping system with equal capacity shall be provided at all times. Sewage shall not be permitted to flow in trenches or be covered by backfill.

6.2 Confined Space Compliance - The Contractor shall comply with all Cal/OSHA safety regulations including regulations concerning confined space and for maintaining a safe working environment for Contractor , CITY , and District employees on the site. The Contractor shall develop and maintain a confined space procedure specific to this contract that complies with the requirements contained in California Code of Regulations, Title 8, Section 5158.

Within five (5) days after the award of the contract, the Contractor shall submit three (3) copies of the procedure to the CITY for review and approval. The Contractor shall allow five (5) working days for the CITY to review the procedure. If revisions are required as determined by the CITY, the Contractor shall revise and resubmit the procedure within three (3) working days of receipt of the CITY's comments and shall allow four (4) working days for the CITY to review the revisions. The Contractor must submit three (3) copies of the approved procedure to the CITY prior to the pre-construction meeting.

The procedure shall provide for recording of data to develop a history of acceptable atmosphere within the confined space. That history will include:

1. Calibration schedule of a direct reading confined space meter by trained personnel.
2. Daily monitoring and recording of the confined space atmosphere with a calibrated direct reading confined space meter.
3. Records of Items 1 and 2 shall be maintained onsite and copies given to the CITY.
4. The records shall indicate if readings are of natural or mechanically enhanced ventilation.

In addition, the procedure shall include daily tours of the job site with the CITY to ensure inlets to the confined space are free of obstruction or substances that might affect the atmosphere of the confined space.

The Contractor will be required to keep a direct reading confined space meter onsite for the duration of the contract. The meter shall be calibrated according to the schedule specified in the Contractor's confined space procedure and shall be made available for the CITY's use upon request.

6.3 Heavy Equipment Working Hours - Heavy construction equipment shall be allowed to work from 7:00 a.m. to 3:30 p.m. each normal working day, unless otherwise approved by the CITY.

6.4 Encroachment Permits –

City of Wildomar - The Contractor is required obtain an encroachment permit from the CITY for work within CITY right of way. The CITY will not require the Contractor to pay a fee for the encroachment permit. A copy of the encroachment permit shall be provided prior to commencement of work.

The Contractor shall note that if a road closure is necessary during the course of work, the Contractor shall obtain a separate road closure permit from the CITY. As a part of the road closure permit application, the Contractor must submit a letter of justification and traffic control plans prepared and signed by a registered Traffic Engineer or a registered Civil Engineer for the road closure(s).

6.5 Toxic Material Disposal - Toxic materials including oil, fuel oil, gasoline, coolant, fluid filters and other contaminants shall not be discharged within the project site. All such materials shall be transported offsite and disposed of at a County approved facility.

6.6 Survey Crew - The Contractor shall notify the CITY in writing at least 48 hours prior to new construction staking. The City will provide one set of line and grade stakes for each element of the project. Stakes that are disturbed, damaged or destroyed will be reset at the contractors expense.

Survey Crews will be available Monday through Thursday from 7:00 a.m. to 3:30 p.m., with a half-hour off for lunch. If the Contractor requires the Survey Crew to work beyond the specified time mentioned above, it shall be considered as overtime and shall be paid by the Contractor at 1.5 times the Survey Crew's hourly rates.

6.7 Survey Monuments - The Contractor shall salvage and give to the CITY all survey monuments and wells removed during construction. The CITY will reset monuments after construction.

6.8 Job Trailer Site -

The Contractor is not required to provide a site and install a trailer or office for CITY personnel.

6.9 Construction Tolerances – Variation in alignment, grade and dimensions of the structures and structural components from the established alignment, grade and dimensions shown on the drawings shall be within the tolerances specified in the following:

Departure from established alignment		2 inches on tangents 4 inches on curves
Departure from established profile grade	Access road side slopes in cut	Zero <u>above</u> and 3 inches <u>below</u> the specified grade

	Access roads in both cut and fill and access road side slopes in fill	Zero <u>below</u> and 3 inches <u>above</u> the specified grade
--	---	---

Regardless of the construction tolerances specified, the excavation and grading shall be performed so that the finished surfaces are in uniform planes with no abrupt breaks in the surface.

Gradual Variation tolerance shall be measured by placing a 10-foot straightedge anywhere on the finished concrete structure within 72 hours after concrete placement. The gap at any point between the straightedge and the concrete shall not exceed the specified amount.

Table B - Tolerances for Formed, Cast-in-Place Concrete Structures		
Departure from established alignment		1 inch on tangents 2 inches on curves
Departure from established profile grade		1 inch
Inside dimensions		0.005 times specified dimension
Variation from the plumb or the specified batter in the lines and surfaces of walls, piers and in arises	Exposed, in 10 feet Backfilled, in 10 feet	½ inch 1 inch
Variation in cross-sectional dimensions		Minus ¼ inch Plus ½ inch
Variation in surfaces (gradual)	Invert Soffits, Walls, Sideslope	¼ inch in 10 feet ½ inch in 10 feet
Variation in surfaces (abrupt)		¼ inch

Table C - Tolerances for Reinforcing Steel Placement		
Variance from indicated position	Spacing between adjacent bars and the distance between layers of bars	one bar diameter nor more than one inch
Concrete cover measured perpendicular to steel in the direction of tolerance		¼ inch

6.10 Surplus Excavated Material - Any stockpiling, grading or disposal of material outside of the project limits is not covered under the CITY's permits and is the sole responsibility of the Contractor. Regulatory permits that may be required include, but are not limited to, Federal Clean Water Act (Sections 401 and 404), California Fish and Game Code (Section 1602) and Federal/State Endangered Species Acts. All costs to obtain these Regulatory Permits shall be borne by the Contractor.

6.11 Sewer Line Inspection - Prior to the commencement of construction, the Contractor is required to video record all sewer mains (8" diameter and larger) within the project limits. Additionally, the Contractor shall video record the sewer mains after the backfilling of the storm drain has been completed. Copies of the videotapes shall be provided to the CITY. All costs

associated with this requirement shall be included in the contract price bid for Clearing and Miscellaneous Work. The Contractor is required to replace and/or repair at his own expense, any sewers damaged or misaligned as a result of his construction activities.

6.12 Pipe Order Notification - The Contractor shall submit to the City and the District the invoice from the pipe company stating, (1) pipe order date, (2) pipe quantity, and (3) estimated date of pipe delivery within five (5) calendar days of the award of the contract.

6.13 Project Signs - The Contractor shall be required to provide two new project signs. The Contractor shall install and maintain the project signs at locations specified by the CITY, with painting and lettering as shown in Appendix "B" of these Special Provisions. The signs shall be installed as directed by the CITY within five (5) days after CITY issuance of the Notice to Proceed. Upon completion of construction, the signs shall be removed.

6.14 Liability Insurance -. The CITY and Elsinore Valley Municipal Water District shall also be named as additional insureds with the liability insurance coverage required to be maintained by the Contractor.

6.15 1602 Permit Compliance -The contract item 1602 Permit Compliance covers all work necessary for complying with the requirements set forth in the 1602 Agreement issued to the CITY by the Department of Fish and Wildlife, State of California. The Contractor shall comply with the requirements set forth in this Agreement particularly, Condition Nos. _____.

This agreement is included as Appendix "H" of these Specifications.

6.16 404 Permit Compliance - [Note to Engineer - ERS to recommend whether to treat this as a bid item] The contract item 404 Permit Compliance covers all work necessary for complying with the requirements set forth in the Clean Water Act Section 404 Permit issued to the CITY by the Army Corps of Engineers. The Contractor shall comply with the requirements set forth in this Permit particularly, Condition Nos. _____.

This Permit is included as Appendix "I" of these specifications.

6.17 401 Certification Compliance - [Note to Engineer - ERS to recommend whether to treat this as a bid item] The contract item 401 Certification Compliance covers all work necessary for complying with the requirements set forth in the Clean Water Act Section 401 Water Quality Certification (WQC) issued to the CITY by the _____ Regional Water Quality Control Board, State of California. The Contractor shall comply with the requirements set forth in this WQC particularly, Condition Nos. _____.

6.18 Accidental Discovery - In the event that any human remains, hazardous materials, historical, archaeological, or paleontological resources are accidentally discovered within project limits, the Contractor shall immediately cease all construction or ground disturbance activity in the vicinity of find and notify the CITY. The CITY will provide the appropriate professional to assess the significance of the discovery and, if necessary, develop appropriate management and

treatment measures. **The Contractor shall not resume construction in the affected area without CITY's approval.**

Per State Health and Safety Code 7050.5, if human remains are encountered during construction, no further disturbance shall occur until the Riverside County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The Riverside County Coroner must be notified within 24 hours by the CITY. If the County Coroner determines that the remains are not historic, but prehistoric, the Native American Heritage Commission (NAHC) must be contacted by the CITY to determine the most likely descendent for this area. Once the most likely descendent is determined, treatment of the Native American human remains will proceed pursuant to Public Resources 5097.98. The NAHC may become involved with decisions concerning the disposition of the remains.

Should any of the above mentioned discoveries result in delays to the Contractor's work schedule, the Contractor shall be entitled only to an equivalent extension of time for the completion of the contract, and shall not be entitled to damages due to downtime and idle equipment or additional payments over and above the agreed upon contract prices.

6.19 Burrowing Owl Pre-Construction Survey - In compliance with CEQA and the MSHCP, the CITY must conduct a presence/absence survey for Burrowing Owl no more than 30 days prior to construction/disturbance. The Contractor shall not commence any work onsite, including equipment staging, clearing, grubbing, etc., until the CITY determines that Burrowing Owl is absent from the project site, or that an avoidance plan has been initiated should Burrowing Owl be detected onsite. If the Contractor does not commence construction within 30 days of said determination, the Contractor must notify the CITY that another pre-construction survey is needed.

6.20 Burrowing Owl Avoidance Measures - If any Burrowing Owl is found within the project site during the nesting season (February 1st through August 31st), the Contractor shall not conduct any construction activities within 250 feet of occupied burrows or nests. Any Burrowing Owl found within the project site that cannot be avoided will be relocated by the CITY during the non-nesting season (September 1st through January 31st).

Should Burrowing Owl result in delays to the Contractor's work schedule, the Contractor shall be entitled only to an equivalent extension of time for the completion of the contract, and shall not be entitled to damages due to downtime and idle equipment or additional payments over and above the agreed upon contract prices.

6.21 Nesting Bird Pre-Construction Survey - The removal of potential nesting vegetation shall be conducted outside of the nesting season to avoid impacts to active bird nests. The nesting season is defined as February 1st through September 15th. If vegetation must be removed during the nesting season, a nesting bird survey of potentially suitable nesting vegetation shall be conducted by the CITY prior to removal. Surveys will be conducted no more than three (3) days prior to scheduled removals. If active nests are identified, the CITY will establish a 150 to 500-foot buffer around the vegetation containing the active nest. The vegetation containing the active nest will not be removed, and no grading will occur within the established buffer, until it has been determined that the nest is no longer active (i.e., the juveniles are surviving independent

from the nest). If clearing is not conducted within three (3) days of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.

Should nesting birds result in delays to the Contractor's work schedule, the Contractor shall be entitled only to an equivalent extension of time for the completion of the contract, and shall not be entitled to damages due to downtime and idle equipment or additional payments over and above the agreed upon contract prices.

SECTION 7 - SOILS REPORT

A soils investigation report was prepared by Geocon West, Inc. dated September 4, 2014, The logs of the soil borings for this report are included In **APPENDIX E** for the convenience of the bidders. The soils report is on file with the CITY and is available for review upon request.

SECTION 8 - NOT USED

SECTION 9 - PAYMENT

The contract prices shall include full compensation for all costs incurred under these Special Provisions and Detailed Specifications.

DETAILED SPECIFICATIONS

SECTION 10 – MOBILIZATION / DEMOBILIZATION

10.1 Description - The contract item Mobilization shall consist of expenditures for all preparatory work and operations, including but not limited to, those costs necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings, construction yards and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site as well as the related demobilization costs anticipated at the completion of the project.

10.2 Payment - The percentage credited for Mobilization on each monthly progress payment shall be equal to the percentage of the amounts credited for work on all the other contract items for that monthly progress payment, up to a cumulative limit of eighty percent (80%) of the lump sum price bid for Mobilization. The remaining twenty percent (20%) of the lump sum price bid for Mobilization will be paid with the final payment.

Payment of the lump sum contract price for Mobilization shall constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to completion of this item of work.

The deletion of work or the addition of extra work as provided for herein shall not affect the price paid for Mobilization.

SECTION 11 - WATER CONTROL

11.1 Description - This section covers the contract item Water Control. Watersheds and/or urban runoff areas are tributary to the project site at various locations, but do not necessarily follow the alignment of the project under current conditions. Surface water in varying quantities can be expected at any time of the year, and substantial runoff can be expected during periods of rainfall. Groundwater was not indicated at the time of the soils investigation for this project. All bidders shall make their own determination regarding what the surface and/or groundwater conditions will be at the time of construction, and their impact on the bidder's operations and construction phasing.

11.2 Water Control - The contract item Water Control includes the control and/or diversion of surface runoff as well as groundwater within the work area as required to complete the work. All work shall be carried on in areas free of water. Care should be exercised so that runoff or diversion flows do not erode, undermine or otherwise damage either facilities which have been constructed or adjacent private properties. The responsibility for the protection of all existing and proposed improvements lies with the Contractor.

11.3 Measurement and Payment - The methods of controlling both surface and groundwater will be the responsibility of the Contractor. The contract lump sum price paid for Water Control shall include full compensation for all direct and indirect costs incurred under this section, and for doing all the work involved in controlling surface runoff and groundwater within the construction area, as specified in these Detailed Specifications, and as directed by the CITY.

Payment will be made on a basis of the percentage of the work completed on the entire project.

SECTION 12 - TRAFFIC CONTROL

12.1 Description - The contract item Traffic Control shall include the preparation of Traffic Control Plans, and all labor, flagmen, lights, barricades, signs, materials, temporary bridges and equipment necessary to implement vehicular and pedestrian traffic control through the duration of the project.

12.2 Notification of Agencies - The Contractor shall notify the following agencies a minimum of 48 hours in advance of start of any street work and inform them of the proposed construction schedule and provide any additional pertinent information they may request:

Riverside County Sheriff's Department	951-776-1099
City of Wildomar Public Works	951-677-7751
City of Wildomar Police Department	951-776-1099
Southern California Edison	800-655-4555
The Gas Company	800-427-2200
AT & T	800-222-0300
Verizon (GTE)	800-483-4000
Time Warner (Cable)	888-255-5789
Verizon (Cable)	951-672-4583
Lake Elsinore Unified School District	951-253-7000
United States Postal Service	951-678-9610
Elsinore Valley Municipal Water District	951-674-3146
Riverside Transit Agency	951-565-5000
Waste Management Waste Disposal Service	800-423-9986
CR&R Waste Disposal Service	800-755-8112
Digalert Underground Service Alert	800-227-2600
California 811 Underground Service Alert	811

The Contractor is not relieved of his responsibility of notifying the various departments and agencies mentioned above, even if their telephone numbers may have changed without notice.

The above agencies shall also be advised by the Contractor of any major change in the construction schedule that could restrict pedestrian or vehicular traffic.

12.3 Public Convenience and Access - The Contractor shall provide continuous access to all private property. Additional provisions shall be made as necessary to protect the public and accommodate traffic with a minimum of inconvenience.

The Refa Street and portion of Charles Street right-of-way shown on the plans are storm drain easements only and not public roadways. However, attention is directed to the properties

that take access off Refa Street as a private street. Access to those properties must be maintained at all times unless otherwise approved by the engineer.

Closures or partial closures of the traveled way implemented by the Contractor shall be related to actual work being performed at the time. Closures shall not be maintained if work is not being performed. If the existing closure is not essential to the type of work being performed at the time, the traveled way shall immediately be restored to a safe condition for public use.

The Contractor shall provide temporary bridge crossings for all driveway entrances to be closed to vehicular access for any period exceeding 4 hours.

Temporary bridges shall have a minimum width of 12 feet for residential driveways and 24 feet for business driveways, and shall be designed for an AASHTO H20 truck loading. Steel plates placed over the trench shall have a minimum thickness of 1.25" and the surface shall be roughened or coated to provide a non-skid surface. For spans greater than 4 feet, a structural design shall be prepared by a Registered Civil Engineer and submitted to the CITY for review and approval.

The Contractor shall notify each resident in writing 3 days in advance of excavating past the affected driveway entrance. Such notice shall contain the expected day and period of time (not to exceed 4 hours) that the driveway is to be out of service. A copy of each letter shall be submitted to the CITY.

12.4 Construction Signs and Traffic Control Plans - All construction signs, barricades, delineators, etc., shall conform with the U.S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), Part 6, latest edition", and the MUTCD California Supplement, Part 6 along with the Uniform Sign Chart as shown on the drawing.

12.5 Flaggers - All personnel utilized as flaggers must be trained in the proper fundamentals of flagging and signaling.

12.6 Striping and Pavement Marking – Temporary and permanent striping shall be performed by the Contractor at his expense as directed by the City of Wildomar. The Contractor shall restore the permanent striping immediately after resurfacing of the streets is completed. The Contractor shall notify the CITY at least 48 hours prior to restriping.

All temporary traffic striping and pavement markings shall conform to Section 84 of the Caltrans Specifications and shall be acceptable to the CITY.

All pavement markings such as arrows, "STOP", "ONLY", reflectors, etc., shall be replaced by the Contractor using thermoplastic. Thermoplastic crosswalk, traffic stripes and pavement markings shall conform to the provisions in Section 84-1, "General" and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings" of the Caltrans Specifications and these Detailed Specifications.

12.7 Payment - The contract prices paid for Traffic Control shall include full compensation for all material and labor costs incurred under this section. Contractor is advised that traffic plans as

shown on the drawings may be modified as field conditions require. No additional payment shall be made for modifications to the traffic plan.

This payment will be made on a basis of the percentage of work completed on the entire project.

SECTION 13 - CLEARING AND MISCELLANEOUS WORK

13.1 Description - This section covers the contract item Clearing and Miscellaneous Work as required for construction of the work. All objectionable materials shall be removed and disposed of outside of the limits of the construction easements and permanent rights of way.

13.2 Clearing and Miscellaneous Work - The contract item Clearing and Miscellaneous Work includes the removal and disposal of all vegetation, trees, roots, stumps, fences, pipes, all abandoned facilities, culverts, rocks, structures, concrete, asphalt and all items not specifically covered in Section 21 Miscellaneous excluding those items defined specifically as excavation in the appropriate section.

Included in this item are the following:

1. The Contractor shall leave all improved parkways undisturbed where possible. When this is impractical he shall return in kind, areas disturbed in the parkways including removing and replacing interfering portions of sprinkler systems. Sod shall be used to restore disturbed grass. All work is to be done to the satisfaction of the CITY.
2. The temporary relocation of signs and mailboxes, and their reinstallation. Work involving mailboxes shall be coordinated with the Postal Service.
3. The stenciling and signage on top of all catch basins and drop inlets. Stenciling and signage will be provided by the CITY
4. Removal and disposal of trees. Approximate number of trees is shown on the improvement plans. Contractor shall determine the actual number of trees that need to be removed to construct the project.
5. Protecting existing trees in place.
6. Protecting existing electrical service in place.
7. Protecting Existing Sewer in Place
8. Salvage Rip-Rap and Place Around Drop Inlet
9. Removal of Existing Wingwall at downstream end of Lateral C-1
10. Removal of interfering portions of 18" RCP (Lateral C-1.2A)

11. Remove and Replace 12" PVC Overside Drain and AC Berm

Finally, included in this item are those types of work as shown on the drawings not specified for pay under any other individual contract item.

13.3 Payment - The contract price paid for Clearing and Miscellaneous Work shall be full compensation for all costs incurred under this section.

This payment will be made on a basis of the percentage of work completed on the entire project.

SECTION 14 - EARTHWORK

14.1 Description - This section covers project excavation and backfill and the contract items; 1.5" Deep Cold Mill.

14.2 Excavation - Covers the removal of all material including asphalt, aggregate base, abandoned pipelines and concrete from within the excavation paylines as specified on the plans and in accordance with RCFC&WCD Standard Drawing M815, and as required for the construction and installation of the reinforced concrete box, junction structures, headwalls, manholes, transitions and pipe as shown on the standard drawings, and the disposal of all surplus material. All A.C. and P.C.C. shall be sawcut unless otherwise specified.

14.3 1.5" Deep Cold Mill - The contract item 1.5" Deep Cold Mill includes the complete milling, removal and disposal of existing asphalt concrete outside of the trench limits as shown on the plans and as directed by the CITY.

14.4 General Excavation Requirements - Pipe Excavation shall be in conformance with Section 306 of the Greenbook Specifications. Structure Excavation shall be in conformance with Section 300-3 of the Greenbook Specifications. Access to trenches shall be in conformance with Section 306-1.1.4 and the manner of bracing excavations shall be in conformance with Section 306-1.1.6 of the Greenbook Specifications.

Excavation shall be kept to the minimum widths required for efficient placing of the pipe or structure and the construction of the various other concrete structures. The maximum length of open trench shall be in conformance with Section 306-1.1.2 of the Greenbook Specifications.

In excavating for surfaces against which concrete is to be placed, care shall be exercised in removing the final lift. Upon completion of excavation for structures and pipe, surfaces against which concrete is to be placed shall be free of debris, mud or ponded water.

The foundation for all concrete structures will be inspected and tested after excavation. The subgrade shall be compacted to ninety percent (90%) relative compaction prior to the placement of concrete.

Material which will not provide a suitable foundation shall be removed and replaced with compacted select material as directed by the CITY.

Any overexcavation shall be filled with select material compacted to ninety percent (90%) relative compaction and meeting the material requirements for backfill.

The Contractor shall remove slides and materials eroding into the work, and the slopes and grades refinished to original grades as specified.

The Contractor shall dispose of all surplus excavated material outside of the limits of the construction easements and permanent rights of way.

The cost of removal and disposal (including trucking) of rock away from the jobsite will be paid for under the various items requiring the work and no additional compensation will be allowed.

Blasting, when necessary, as approved by the CITY shall be in accordance with Section 19-2.03E of the Caltrans Specifications.

14.5 General Backfill Requirements - Whenever fill is specified or required (except for pipe backfill) the work shall be performed as set forth in Sections 300-4.1 to 300-4.8 of the Greenbook Specifications. Backfill for pipe and box shall conform to Section 306-1.3 of the Greenbook Specifications, except jetting is not allowed.

No backfill materials shall be placed against the outside walls of cast-in-place concrete structures until the concrete has developed eighty percent (80%) of its design strength. No fill or traffic will be permitted on the top of any cast-in-place concrete structure until the concrete in the structure has attained its design strength. Compressive strength will be determined by test cylinders taken by the CITY.

Regardless of the method of densification, backfill material shall not be placed against any reinforced concrete structure until the structure has been inspected and approved for backfilling by the CITY.

Backfill will be accomplished by either mechanical methods or by placement of Controlled Low Strength Material (CLSM) as described in (1) and (2) below.

- (1) Mechanical Compaction - Backfill shall be mechanically compacted by means of tamping rollers or other mechanical tampers. Impact-type pavement breakers (stompers) will not be permitted unless otherwise approved by the CITY.

All backfill material for structures shall be placed in uniform layers and shall be brought up uniformly on each side of the structure. The thickness of each layer of backfill shall not exceed 8 inches before compaction unless otherwise approved by the CITY. For hand directed mechanical compactors, the thickness of each layer shall not exceed 4 inches before compaction.

All relative compaction tests will be made by the CITY in conformance with California Test 216. Whenever relative compaction is specified to be determined by California Test 216, the in-place density may be determined by

California Test 231. The wet weight or dry weight basis and English units of measurement may be used at the option of the CITY.

- (2) Controlled Low Strength Material (CLSM) – Controlled Low Strength Material (CLSM) placement for backfill shall be used when specified or approved by the CITY. CLSM backfill shall conform to Section 201-6 of the Greenbook Specifications and as specified in Section 16.

Approval to use specific methods and compaction equipment shall not be construed as guaranteeing or implying that the use of such methods and equipment will not result in damage to adjacent ground, existing improvements or improvements installed under the contract, nor shall it be construed as guaranteeing proper compaction. The Contractor shall make his own determination in this regard.

All backfill around structures and pipe shall be compacted to not less than ninety percent (90%) relative compaction. Where such material is placed under existing or proposed paved roadways, the top 3 feet, measured from the subgrade plane, shall be compacted to ninety-five percent (95%) and shall be compacted by Method (1).

Trench bottoms for structures and pipe shall be graded to provide firm and uniform bearing throughout the entire length of the structures and pipe.

14.6 Testing – CITY personnel shall perform compaction tests as described below. These tests represent the minimum required. Additional tests may be taken at the CITY's discretion.

1. Mainline Trenches – A complete series of compaction tests will be taken for each 4-foot thickness of backfill placed. Each series will consist of tests taken at approximate maximum intervals of 300 feet. Each series will begin above the structure.
2. Connector Pipe Trenches – Compaction tests will be taken on 50% of the laterals, one test for each 4-foot of depth.
3. Any failed test will result in a retest. Retest costs will be the responsibility of the contractor.

14.7 Backfill - Backfill includes all mechanical backfill material compacted as specified around the various concrete structures and pipe within the paylines as shown on the standard drawings.

14.8 Measurement – No measurement will be allowed for the items Excavation and Backfill. Payment for these items shall be included as part of the various contract bid items that require Excavation and Backfill.

Measurement for payment for the contract item 1.5” Deep Coldmill will be the number of square feet of milled street surface outside of the trench limits.

14.9 Payment - The contract prices paid for 1.5" Deep Cold Mill shall include full compensation for all costs incurred under this section.

SECTION 15 - TRENCH SAFETY SYSTEM

15.1 Description - This section covers the item Trench Safety System. This item is defined as a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Trench safety systems include support systems, sloping and benching systems, shield systems and other systems that will provide necessary protection. The item includes the furnishing and implementation of the safety system as required by Section 306-1.1.6 of the Greenbook Specifications or as directed by the CITY.

15.2 Trench Safety System - Excavation for any trench five (5) feet or more in depth shall not begin until the Contractor has provided to the CITY, a detailed plan for worker protection from the hazards of caving ground during the excavation of the trench. The plan shall show the details of the design of shoring, bracing, sloping or other provisions to be made for worker protection including any design calculations done in the preparation of the plan. No such plan shall allow the use of shoring, sloping or a protective system less effective than that required by the Construction Safety Orders of the California Department of Industrial Relations, Division of Occupational Safety and Health Administration (Cal-OSHA). The plan shall be prepared and signed by an engineer who is registered as a civil engineer in the State of California, and the plan and design calculations shall be submitted for review at least two (2) weeks before the Contractor intends to begin trenching operations.

All safety plans shall reflect surcharge loadings imparted to the side of the trench by equipment and stored materials. Surcharge loads shall be monitored to verify that such loads do not exceed the design assumptions for the system.

The Contractor should not assume that only one type of trench safety system such as a shield or "trench box" will be adequate for all trenching situations encountered on a given project. The Contractor should be prepared with alternative safety system designs (such as solid sheeting) should construction circumstances dictate the use of such.

Trench safety system designs for support systems, shield systems or other protective systems whether drawn from manufacturers' data, other tabulated data or designed for this particular project must be signed by a civil engineer registered in the State of California prior to submittal to the CITY for review. A shoring plan for the specific use of a shield shall be prepared. Catalogs or engineering data for a product should be identified in the plan as supporting data. All specific items or applicable conditions must be outlined on the submittal.

The State of California Department of Transportation "Trenching and Shoring Manual" will be used as a guide for plan review and approval.

Also included in this item is the fencing and barricading of the open trench as required for the safety of pedestrians and vehicular traffic as directed by the CITY.

15.3 Measurement and Payment – No measurement shall be allowed for the item Trench Safety System. Payment for this item shall be included as part of the various contract bid items that require the Trench Safety System.

SECTION 16 - CONCRETE CONSTRUCTION

16.1 Description - This section includes the contract items related to the various classes of Concrete.

16.2 General Requirements - Concrete for all purposes shall be composed of Portland Cement, aggregates and water of the quantities and qualities herein specified, and in the required proportions. The ingredients are to be well mixed and brought to the proper consistency and to have a compressive strength at the age of 28 days of not less than the amount shown in the following tabulation for each type of work listed:

<u>CONCRETE CLASS</u>	<u>MINIMUM SACKS CEMENT/C.Y.</u>	<u>TYPE OF WORK</u>	<u>POUNDS PER SQUARE INCH</u>
A	6	Walls, Boxes, Transition Structures Concrete Bulkhead	4000*
A	6	Catch Basins, Drop Inlets, Junction Structures, Manholes, Concrete Collars and Headwalls	3250*
B	5	Local Depressions, Cutoff Walls, Curb and Gutter, Cross Gutters, Driveways, Sidewalk and Miscellaneous Concrete not otherwise specified	3000*
E	1/2	Controlled Low Strength Material (CLSM) Backfill	50-100 (hand excavatable)

*Note: Concrete for use in structures constructed from State of California, Department of Transportation Standard Plans shall have compressive strengths as called for on those plans.

16.3 Material and Methods - All concrete materials, methods, forms and proportioning shall conform to Sections 51 and 90, and additionally, curb construction shall conform to Section 73 of the Caltrans Specifications. Concrete test specimens will be made in accordance with ASTM Designation C-31 and C172. Test for concrete compressive strengths will be performed in accordance with ASTM Designation C-39. Combined aggregate grading for all concrete shall be in conformance with Section 90-1.02C(4)(d) of the Caltrans Specifications and the following tabulation for each type of work listed:

TYPE OF WORK

COMBINED AGGREGATE
GRADING

The inverts of: Reinforced Concrete Box
Junction Structures, Transition
Structures and Manholes.

1-1/2" Maximum

Retaining Walls, Slope Paving,
Box Deck and Walls, Headwalls
Catch Basins, Drop Inlets, Local Depressions,
Curb and Gutter, Driveways,
Sidewalk, Cutoff Walls, Bulkheads, Collars,
and other Miscellaneous Concrete not otherwise
specified. All other concrete structures

1" Maximum

Controlled Low Strength Material (CLSM) Backfill

*See below

*Note: Controlled Low Strength Material (CLSM) gradation shall conform to Section 201-6.2.2 of the Greenbook Specifications except that the Contractor has the option to use reclaimed concrete material for the CLSM. The reclaimed material shall meet the same grading requirements as non-reclaimed material set forth in Greenbook Specifications Section 201-6.2.2.

The Contractor may also elect to use an air entrained agent or an accelerant (2% PolarSet or equivalent) to speed up the set time of the CLSM. The Contractor shall submit mix designs for review and approval.

Fly Ash, Class F may be substituted for cement, up to a maximum of 15 percent by weight for all concrete. Fly Ash shall meet the standards of ASTM Designation: C-618. Water reducing agents meeting ASTM Designation: C-494 will be permitted in amounts recommended by the supplier and approved by the CITY in writing.

No other admixture shall be used in any class of concrete without written permission from the CITY.

Supplementing Section 90-1.01 of the Caltrans Specifications, prior to placement of any concrete the Contractor shall submit mix designs, for all types of concrete to be placed, to the CITY for approval. Supplementing Section 90-1.02G(3) of the Caltrans Specifications, concrete delivered to the job site shall be accompanied by a ticket containing the weight of each of the individual ingredients in the mix.

16.4 General Reinforcing Steel Requirements - Reinforcing steel for all reinforced concrete structures shall be Grade 60 Low-Alloy or Grade 60 Billet-Steel. The reinforcing steel for use in structures constructed from State of California, Department of Transportation Standard Plans shall be of Grade 60 or as called for on those plans. Cleaning, bending, placing and spacing of reinforcement shall conform to the applicable provisions of Section 52 of the Caltrans Specifications and to the drawings. The Contractor shall furnish a "Certificate of Compliance" with the specification of ASTM Designation: A-706/A or A-615/A. All splices shall conform to

the requirements of A.C.I. Manual, Standard 318, latest edition. Splices requested by the Contractor for his convenience shall be subject to approval by the CITY. Longitudinal lap shall be 16 inches minimum for #4 bars and 19 inches minimum for #5 bars.

16.5 Consistency - The consistency of the concrete shall be such as to allow it to be worked into place without segregation. Unless otherwise specified, the slump shall be 3 inches plus or minus 1 inch for all concrete.

Controlled Low Strength Material (CLSM) Backfill flow characteristics shall be determined by the producer to meet job site conditions and shall be approved by the CITY.

The slump test shall be performed in accordance with the requirements of ASTM Designation: C-143. Slumps greater than those specified may be cause for rejection of the concrete by the CITY.

16.6 Placing - Supplementing Section 51-1.03D(1) of the Caltrans Specifications, concrete shall not be placed except in the presence of the CITY. The Contractor shall give reasonable notice to the CITY each time he intends to place concrete. Such notice shall be far enough in advance to give the CITY adequate time to inspect the subgrade, forms, steel reinforcement and other preparations for compliance with the specifications before concrete is delivered for placing.

Formed concrete shall be placed in horizontal layers in lifts of not more than 20 inches. Hoppers and chutes, pipes and "elephant trunks" shall be used as necessary to prevent segregation of the concrete.

16.7 Form Removal and Finish - Forms shall be removed only when the CITY has given approval. Forms shall be removed in such a way as to prevent damage to the concrete. Supports shall be removed in a manner that will permit the concrete to take stresses due to its own weight uniformly.

Forms shall not be removed sooner than the following minimum time or strength after the concrete is placed. These times represent cumulative number of days and fractions of days, not necessarily consecutive, during which the temperature of the air adjacent to the concrete is above 50 degrees Fahrenheit. If the temperature falls below 50 degrees Fahrenheit at any time after the concrete is placed in the forms, the CITY will advise the Contractor of additional time required before forms can be removed.

<u>Element</u>	<u>Strength or Time</u>
Bridge deck slabs, loaded bridge abutments or retaining walls - supporting forms and shoring, and reinforced concrete boxes with spans equal to or greater than 14 feet	3000 psi or 7 days
Reinforced Concrete Boxes at pavement grade.	3000 psi or 7 days

Reinforced Concrete Boxes with spans less than 14 feet, 1600 psi
and not at pavement grade, Transition Structure Nos. 1, 2 & 4

All other structures 16 hours

The finish on all exposed formed surfaces shall conform to Section 51-1.03F(3) Class 1 Surface Finish of the Caltrans Specifications. A tight wood float finish will be required on the surface of trapezoidal channels and bridge decks and excessive surface working will not be permitted. The exposed concrete surfaces shall be broomed in a transverse direction with a fine textured hair push broom to produce a uniform surface and eliminate float marks. Brooming shall be done when the surface is sufficiently set to prevent deep scarring. If directed by the CITY, a fine spray of water shall be applied to the surface immediately in advance of brooming.

Exposed corners of all concrete structures shall be finished with a 3/4" chamfer.

Concrete flatwork shall match adjacent surfaces. The concrete shall be struck off and tamped or vibrated until a layer of mortar has been brought to the surface. The top surface and face of curbs, gutters, catch basins and sidewalks shall be finished to match adjacent surfaces.

16.8 Curing - All concrete shall be prevented from drying for a curing period of at least seven (7) days after it is placed. Surfaces exposed to air during the curing process shall be kept continuously moist for the entire period or until curing compound is applied.

Formed surfaces shall be thoroughly wetted immediately after forms are removed and shall be kept wet until patching and repairs are completed. Water or covering shall be applied in such a way that the concrete surface is not eroded or otherwise damaged. Water for curing shall be clean and free from any substances that will cause discoloration of the concrete.

Concrete may be coated with curing compound in lieu of the continued application of moisture. The curing compound shall comply with the requirements of Section 90-1.03B(3) of the Caltrans Specifications and ASTM Designation C-309. The curing compound shall be No. 2 White Pigmented Curing Compound, Type 2, Class B for all concrete surfaces other than for flatwork which shall be coated with No. 6 Nonpigmented Curing Compound, Type 1-D, Class A containing a red fugitive dye.

The curing compound shall be sprayed on the moist concrete surfaces as soon as free water has disappeared, but shall not be applied to any surface until patching, repairs and finishing of that surface are completed. The curing compound shall be thoroughly mixed immediately before applying, and shall be applied at a uniform rate of not less than one gallon per 150 square feet of surface. No separate payment will be made for the curing compound or its application.

16.9 Controlled Low Strength Material (CLSM) Backfill Curing - Controlled Low Strength Material (CLSM) Backfill must achieve a maximum indentation diameter of three (3) inches as determined under ASTM D, 6024 before covering.

16.10 Joints - Joints shall be made at the locations shown on the drawings, or as approved by the CITY.

The Contractor shall construct, in one continuous concrete placing operation, all work comprised between such joints. Joints shall be kept moist until adjacent concrete is placed.

All construction joints having a keyed, stepped, or roughened surface shall be cleaned by sandblasting prior to placement of the adjacent concrete, unless otherwise directed by the CITY.

The sandblasting operations shall be continued until all unsatisfactory concrete, laitance, coatings, stains, debris, and other foreign materials are removed. The surface of the concrete shall be washed thoroughly to remove all loose material.

Construction joints, when required, shall be located between the transverse joints and, unless otherwise specified on the plans, shall utilize 1/2 inch diameter deformed bars 30 inches long, spaced at 18-inch centers as tie bars. The construction joints shall be straight and finished in a workmanlike manner.

Surfaces of construction joints shall be cleaned as set forth in Section 51-1.03D(4) of the Caltrans Specifications.

For reinforced concrete boxes, keyed transverse construction joints shall be placed not more than 50 feet or be less than 10 feet. Transverse joints in the invert, walls and deck shall be in the same plane. Transverse construction joints shall be constructed per details on the Standard Drawings.

16.11 Class "A" Concrete, Minor Structures - The various contract items that include Class "A" Concrete, including, but not limited to catch basins, collars, concrete bulkhead, and drop inlets includes the complete construction of the said structures. Included in the pay item is all earthwork and reinforcing steel, and miscellaneous iron and steel required for the complete construction of these structures.

16.12 Class "B" Concrete, Miscellaneous - The contracts items that include Class "B" Concrete, including curb and gutters, cross gutters, sidewalks, driveways, local depressions, pipe plugs, sewer encasements, and any other concrete not specified, includes the complete construction of the said structures. Included in the pay item is all earthwork and reinforcing steel required. The subgrade for cross gutters and driveways shall be recompact to ninety-five percent (95%) relative compaction prior to the placement of concrete.

16.13 Transition Structures - The contract item Transition Structure No. 1 and Modified Transition Structure No. 1 covers the complete construction of these various structures, including earthwork and reinforcing steel.

16.14 Junction Structure No. 1 - The contract item Junction Structure No. 1 covers the complete construction of these structures, including reinforcing steel, and earthwork.

No separate payment will be made for Junction Structure No. 3 or Junction Structure No. 4.

16.15 Manholes - The contract items Manhole Nos. 1, 2, and 3 cover the complete construction of these various structures, including reinforcing steel, earthwork and the miscellaneous iron and steel.

The manhole rings are required and shall conform to ASTM Designation: C-478, and the drawings. The rings shall be laid up, using Type II modified cement with a 1:2 mix mortar and with 1/2-inch minimum thickness pointed joints. On completion, vertical wall section shall not be out of plumb by more than 1/2-inch in 10 feet of vertical height. The manhole rings shall also be accurately aligned. The cast iron manhole frame and cover shall be installed, with frame accurately set to finished grade of pavement, in mortar well tamped around the perimeter of frame to ensure full bearing.

16.16 Measurement - Measurement for payment for Class "A" Concrete, Minor Structures; and Class "B" Concrete, Miscellaneous will be the number of each minor structure type constructed as specified.

Measurement for payment for the contract items Manhole No. 1, Manhole No. 2, Manhole No. 3 Transition Structure No. 1, and Modified Transition Structure No. 1, and Junction Structure No. 1 will be the number of each type constructed as specified.

No measurement or payment will be made for Junction Structure Nos. 3, 4 and 7.

No Measurement for payment for the contract item Reinforcing Steel will be allowed.

No measurement or payment will be made for dowels, tie bars, tie wires, blocks, chairs and other accessories.

16.17 Payment - The contract prices paid for the various Concrete items and reinforcing steel items shall include full compensation for all costs incurred under this section.

SECTION 17 - CONCRETE AND HDPE PIPE

17.1 Description - This section covers the contract items Reinforced Concrete Pipe and HDPE Pipe of the various sizes as required for the work.

17.2 General Pipe Requirement - Pipe materials, manufacture and quality, shall conform to ASTM Designation: C-76 or C-655. The CITY shall be furnished a "Certificate of Compliance" signed by the manufacturer of the pipe certifying that the pipe conforms to the ASTM requirements. All pipe and pipe material supplied by the Contractor shall be new.

The CITY will also require the D-load bearing strength test conforming to ASTM C497 for new pipe 48" or greater, in conformance with Sections 207-2.9.1(1) and 207-2.9.2 of the Greenbook Specifications as a basis for acceptance of the pipe. The test shall be performed in the presence of the CITY Representative.

HDPE pipe shall be in conformance with Section 207-18 of the Greenbook Specifications.

17.3 Pipe Installation - Pipe shall be laid in a trench free of ponded water in conformance with Section 306-1.2.2, with joints in conformance with Section 306-1.2.4 of the Greenbook Specifications.

Pipe ends shall be cleaned and moistened prior to making up joint.

17.4 Reinforced Concrete Pipe - The contract items for the various Reinforced Concrete Pipe include the furnishing and complete installation of the various pipe as specified, including all earthwork.

17.5 HDPE Pipe - The contract items for the various HDPE Pipe include the furnishing and complete installation of the various pipe as specified, including all earthwork

17.6 Pipe on Curves - Unsymmetrical closure of pipe joints shall not exceed 1 inch pull on the outside of the curve when pull is measured at the springline on the inside of the pipe. Mortar joints on curves shall conform in strength, texture of mortar finish and tightness to the joints for straight ended pipe.

When beveled pipe is used the maximum deflection angle shall not exceed 6 degrees unless shown on the plans or approved by the CITY.

17.7 Measurement - Measurement for payment of the contract items Reinforced Concrete Pipe and HDPE Pipe of the various sizes and classes will be the number of lineal feet of each class installed as specified measured along the centerline of the pipe in place including curves.

17.8 Payment - The contract prices paid for the Reinforced Concrete Pipe and HDPE Pipe shall include full compensation for all costs incurred under this section.

SECTION 18 – NOT USED

SECTION 19 - FLEXIBLE PAVEMENT CONSTRUCTION

19.1 Description - This section covers the contract items Aggregate Base, Class 2 and Hot Mix Asphalt (HMA).

19.2 Aggregate Base, Class 2 - The contract item Aggregate Base, Class 2 includes furnishing and placing such material as indicated on the drawings. Aggregate Base, Class 2 shall be clean and free from roots, organic material and other deleterious substances, and be of such character that when wet it will compact to form a firm stable base. Material and placing shall be in accordance with Section 26 of the Caltrans Specifications using ¾-inch maximum size.

The aggregate base shall also have a sand equivalent value of not less than 35 when tested in conformance with California Test Method 217.

The aggregate base material shall be spread as specified in Sections 26-1.03A and 26-1.03C of the Caltrans Specifications. The aggregate base material shall be compacted as specified in Section 26-1.03D of the Caltrans Specifications.

19.3 General Hot Mix Asphalt (HMA) Requirements - The Contractor shall not start paving Hot Mix Asphalt (HMA) until all compaction on the aggregate base is tested and approved by the CITY.

The HMA shall be proportioned, mixed, spread and compacted in accordance with the applicable provisions in Section 39 of the Caltrans Specifications and these Detailed Specifications.

The Contractor shall ensure the safe transportation, storage, use and disposal of HMA.

The Contractor shall prevent the formation of carbonized particles caused by overheating HMA during manufacturing or construction.

19.4 Hot Mix Asphalt (HMA) Aggregate - Aggregates shall be clean and free from decomposed materials, organic material, and other deleterious substances. Coarse aggregate is material retained on the No. 4 sieve and fine aggregate is material passing the No. 4 sieve. Supplemental fine aggregate is added fine material passing the No. 30 sieve including, but not limited to, cement and stored fines from dust collectors.

The aggregate grading of the different types of Hot Mix Asphalt (HMA) shall conform to the following, unless otherwise specified on the plans:

HMA Type	Grading
A	¾-inch and/or ½-inch
C	1-inch

The base course of the HMA shall consist of ¾-inch aggregate for Type A and 1-inch aggregate for Type C, and the final course for Type A shall consist of ½-inch aggregate.

The combined aggregate gradation and quality characteristics for HMA Type A and Type C aggregate(s), prior to addition of asphalt binder, shall conform to the requirements found in the following tables:

**Aggregate Gradation HMA Type A
(Percentage Passing)**

¾-inch HMA Type A

Sieve Sizes	Target Value Limits	Allowable Tolerance
1-inch	100	-
¾-inch	90-100	TV ±5
½-inch	70-90	TV ±6
No. 4	45-55	TV ±7
No. 8	32-40	TV ±5
No. 30	12-21	TV ±4
No. 200	2-7	TV ±2

**Aggregate Gradation HMA Type A
(Percentage Passing)**

1/2-inch HMA Type A

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4-inch	100	-
1/2-inch	95-99	TV ±6
3/8-inch	75-95	TV ±6
No. 4	55-66	TV ±7
No. 8	38-49	TV ±5
No. 30	15-27	TV ±4
No. 200	2-8	TV ±2

HMA Type A Aggregate Quality

Quality Characteristic	Test Method	Requirement
Percent of crushed particles ¹ Coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (Passing No. 4 Sieve and retained on No. 8 Sieve) (% min.) One fractured face	CT 205	90 75 70
Los Angeles Rattler (% max.) ¹ Loss at 100 rev. Loss at 500 rev.	CT 211	12 45
Sand equivalent ^{1,2} (min.)	CT 217	47
Fine aggregate angularity (% min.) ¹	AASHTO T 304 Method A	45
Flat and elongated particles (% max. by weight at 5:1) ¹	ASTM D 4791	10

Note: ¹Combine aggregate in the job mix formula proportions.

²Reported value must be the average of three (3) tests from a single sample.

**Aggregate Gradation HMA Type C
(Percentage Passing)**

1-inch HMA Type C

Sieve Sizes	Target Value Limits	Allowable Tolerance
1-inch	100	-
3/4-inch	88-93	TV ±5
1/2-inch	72-85	TV ±6
3/8-inch	55-70	TV ±6
No. 4	35-52	TV ±7
No. 8	22-40	TV ±5

No. 30	8-24	TV ±4
No. 50	5-18	TV ±4
No. 200	3-7	TV ±2

HMA Type C Aggregate Quality

Quality Characteristic	Test Method	Requirement
Percent of crushed particles ¹ Coarse aggregate (% min.) Two fractured faces	CT 205	95
Fine aggregate (Passing No. 4 Sieve and retained on No. 8 Sieve) (% min.) One fractured face		90
Los Angeles Rattler (% max.) ¹ Loss at 100 rev.	CT 211	12
Loss at 500 rev.		40
Sand equivalent ^{1,2} (min.)	CT 217	47
Fine aggregate angularity (% min.) ¹	AASHTO T 304 Method A	45
Flat and elongated particles (% max. by weight at 5:1) ¹	ASTM D 4791	10

Note: ¹Combine aggregate in the job mix formula proportions.

²Reported value must be the average of three (3) tests from a single sample.

19.5 Asphalt Binder - The asphalt binder to be mixed with aggregate shall conform to these Detailed Specifications and shall be as designated below or as determined by the CITY:

- Grade PG 64-10 (Inland Valleys)

The Contractor shall furnish and place the HMA with all asphaltic emulsions required.

Asphalt binder shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt binder shall be:

- Free from residues caused by the artificial distillation of coal, coal tar or paraffin
- Free from water
- Homogeneous

The Contractor shall furnish asphalt binder from a supplier that conforms to the State of California Department of Transportation's "Certification Program for Suppliers of Asphalt". The Department maintains the program requirements, procedures, and a list of approved suppliers at <http://www.dot.ca.gov/hq/esc/Translab/ofpm/fpmcoc.htm>.

The amount of asphalt binder to be mixed with the mineral aggregate shall be between three percent (3%) and seven percent (7%) by weight, of the dry mineral aggregate. The exact amount of asphalt binder to be mixed with the mineral aggregate shall be determined by a special mix design.

Performance grade paving asphalt shall conform to the testing requirements in the table below:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification Grade			
		PG 64-10	PG 64-16	PG 70-10	PG 64-28PM ⁱ
Original Binder					
Flash Point, Minimum °C	T48	230	230	230	230
Solubility, Minimum % ^b	T44	99	99	99	98.5
Viscosity ^c at 135 °C, Maximum, Pa·s	T316	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G [*] /sin(delta), kPa	T315	64 1.00	64 1.00	70 1.00	64 1.00
RTFO Test ^e , Mass Loss, Maximum, %	T240	1.00	1.00	1.00	1.00
RTFO Test Aged Binder					
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G [*] /sin(delta), kPa	T315	64 2.20	64 2.20	70 2.20	64 2.20
Ductility at 25 °C Minimum, cm	T51	75	75	75	-
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum (delta), %	T315	-	-	-	Note g 80
PAV ^f Aging, Test Temperature, °C	R28	100	100	110	100
Elastic Recovery ^h , Test Temp., °C Minimum recovery, %	T 301	-	-	-	25 75
RTFO Test and PAV Aged Binder					
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G [*] /sin(delta), kPa	T315	31 ^d 5000	28 ^d 5000	34 ^d 5000	31 5000

Creep Stiffness, Test Temperature, °C		0	-6	0	-12
Maximum S-value, Mpa	T313	300	300	300	300
Minimum M-value		0.300	0.300	0.300	0.300

Notes:

- a. Not used.
- b. The CITY will waive this specification if the supplier is a Quality Supplier as defined by Department's "Certification Program for Suppliers of Asphalt".
- c. The CITY will waive this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
- d. Test the sample at 3 °C higher if it fails at the specified test temperature. $G^*/\sin(\delta)$ shall remain 5000 kPa maximum.
- e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D2827.
- f. "PAV" means Pressurized Aging Vessel.
- g. Test temperature is the temperature at which $G^*/\sin(\delta)$ is 2.2 kPa. A graph of $\log G^*/\sin(\delta)$ plotted against temperature may be used to determine the test temperature when $G^*/\sin(\delta)$ is 2.2 Kpa. A graph of (δ) versus temperature may be used to determine δ at the temperature when $G^*/\sin(\delta)$ is 2.2 kPa. The CITY also accepts direct measurement of (δ) at the temperature when $G^*/\sin(\delta)$ is 2.2 kPa.
- h. Test without a force ductility clamp may be performed.
- i. Do not modify PG Polymer Modifier using acid modification.

Certificates of compliance shall be furnished to the CITY certifying that the asphaltic emulsions and paving asphalts conform to the referenced Greenbook Specifications.

19.6 Hot Mix Asphalt (HMA) Prime Coat - Prime coat shall consist of refined petroleum and shall conform to the provisions in Section 93 "Liquid Asphalts" of the Caltrans Specifications. Prime coat shall be applied only to those areas designated by the CITY. The application rate shall be 0.25 gallon per square yard of surface covered. The exact rate and number of applications will be determined by the CITY.

19.7 Hot Mix Asphalt (HMA) Paint Binder/Tack Coat - Asphaltic emulsion for paint binder (tack coat) shall conform to the provisions in Section 94 "Asphaltic Emulsion" of the Caltrans Specifications for the rapid-setting or slow-setting type and grade approved by the CITY. Grade CQS1 shall be used if not otherwise specified by the CITY. Tack coat shall be applied to all vertical surfaces of existing pavement, curbs, gutters, and construction joints in the surfacing against which additional material is to be placed, to a pavement to be surfaced, and to other surfaces designated in the Special Provisions. The application rate shall be from 0.02 to 0.10 gallon per square yard of surface covered. The exact rate and number of applications will be determined by the CITY.

19.8 Hot Mix Asphalt (HMA) Placement - Hot Mix Asphalt (HMA) shall be spread and compacted in the number of layers of the thicknesses indicated in the following table:

Total Thickness Shown on Plans ¹	Minimum No. of Layers	Top Layer Thickness (ft.)		Next Lower Layer Thickness (ft.)		All Other Lower Layer Thickness (ft.)	
		Min.	Max.	Min.	Max.	Min.	Max.

0.24-foot or less	1	-	-	-	-	-	-
0.25-foot	2	0.12	0.13	0.12	0.13	-	-
0.26 - 0.46-foot	2	0.12	0.21	0.14	0.25	-	-
0.47-foot or more	3 or more	0.15	0.21	0.15	0.25	0.17	0.25

¹When pavement reinforcing mat is shown to be placed between layers of HMA, the thickness of HMA above the pavement reinforcing mat shall be considered to be the "total thickness shown on plans".

The straightedge for smoothness determination on the top layer of HMA pavement shall conform to the tolerance specified in Section 39-1.12B, "Straightedge" of the Caltrans Specifications.

Areas of the top surface of the uppermost layer of HMA pavement that do not meet the specified surface tolerances shall be brought within tolerance by abrasive grinding. Areas which have been subjected to abrasive grinding shall receive a seal coat. The corrective method for each area shall be selected by the Contractor and shall be approved by the CITY prior to beginning the corrective work.

When abrasive grinding is used to bring the top surface of the uppermost layer of HMA surfacing within the specified surface tolerances, additional abrasive grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel with, the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within a ground area. Ground areas shall be neat rectangular areas of uniform surface appearance.

19.9 Hot Mix Asphalt (HMA) - The contract item Hot Mix Asphalt (HMA) covers the furnishing and installation of HMA necessary for the repair and resurfacing of streets damaged or removed due to construction operations, or as otherwise specified on the plans, including all aggregate, asphalt binder, prime coat, and tack coat/paint binder as specified herein, exclusive of any excavation or pavement grinding.

19.10 Measurement - Measurement for payment of the contract item Aggregate Base, Class 2 will be the number of cubic yards placed to the lines, grades and dimensions shown on the drawings. **No allowance will be made for aggregate base placed outside said dimensions unless otherwise ordered by the CITY.**

Measurement for payment of the contract item Hot Mix Asphalt (HMA) will be the number of tons placed to the lines, grades and dimensions shown on the drawings. The HMA pay quantity shall be determined by using a conversion factor of 144 pounds per cubic foot for all HMA placed within standard paylines. No measurement for payment will be made for asphalt emulsions, including asphalt binder, HMA prime coat, HMA tack coat/paint binder required for this portion of the work, all costs for these items shall be included in the price paid for HMA. **No allowance will be made for HMA placed outside said dimensions unless otherwise ordered by the CITY.**

19.12 Payment - The contract prices paid for Aggregate Base, Class 2 and Hot Mix Asphalt (HMA); shall include full compensation for all costs incurred under this section.

SECTION 20 - FENCES AND GATES

20.1 Description - This section covers the contract items Remove, Salvage and Replace Existing Fence; and Temporary Fencing.

20.2 Remove, Salvage, and Replace Existing Fence - The contract item Remove, Salvage, and Replace Existing Fence includes the removal, storage and reinstallation of the existing chain link and three strand barbed wire security fence as shown on the plan and as directed by the engineer. The contractor shall photograph the fence, including footings, prior to removal to document the condition of the fence. Should the fence be damaged during the removal, storage or reinstallation, the contractor shall replace the damaged portions of the fencing with new fencing as directed by the CITY. No additional compensation shall be allowed for the replacement of damaged fencing. Included in this item is all hardware parts, posts and fittings. Also included in this item of work will be the removal and relocation, if required, of chain link fence as noted on the drawings and as directed by the Engineer.

All materials shall be new except that specified for removal and relocation and shall conform to Section 206-6 of the Greenbook Specifications and the drawings, with installation in conformance with Section 304-3.2. Materials salvaged shall be subject to the Engineer's approval prior to reinstallation. All posts shall be set in commercial plant quality, 4 sack per cubic yard concrete.

20.3 Temporary Fencing - The contract item Temporary Fencing shall include all labor, materials and equipment necessary for installing and removing the temporary fencing and removing and reinstalling the property line fences as shown on the drawings. The temporary fencing shall be a 6-foot high chain link fence. Fencing materials need not be new and fence posts need not be set in concrete. The contractor shall have a maximum of 4 months to utilize the temporary construction easements starting from the date the existing fence is removed. Failure to restore the original fence within the 4 month allowable usage period shall result in a \$50 per day penalty that will be deducted from the contract payment to the contractor.

20.6 Measurement - Measurement for payment for the contract item Remove, Salvage, and Replace Existing Fence will be the number of lineal feet of fence installed measured along the top of the fence parallel to the ground.

Measurement for payment for the contract item Temporary Fencing will be the number of lineal feet of fencing installed for the temporary fencing and relocations.

Excavation and concrete required for fence or gate posts will not be measured for payment.

20.7 Payment - The contract price paid for Remove, Salvage, and Replace Existing Fence and Temporary Fencing shall include full compensation for all costs incurred under this section.

SECTION 21 - MISCELLANEOUS

21.1 Description - This section covers the contract items Miscellaneous Iron and Steel; Remove and Replace Existing Private 30” RCP; Remove Existing Retaining Wall, Footing and Rip-Rap; Remove Interfering Portions of 84” RCP; Retrofit Existing Catch Basin; Protect Existing Pine Tree In Place, Deadwood Canopy, Apply Root Stimulator; Remove Trees, Bushes, and Irrigation System in R/W; Remove Existing Rip-Rap and Headwall, Bulkhead Abandoned Storm Drain and Backfill; Construct Flared End Section – Caltrans D94A; Install 18” x 16” 45 Degree HEPE WYE Cleanout; and Construct Type G1 Inlet – Caltrans RSP D73.

21.2 Miscellaneous Iron and Steel - Miscellaneous Iron and Steel covers all ferrous metal used in the various hydraulic structures. Materials, parts and fittings shall conform with the following:

- (a) Manhole Frames and Covers - Per ASTM Designation: A-48, Class 35B. Manhole frames and covers shall be minimum weight as shown on the plans, and the weight of each frame and cover shall be indicated thereon in white paint. Style and markings shall be approved by the CITY. The castings shall be free from cracks, blowholes or other imperfections, straight, true to pattern and have a uniform finish. The castings for manholes in streets shall be thoroughly cleaned and coated with asphaltum paint of approved composition; all other castings for frames and covers shall be cleaned and galvanized. The cover shall fit firmly into the frame without rocking, with the frame accurately placed so that cover is flush with finish paving.
- (b) All other Miscellaneous Metal - Per ASTM Designation: A-36.
- (c) Galvanizing – Except for manhole frames and covers described above, all exposed ferrous metal shall be galvanized per Section 210-3 of the Greenbook Specifications.

21.3 Remove and Replace Existing Private 30” RCP - The contract item Remove and Replace Existing Private 30” RCP include all labor, earthwork, equipment and materials required to remove, store and replace the existing 30” RCP as shown on the plan and as directed by the CITY.

21.4 Remove Existing Retaining Wall, Footing and Rip-Rap– The contract item Remove Existing Retaining Wall, Footing and Rip-Rap covers all labor, equipment, materials and incidentals required for the complete removal and disposal of the specified portions of existing Bille Ann Stormdrain Outlet Structure and grading as shown on the improvement plans and as directed by the CITY.

21.5 Remove Interfering Portions of 84” RCP – The contract item Remove Interfering Portions of 84” RCP covers all labor, equipment, materials and incidentals required for the complete removal and disposal of the portions of the existing 84” RCP as shown on the improvement plans and as directed by the CITY.

21.6 Retrofit Existing Catch Basin – The contract item Retrofit Existing Catch Basin covers all labor, equipment, materials and incidentals required to connect to and retrofit the existing catch basin on Ruth Avenue as shown on the improvement plans and as directed by the CITY.

21.7 Protect Existing Pine Tree In Place, Deadwood Canopy, Apply Root Stimulator – The contract item Protect Existing Pine Tree In Place, Deadwood Canopy, Apply Root Stimulator covers all labor, equipment, materials and incidentals required to protect the existing Pine Tree on Refa Street In place. The Contractor shall coordinate this effort closely with the CITY's Arborist for all efforts associated with this item of work.

21.8 Remove Trees, Bushes, and Irrigation System in R/W - The contract item Remove and Remove Trees, Bushes, and Irrigation System in R/W covers all labor, equipment, materials and incidentals required for the complete removal of all trees, bushes and the underlying irrigation system that is generally located in the street right of way between Stations 20+40 and 24+60 of Lateral C-1. Existing irrigation lines shall be capped with their location marked at the fence line.

21.9 Remove Existing Rip-Rap and Headwall, Bulkhead Abandoned Storm Drain and Backfill - The contract item Remove Existing Rip-Rap and Headwall, Bulkhead Abandoned Storm Drain and Backfill covers all labor, equipment, materials and incidentals required for the complete removal of the abandonment of the existing storm drain outlet that is generally located at Station 11+00 of Lateral C-1A.

21.10 Construct Flared End Section – Caltrans D94A – The contract item Construct Flared End Section – Caltrans D94A covers all labor, equipment, materials and incidentals required for the complete installation of the D94A Flared Outlet as shown on the improvement plans and as directed by the CITY.

21.11 Install 18" x 16" 45 Degree HDPE WYE Cleanout – The contract item Install 18" x 16" 45 Degree HDPE WYE Cleanout covers all labor, equipment, materials and incidentals required for the complete installation of the HDPE WYE Cleanout as shown on the improvement plans and as directed by the CITY.

21.12 Construct Type G1 Inlet – Caltrans RSP D73– The contract item Construct Type G1 Inlet – Caltrans RSP D73 covers all labor, equipment, materials and incidentals required for the complete installation of the inlet as shown on the improvement plans and as directed by the CITY.. This item also includes the removal of the existing overside drain on Bille Anne Rd.

21.13 Measurement – No Measurement for payment for the item Miscellaneous Iron and Steel will be allowed. Payment for Miscellaneous Iron and Steel shall be included as part of the various contract items that required Miscellaneous Iron and Steel.

Measurement for payment for the contract items Remove and Replace Existing Private 30" RCP; Remove Existing Retaining Wall, Footing and Rip-Rap; Remove Interfering Portions of 84" RCP; Retrofit Existing Catch Basin; Protect Existing Pine Tree In Place, Deadwood

Canopy, Apply Root Stimulator; Remove Trees, Bushes, and Irrigation System in R/W; Remove Existing Rip-Rap and Headwall, Bulkhead Abandoned Storm Drain and Backfill; Construct Flared End Section – Caltrans D94A; Install 18” x 16” 45 Degree HEPE WYE Cleanout and Construct Type G1 Inlet – Caltrans RSP D73 will be for each bid item performed.

21.14 Payment - The contract prices paid for Remove and Replace Existing Private 30” RCP; Remove Existing Retaining Wall, Footing and Rip-Rap; Remove Interfering Portions of 84” RCP; Retrofit Existing Catch Basin; Protect Existing Pine Tree In Place, Deadwood Canopy, Apply Root Stimulator; Remove Trees, Bushes, and Irrigation System in R/W; Remove Existing Rip-Rap and Headwall, Bulkhead Abandoned Storm Drain and Backfill; Construct Flared End Section – Caltrans D94A; Install 18” x 16” 45 Degree HEPE WYE Cleanout and Construct Type G1 Inlet – Caltrans RSP D73 shall include full compensation for all costs incurred under this section.

SECTIONS 22 – 25 – NOT USED

SECTION 26 - STONEWORK

26.1 Description - This section covers the contract item Install Riprap Energy Dissipater.

26.2 General - All rock materials shall meet the gradation requirements of Section 72-2.02 of the Caltrans Specifications and the quality requirements of Sections 200-1.6.1 and 200-1.6.3 of the Greenbook Specifications.

Rock materials shall be blocky and predominantly angular in shape. Not more than 25% of the rock shall have a length more than 2.5 times the breadth or thickness. No rock shall have a length exceeding 3.0 times its breadth or thickness. All oversize rocks, as determined by the CITY, shall be removed.

Rock materials shall be placed on a firm dry foundation in conformance with Method B of Section 72-2.03 of the Caltrans Specifications, however, additional placement effort shall be required to meet the lines and grades as shown on the drawings and to fill and chink oversize voids with selected rock to establish a stable interlock. Chinking of voids will not be required for rock specified to be concreted.

Permeable materials such as filter blankets shall be consolidated and the surface trimmed to final grade as directed by the CITY.

26.3 Install Riprap Energy Dissipater - The contract items Install Riprap Energy Dissipater covers the rock, concrete cutoff wall and Rock Protection Fabric furnished and placed as shown on the drawings as specified. Rock shall conform to No. 2 Backing Class, for Method B placement per Section 72-2.02 of the Caltrans Specifications.

26.4 Rock Slope Protection Fabric – Rock Protection Fabric placed beneath rock shall conform to Class 10 per Section 88-1.02I of the Caltrans Specifications. A six-inch minimum

layer of backing material shall be placed over the fabric prior to placing rock unless otherwise shown on the plans.

26.6 Measurement - Measurement for payment for the contract item Install Riprap Energy Dissipater, shall be the number of structures installed as specified.

No Measurement for payment for the contract item Rock Slope Protection Fabric shall be allowed. Payment for this items shall be included part of the cost for Install Riprap Energy Dissipater

26.7 Payment - The contract price paid for Install Riprap Energy Dissipater shall include full compensation for all costs incurred under this section.

SECTION 27 - DUST ABATEMENT

27.1 Description - This section covers the implementation of dust control measures necessary to prevent harm and nuisance from dust. The Contractor shall comply with all the provisions of the South Coast Air Quality Management District (SCAQMD) Rule 403 as described in Appendix "C".

27.2 Dust Abatement - The contract item Dust Abatement includes the action necessary to prevent, reduce or control dust within the work area as required to complete the work. The Contractor shall carry out proper and efficient measures to prevent his operations from producing dust in amounts damaging to property or causing a nuisance, or harm to persons living nearby or occupying buildings in the vicinity of the work. The methods to be used for controlling dust in the construction area and a long haul roads shall be approved by the CITY prior to starting any work included in this contract. The Rule 403 Implementation Handbook published by the SCAQMD contains a detailed listing of reasonably available dust control measures.

27.3 Payment - The contract lump sum price paid for Dust Abatement shall include full compensation for all direct and indirect costs incurred under this section.

This payment will be made on a basis of the percentage of work completed on the entire project.

SECTION 28 - HYDROSEEDING

28.1 Description - This section covers the contract item Hydroseeding as directed by the CITY. Cut or fill slopes and all exposed or stripped areas (including TCE's) within the project limits shall be hydroseeded. Also included as part of Hydroseeding is the restoration of all TCE's, Easements to existing contours and conditions as directed by the CITY.

28.2 Hydroseeding - This item includes the furnishing of all materials, incidentals, labor and equipment necessary to complete the work as specified herein, and as directed by the CITY. All hydroseeding work shall be done by fully qualified and experienced personnel.

The hydroseeding materials shall not be stored onsite without prior approval of the CITY as to location, duration and method of storage. All debris and excess materials shall be removed

on a daily basis, unless otherwise authorized by the CITY. The Contractor shall leave the work area in a clean and finished appearance upon completion of hydroseeding.

28.3 Equipment and Materials - The equipment shall be a mobile mounted unit in a fully operational and well maintained condition, meeting the requirements of Section 21-1.03E of the Caltrans Specifications. Fiber shall be produced from natural or recycled (pulp) fiber and shall meet the requirements of Section 21-1.02E of the Caltrans Specifications. Stabilizing binder upon drying shall allow water and air penetration, shall be non-flammable, shall have an effective life of at least 1 year, and shall not be toxic to plants and animals.

All seed shall be delivered to the site tagged and labeled in accordance with the California Agricultural Code. Seed shall be of a quality which has a minimum pure live seed content (% of purity x % germination) as specified and weed seed shall not exceed 0.5% of the aggregate of pure live seed and other material.

A commercial Ammonium Phosphate fertilizer shall be used containing a minimum of 16% nitrogen, 20% available phosphoric acid and 0% water soluble potash, uniform in composition, dry and free flowing, pelleted or granular. All fertilizer shall be delivered in unbroken or unopened containers, labeled in accordance with applicable State regulations and bearing the warranty of the producer for the grade furnished.

28.4 Application - The CITY shall review and approve completion of all construction and grading prior to any section being approved as ready for hydroseeding application.

The Contractor shall provide a written per load mix tabulation, ratioed to the tank capacity of the equipment to be used on the project, for review and approval by the CITY well in advance of anticipated start of hydroseeding.

The Contractor shall provide a sample demonstration area for application by preparing one load of hydroseed mix. The demonstration areas shall be wet down thoroughly prior to application. The CITY shall review and approve the sample section for compliance and workmanship. Upon approval, this area shall become the sample for all remaining application. No hydroseeding shall take place during high winds or during periods of rainfall.

Areas designated for hydroseeding shall receive an application made with an overlapping fan motion to provide a full and even spread throughout the coverage area.

The hydroseed mix, per acre of coverage, shall be as follows:

- 2,000 lbs./acre Fiber Mulch
- 250 lbs./acre 16-20-0 Commercial Fertilizer
- 120 lbs./acre Stabilizing binder
- 23 lbs./acre Seed Mix as follows:

Species	Lbs/ac	P/G
Black Sage/Salvia mellifera	1	70/50
California Buckwheat/Eriogonum fasciculatum	8	10/65

Yerba santa/Erodictyon trichocalyx	4	20/40
Vulpia microstachys	4	90/80
Deerweed/Lotus scoparius	3	90/60
Coyote bush/Baccharis pilularis	1	2/40
Scale broom/Lepidospartum squamatum	2	20/30

28.6 Measurement - Measurement for the contract item Hydroseeding will be made on the basis of the actual area treated to the nearest one hundredth (0.01) acre as measured by the CITY.

28.7 Payment - The contract price paid for Hydroseeding shall include full compensation for all costs incurred under this section.

SECTION 29 – STORMWATER AND NON-STORMWATER POLLUTION CONTROL

29.1 Description – The contract item Stormwater and Non-Stormwater Pollution Control shall include preparing, obtaining approval of, amending and implementing the Permit Registration Documents (PRDs) as required by the State Water Resources Control Board (SWRCB), the California Regional Water Quality Control Board (CRWQCB) - San Diego Region

29.2 General Requirements – All activities performed by the Contractor for this project shall conform to the requirements of the State-wide National Pollutant Discharge Elimination System (NPDES) General Permit (Board Order No. 2009-0009-DWQ, NPDES No. CAS000002) for Stormwater Discharges of Associated with Construction and Land Disturbance Activities, hereafter referred to as the "General Permit", issued by the SWRCB. This General Permit regulates both stormwater and non-stormwater discharges associated with Contractor's construction activities. This General Permit can be downloaded at http://www.swrcb.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

The PRDs mentioned above consist of:

1. Risk Assessment (Section VIII of General Permit)
2. Site Map
3. Stormwater Pollution Prevention Plan (Section XIV of General Permit)
4. Signed Certification Statement

Risk Assessment – The Contractor shall calculate the project site's sediment risk and receiving water risk during periods of soil exposure (i.e. grading and site stabilization) and use the calculated risks to determine a Risk Level(s) using the methodology in Appendix 1 of the General Permit.

Site Map – The Contractor shall provide a site map of the project area.

Stormwater Pollution Prevention Plan (SWPPP) – The SWPPP shall identify site specific Best Management Practices (BMPs) to be implemented during and after construction to minimize the potential pollution of stormwater runoff and downstream receiving waters. The identified BMPs shall be practices designed to minimize or eliminate the discharge of pollutants from the construction site and Contractor's construction activities, including, but not limited to:

1. Good housekeeping practices for solid and sanitary/septic waste management, vehicle and equipment cleaning/maintenance, and material handling and storage.
2. Construction procedures such as stabilized construction access points, scheduling/phasing to minimize areas of soil disturbance, soil stabilization and erosion/sediment control.
3. Incorporating the minimum BMPs identified in Section 5.2 of the District's SWMP.

The SWPPP shall stipulate an ongoing program for monitoring and maintenance of all BMPs.

The SWPPP shall be designed to address the following objectives:

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;
2. Where not otherwise required to be under a Regional Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
3. Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Conventional Technology (BAT/BCT) standard;
4. Calculations and design details as well as BMP controls for site run-on are complete and correct; and
5. Stabilization BMPs, installed to reduce or eliminate pollutants after construction, are completed.

To demonstrate compliance with requirements of the General Permit, the Qualified SWPPP Developer (QSD) shall include information in the SWPPP that supports the conclusions, selections, use, and maintenance of BMPs.

The Contractor shall make the SWPPP available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Regional Board inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone.

Signed Certification Statement – The Contractor shall submit a signed certification (see Appendix "D") certifying the SWPPP was prepared under their direction and that the SWPPP is a true, accurate and complete representation of the proposed project and mitigation measures.

In the event the CITY incurs any Administrative Civil Liability or Mandatory Minimum (fine) imposed by the CRWQCB – San Diego Region, as a result of Contractor's

failure to fully implement the provisions of this section and permit requirements, "Stormwater and Non-Stormwater Pollution Control", the CITY may, in the exercise of his sole judgment and discretion, withhold from payments otherwise due Contractor a sufficient amount to cover the Civil Liability. Liability for "Negligent Violations" may be in an amount up to \$50,000 per day per deemed occurrence while "Knowing Violations" can result in fines as high as \$250,000 and imprisonment.

Stormwater and Non-Stormwater Pollution Control work shall conform to the requirements in the latest version of the California Stormwater Quality Association (CASQA) Handbook, entitled "**California Stormwater BMP Handbook – Construction" updated November 2009**". A copy of the "California Stormwater BMP Handbook – Construction", updated November 2009, hereafter referred to as the "CASQA Handbook", may be obtained from CASQA, Post Office Box 2105, Menlo Park, California 94026-2105. Telephone: 650.366.1042. Copies of the handbook can also be downloaded from the CASQA Internet site at <http://www.cabmphandbooks.com/construction.asp>.

The Contractor shall be responsible for all costs and for any liability imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this section, "Stormwater and Non-Stormwater Pollution Control", including but not limited to, compliance with the applicable provisions of the CASQA Handbook, General Permit, General De Minimus Permit, Federal, State and local regulations. For the purpose of this paragraph, costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the CITY or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Act.

The Contractor shall become fully informed of and comply with the applicable provisions of the CASQA Handbook, General Permit, General De Minimus Permit, and Federal, State and local regulations that govern the Contractor's activities and operation pertaining to both stormwater and non-stormwater discharges from both the project site and areas of disturbance outside the project limits during construction. The Contractor shall, at all times, keep copies of the General Permit, General De Minimus Permit, approved SWPPP and all amendments at the project site. The SWPPP shall be made available upon request of a representative of the SWRCB, CRWQCB, United States Environmental Protection Agency (USEPA) or local stormwater management agency. Requests by the public shall be directed to the CITY.

The Contractor is solely and exclusively responsible for any arrangements made between the Contractor and other property owners or entities that result in disturbance of areas or construction activities being conducted outside limits of the designated rights-of-way and temporary construction easements as shown on the project drawings.

The Contractor shall, at reasonable times, allow authorized agents of the CRWQCB, SWRCB, USEPA or local stormwater management agency, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the construction site and the Contractor's facilities pertinent to the work;

2. Have access to and copy any records required to be kept as specified in the General Permit;
3. Inspect the construction site, including any offsite staging areas or material storage areas, and related soil stabilization practices and sediment control BMPs; and
4. Sample or monitor for the purpose of ensuring compliance with the General Permit.

The Contractor shall notify the CITY immediately upon request from regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records.

29.3 Permit Registration Documents (PRDs) Preparation and Approval - The Contractor shall prepare and obtain approval of the PRDs as part of the Stormwater and Non-Stormwater Pollution Control work for this contract. The SWPPP shall include an appropriate Construction Site Monitoring Program (CSMP) as required by Section I, "Monitoring and Reporting Requirements" of Attachment C of the General Permit. A guidance document titled "Field Monitoring and Analysis Guidance Document" is available from the California Stormwater Quality Association internet site at <http://www.casqa.org/LeftNavigation/BMPHandbooksPortal/tabid/200/Default.aspx>. The Contractor shall prepare and implement the SWPPP in accordance with the CASQA Handbook and CSMP, the General Permit and these Detailed Specifications.

In case of conflict between the CASQA Handbook and these Detailed Specifications, the Detailed Specifications shall govern; in case of conflict between these Detailed Specifications and the General Permit, the latter shall govern.

Within five (5) working days after the award of the contract, the Contractor shall submit two (2) copies of the PRDs to the CITY for review and approval. The Contractor shall allow ten (10) working days for the CITY to review the PRDs. If revisions are required as determined by the CITY, the Contractor shall revise and resubmit the PRDs within three (3) working days of receipt of the CITY's comments and shall allow ten (10) working days for the CITY to review the revisions. The Contractor shall submit four (4) copies of the approved SWPPP to the CITY prior to the pre-construction meeting. **The Contractor must have approved PRDs prior to the pre-construction meeting.**

The SWPPP shall incorporate BMPs in each of the following categories:

1. Soil stabilization practices;
2. Sediment control practices;
3. Sediment tracking control practices;
4. Wind erosion control practices; and
5. Non-stormwater management, and waste management and disposal control practices.

Specific objectives and minimum requirements for each category of BMPs are described in the CASQA Handbook. The Contractor shall consider the objectives and minimum requirements presented in the CASQA Handbook for each of the above categories. When

minimum requirements are listed for any category, the Contractor shall incorporate one or more of the listed minimum BMPs required into the SWPPP and implement them on the project to meet the pollution control objectives for the category. In addition, the Contractor shall consider other BMPs presented in the CASQA Handbook to supplement the minimum BMPs required when necessary to meet the objectives of the SWPPP and maintain compliance with the General Permit. The Contractor shall document the selection process in accordance with the procedure specified in the CASQA Handbook.

The Contractor should not assume that the minimum BMPs required for each category presented in the CASQA Handbook are adequate to meet the pollution control objectives. The Contractor may use other effective BMPs, as approved by the CITY, in addition to the minimum as required in the CASQA Handbook to achieve the pollution control objectives.

The SWPPP shall include the following items as described in the CASQA Handbook, CSMP and General Permit:

Section 1 - SWPPP Requirements:

- 1.1 Introduction
- 1.2 Permit Registration Documents
- 1.3 SWPPP Availability and Implementation
- 1.4 SWPPP Amendments
- 1.5 Retention of Records
- 1.6 Required Non-Compliance Reporting
- 1.7 Annual Report
- 1.8 Changes to Permit Coverage
- 1.9 Notice of Termination

Section 2 - Project Information:

- 2.1 Project and Site Description
- 2.2 Stormwater Run-On From Offsite Areas
- 2.3 Findings of the Construction Site Sediment and Receiving Water Risk Determination
- 2.4 Construction Schedule
- 2.5 Potential Construction Site Pollutant Sources
- 2.6 Identification of Non-Stormwater Discharges

Section 3 - Best Management Practices:

- 3.1 Schedule for BMP Implementation
- 3.2 Erosion Control and Sediment Control
- 3.3 Non-Stormwater and Material Management
- 3.4 Post-Construction Stormwater Management Measures

Section 4 - BMP Inspection, Maintenance, and Rain Event Action Plans:

- 4.1 BMP Inspection and Maintenance

4.2 Rain Event Action Plans

Section 5 – Training

Section 6 - Responsible Parties and Operators:

6.1 Responsible Parties

6.2 Contractor List

Section 7 - Construction Site Monitoring Program:

7.1 Purpose

7.2 Applicability of Permit Requirements

7.3 Monitoring Locations

7.4 Safety

7.5 Visual Monitoring (Inspections)

7.6 Water Quality Sampling and Analysis

7.7 Watershed Monitoring Option

7.8 Quality Assurance and Quality Control

7.9 Reporting Requirements and Records Retention

To ensure that the preparation, implementation, and oversight of the SWPPP is sufficient for effective pollution prevention, individuals responsible for creating, revising, overseeing, and implementing the SWPPP should participate in applicable training programs and document such training in the SWPPP. A copy of the SWPPP should be located at the construction site.

The following notes (or notes of substantially similar intent) that address pollution prevention to the Maximum Extent Practicable during the construction phase of a project on a year-round basis need to be placed on the Stormwater and Non-Stormwater Pollution Control Drawings:

Erosion control BMPs shall be implemented and maintained to minimize and/or prevent the entrainment of soil in runoff from disturbed soil areas on construction sites.

Sediment control BMPs shall be implemented and maintained to prevent and/or minimize the transport of soil from the construction site.

Stockpiles of soil shall be properly contained to eliminate or reduce sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking or wind.

Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented to eliminate or reduce transport from the site to streets, drainage facilities or adjoining properties by wind or runoff.

Runoff from equipment and vehicle washing shall be contained at construction sites and must not be discharged to receiving waters or the local storm drain system. Washwaters or rinsate from ready mix, concrete, or cement vehicles must be handled appropriately and may not be discharged to receiving waters or any storm drain system.

All construction contractor and subcontractor personnel are to be made aware of the required best management practices and good housekeeping measures for the project site and any associated construction staging areas.

At the end of each day of construction activity all construction debris and waste materials shall be collected and properly disposed in trash or recycle bins.

Construction sites shall be maintained in such a condition that a storm does not carry wastes or pollutants off the site. Discharges other than stormwater (non-stormwater discharges) are prohibited, except as authorized by an individual NPDES permit or the State-wide General Permit for Storm Water Discharges Associated with Construction Activity. Potential pollutants include but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, solvents, detergents, glues, lime, pesticides, herbicides, fertilizers, wood preservatives and asbestos fibers; paint flakes or stucco fragments; fuels, oils, lubricants and hydraulic, radiator or battery fluids; concrete and related cutting or curing residues; floatable wastes; wastes from engine/equipment steam cleaning or chemical degreasing; wastes from street cleaning; and super-chlorinated potable water from line flushing and testing. During construction, disposal of such materials should occur in a specified and controlled temporary area onsite physically separated from potential stormwater runoff, with ultimate disposal in accordance with local, State and Federal requirements.

Discharging contaminated groundwater produced by dewatering groundwater that has infiltrated into the construction site is prohibited. Discharging of contaminated soils via surface erosion is also prohibited.

The Contractor is required to notify and obtain approval from the CITY ten (10) days prior to any non-stormwater discharge or dewatering associated with Contractor's construction activities.

Construction sites shall be managed to minimize the exposure time of disturbed soil areas through phasing and scheduling of grading to the extent feasible and the use of temporary and permanent soil stabilization.

BMPs shall be maintained at all times. In addition, BMPs shall be inspected prior to predicted storm events and following storm events.

29.4 Permit Registration Document (PRD) and Rain Event Action Plan (REAP) Amendments

- If the scope or schedule of the project changes, the Contractor shall immediately notify the CITY. The CITY will determine if the Contractor will be required to recalculate the Risk Assessment. If it is determined by the CITY that a new Risk Assessment is required, the CITY will notify the Contractor to resubmit amended PRDs and in the case that the risk level increases, the Contractor shall comply with additional applicable requirements of the General Permit, including preparation and implementation of REAPs, Construction Site Monitoring Program (CSMP), Numeric Action Level (NAL) Exceedance Reports, and annual reporting requirements. The Contractor shall prepare amendments to the PRDs, both graphically and in narrative form, whenever there is a change in Contractor's construction activities or operations which may result in the discharge of pollutants to surface waters, groundwaters, municipal storm drain systems, or as deemed necessary by the CITY. The Contractor shall also amend the PRDs if they are in violation of any condition of the General Permit, or has not effectively achieved the objective of reducing pollutants in stormwater discharges. Amendments shall show additional BMPs, revised Contractor's construction activities or operations, including those in areas not shown in the

initially approved SWPPP, which are required on the project to effectively control water pollution.

Amendments to the PRDs shall be submitted for review and approval by the CITY in the same manner specified for the initial approval of the PRDs. The Contractor shall date and attach all approved amendments to any of the PRDs. Upon approval of the amendment, the Contractor shall implement the approved changes, revised construction activities or operations.

29.5 Non-Compliance Reporting - If the project is in non-compliance at any time, the Contractor shall make a written report to the CITY within two (2) calendar days of identification of non-compliance activities.

29.6 SWPPP Implementation - Upon approval of the SWPPP, the Contractor shall be responsible throughout the duration of the project for placing, installing, constructing, inspecting and maintaining the BMPs as well as conducting the Construction Site Monitoring Program as included in the SWPPP and any amendments thereto, and for removing and disposing of temporary BMPs. Unless otherwise directed by the CITY or specified in these Detailed Specifications, the Contractor's responsibility for SWPPP implementation shall continue throughout any temporary suspension of work ordered in accordance with Section 6.05, "TEMPORARY SUSPENSION OF THE WORK", of the General Provisions. Requirements for installation, construction, inspection, maintenance, removal and disposal of BMPs are specified in the Caltrans Handbooks and these Detailed Specifications.

The CITY may order the suspension of construction operations if the Contractor fails to comply with the requirements of this section, "Stormwater and Non-Stormwater Pollution Control", as determined by the CITY.

The Contractor will not be compensated for sampling and analysis work because of the Contractor's failure to properly implement, inspect, maintain and repair BMPs in the approved SWPPP and any amendments thereto, or for failing to store construction materials or wastes in watertight containers.

- (a) Stormwater Pollution Control - **The Contractor shall implement soil stabilization practices and sediment control BMPs, including minimum requirements as presented in the Caltrans Handbooks, on all disturbed areas of the project site during the rainy season, defined as between October 1st and April 30th.**

Implementation of soil stabilization practices and sediment control BMPs for soil-disturbed areas, including but not limited to, rough graded access roads, slopes, channel inverts, operational inlets and outlets of the project shall be completed no later than ten (10) calendar days prior to the start of the rainy season or upon start of applicable Contractor's construction activities for projects which begin either during or within ten (10) calendar days of the rainy season.

The CITY may require the Contractor, on a case-by-case basis, to reduce the active, soil-disturbed area limit of the project. The Contractor shall demonstrate the ability and preparedness to fully deploy soil stabilization

practices and sediment control BMPs to protect soil-disturbed areas of the project site by maintaining an adequate quantity of soil stabilization and sediment control materials onsite to protect exposed, soil-disturbed areas and a detailed plan for the mobilization of sufficient labor and equipment to fully deploy the required BMPs prior to the onset of precipitation and for the duration of the project.

Throughout the rainy season, soil-disturbed areas of the project site shall be considered to be nonactive whenever soil disturbing activities are expected to be discontinued for a period of fifteen (15) calendar days or more. Areas that will become nonactive either during the rainy season or within ten (10) calendar days thereof shall be fully protected with soil stabilization practices such as covering with mulch, temporary seeding, fiber rolls, blankets, etc., within ten (10) calendar days of the discontinuance of soil disturbing activities or prior to the onset of precipitation, whichever is first to occur. Areas that will become nonactive either during the rainy season or within ten (10) calendar days thereof shall be fully protected with sediment control BMPs within ten (10) calendar days of the discontinuance of soil disturbing activities or prior to the onset of precipitation, whichever is first to occur.

Throughout the rainy season, active soil-disturbed areas of the project site shall be fully protected at the end of each day with soil stabilization practices and sediment control BMPs. The Contractor shall monitor the weather forecast on a daily basis. The National Weather Service forecast shall be used, or an alternative weather forecast proposed by the Contractor may be used if approved by the CITY. If precipitation is predicted prior to the end of the following workday, construction scheduling shall be modified, as required, and the Contractor shall deploy functioning BMPs prior to the onset of the precipitation.

- (b) Non-Stormwater Pollution Control - **The Contractor shall implement, year-round and throughout the duration of the project, BMPs included in the SWPPP for sediment tracking, wind erosion, non-stormwater management, and waste management and disposal.**

- (c) Inspections and Reporting - The Contractor shall regularly inspect the construction site for BMPs identified in the SWPPP to ensure the proper implementation and functioning of BMPs. The Contractor shall identify corrective actions and time frames to address any damaged BMPs or reinstate any BMPs that have been discontinued.

At a minimum, the Contractor shall inspect the construction site as follows:

1. Prior to a forecast storm;
2. After any precipitation which causes runoff capable of carrying sediment from the construction site;
3. At 24 hour intervals during extended precipitation events; and
4. At a regular interval of once every 2 weeks.

The construction site inspection checklist provided in the Caltrans Handbooks shall be used to ensure that the necessary BMPs are being properly implemented and are functioning adequately. The Contractor shall submit one copy of each site inspection record to the CITY.

- (d) Maintenance - The Contractor shall maintain construction site BMPs identified in the SWPPP to ensure the proper implementation and functioning of BMPs. If the Contractor or the CITY identifies a deficiency in the deployment or functioning of an identified BMP, the deficiency shall be corrected by the Contractor immediately, or by a later date and time if requested by the Contractor and approved by the CITY in writing, but not later than the onset of subsequent precipitation events. The correction of deficiencies shall be at no additional cost to the CITY.
- (e) Training – The Contractor shall ensure that all persons responsible for implementing requirements of the General Permit shall be appropriately trained in accordance with Section VII "Training Qualifications and Certification Requirements" of the General Permit. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations.

The Contractor shall ensure that SWPPPs are written, amended and certified by a Qualified SWPPP Developer (QSD). The Contractor shall also ensure that all inspection, maintenance, repair and sampling activities shall be performed or supervised by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-stormwater and stormwater visual observations, sampling and analysis.

29.7 Rain Event Action Plan (REAP) – The REAP is applicable to Risk Level 2 construction sites only. The Contractor shall ensure a QSP develop a REAP (see Appendix "E") and submit a copy to the CITY for review 48 hours prior to any likely precipitation event. The Contractor shall amend and implement the REAP as directed by the CITY. If no comments are received prior to the precipitation event, the REAP shall be implemented as proposed. A likely precipitation event is any weather pattern that is forecast to have a 50% or greater probability of producing precipitation in the project area. The discharger shall ensure a QSP obtain a printed copy of precipitation forecast information from the National Weather Service Forecast Office (e.g., enter the zip code of the project's location at <http://www.srh.noaa.gov/forecast>).

The Contractor shall ensure a QSP ensure that the REAP include, at a minimum, the following site information:

- a. Site Address
- b. Calculated Risk Level
- c. Site Storm Water Manager Information including the name, company and 24-hour emergency telephone number

- d. Erosion and Sediment Control Provider information including the name, company and 24-hour emergency telephone number
- e. Storm Water Sampling Agent information including the name, company and 24-hour emergency telephone number

29.8 Water Quality Monitoring, Sampling and Analysis – **The Water Quality Monitoring, Sampling and Analysis is applicable to Risk Level 2 construction sites only.** The Contractor shall be responsible for preparing a Construction Site Monitoring Program (CSMP) and implementing the monitoring, sampling and analysis requirements as described in Attachment D of the General Permit. Records of all visual observations and sampling results required by the General Permit shall be kept using the forms contained in Appendix "F" and Appendix "G", respectively. Copies of the forms shall be maintained in the SWPPP and submitted to the CITY within 24 hours of the visual observation or sampling event.

29.9 Numeric Action Level (NAL) Exceedance Report - **The NAL Exceedance Report is applicable to Risk Level 2 construction sites only.** The Contractor shall be responsible for submitting a NAL Exceedance Report to the CITY in the event that any effluent sample exceeds an applicable NAL.

- a. The Contractor shall submit all storm event sampling results using the form in Appendix "G" for each discharge point to the CITY no later than 24 hours after the conclusion of the storm event.
- b. The Contractor shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity.
- c. The Contractor shall retain an electronic or paper copy of each NAL Exceedance Report for a minimum of three years after the date the annual report is filed.
- d. The Contractor shall use the reporting form contained in Appendix "G" and include in the NAL Exceedance Report:
 - i. The analytical method(s), method reporting unit(s) and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit").
 - ii. The date, place, time of sampling, visual observation (inspections) and/or measurements, including precipitation.
 - iii. A description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

29.10 Reports –

- (a) Annual Report - The Contractor shall be responsible for preparing an Annual Report to meet the requirements of Section XVI of the General Permit covering the preceding period of construction from July 1st to June 30th. The Contractor shall submit two (2) copies of the annual report to the CITY by July 15th of each year for review and approval. The Contractor shall allow ten (10) working days for the CITY to review the Annual Report. If revisions are required as determined by the CITY, the Contractor shall revise and resubmit the annual report within three (3) working days of receipt of the CITY's comments. The Contractor shall submit four (4) copies of the approved Annual Report to the CITY prior to August 15th of each year. **The Contractor shall be responsible for providing an Annual Report to the CITY for any construction occurring for part of the year after July 1st prior to receiving final payment on the project.**
- (b) Monthly Report – The Contractor shall prepare and submit to the CITY a Monthly Report within five (5) working days of the end of the month including:
1. All visual observation reports;
 2. All sampling and analysis reports;
 3. All NAL Exceedance Reports;
 4. Summary of changes to the SWPPP and or REAP based on inspection results for the preceding month.

29.11 Payment - The contract lump sum price paid for Stormwater and Non-Stormwater Pollution Control work shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in developing, preparing, obtaining approval of, revising and amending the PRDs, and installing, constructing, maintaining, removing and disposing of BMPs as shown in the SWPPP, as specified in the CASQA Handbooks and Sample Contractor's Water Quality CSMP, General Permit and these Detailed Specifications, and as directed by the CITY.

Monthly payment will be made on a basis of the percentage of work completed on the entire project and subject to the submittal of a complete Monthly Report as specified in Section 29.11(b). Failure to complete or report required visual inspections, monitoring, sampling and analysis requirements, NAL Exceedance Reports, and/or other necessary follow-up actions to ensure that the project stays in compliance with the General Permit can be the basis for reducing monthly progress payments for the project. Monthly progress payments will be reduced by the amount of direct costs, overhead costs and engineering costs incurred by the CITY to address compliance deficiencies, including costs to conduct inspections, monitoring, reporting and supplemental BMP implementation necessary to comply with the General Permit and costs incurred by the CITY to address complaints, additional State inspections and violations and/or fines issued by the State or US EPA associated with failure to properly comply with the General Permit. Progress Payment reductions can exceed the monthly percentage or total contract lump sum price for Stormwater and Non-Stormwater Pollution Control work.

Payment will be made on a basis of the percentage of work completed on the entire project.

SECTION 30 – UTILITIES

30.1 Description - This section covers the contract item Relocate 8” Waterline.

30.2 General Material and Installation Requirements – All pipes, valves, appurtenances and installation shall conform to Elsinore Valley Municipal Water District (EVMWD) standards and specifications. A reference copy of Sections 6 and 7 of EVMWD’s Standard Specifications are included in **Appendix A** and are incorporated as part of these specifications.

30.3 Relocate 8-Inch Waterline - The contract item Relocate 8-Inch Waterline covers all labor, equipment, materials, testing, earthwork, removal of existing waterline and incidentals required for the complete construction and installation of the 8-inch waterline, as shown on the drawings and as required by EVMWD Specifications" and these Specifications. The contractor shall closely coordinate and cooperate with EVMWD’s Inspector during the installation and testing of the relocated waterline.

30.4 Measurement and Payment - The contract lump sum prices paid for the contract item Relocate 8-Inch Waterline shall include full compensation for all costs incurred under this section except that Aggregate Base, and Asphalt Concrete used for resurfacing the street will be measured and paid for under the contract items Aggregate Base, Class 2 and Hot Mix Asphalt.

APPENDIX A – EVMWD WATERLINE AND VALVE
SPECIFICAITONS

SECTION 6 – WATER PIPING AND APPURTENANCES

6-1 GENERAL

6-1.1 General. The Contractor shall furnish and install all piping materials and work in accordance with the Owner’s Standard Specifications and the SSPWC, unless otherwise noted on the Plans or specified herein. The piping shall include all pipe, fittings, valves, pipe supports, bolts, nuts, gaskets, jointing materials and appurtenances as shown and specified. The Contractor shall furnish and install all auxiliary piping and connections to equipment or existing facilities, all as required for a complete and operable piping system.

Before any equipment or pipe is fabricated or purchased and any work is installed, the Contractor shall verify the location, dimensions and type of connection on the existing systems and determine that pipe or equipment will properly fit the space available and that piping and ductwork can be run as contemplated without interference between systems with structural elements or with the work of other trades. Submit for review shop drawings clearly showing the interrelationship of the various portions of the work, along with its relationship to the work of other trades prior to commencing fabrication or installation of the work. No piping shop drawings submittals shall be reviewed without prior pipe connection pothole data as required per plans.

The Contractor shall furnish and install all pipe fittings, pipe supports, necessary components and attachments, whether shown on the Plans or not, to make all piping work as a complete operable system.

6-1.2 Lead Free Brass. All brass components with wetted surfaces that come in contact with water intended for human consumption shall be made of “Lead Free” brass.

“Lead Free” brass is defined in this specification as a brass alloy having not more than 0.25% total lead content by weight. These components are to meet requirements of AWWA Standard C800 and be made from CDA/UNS Copper Alloy C89520 (EnviroBrass) in accordance with the chemical and mechanical requirements of ASTM B584, copper alloy CD No. C89833 (Federalloy) or approved equal.

“Lead Free” fittings are to be cast, stamped or embossed with a mark, such as “NL”, “EBII”, “DF” or approved other, to indicate that the product is made from a “Lead Free” alloy and to visually differentiate “Lead Free” fittings from non-lead free fittings.

Brass components that do not come in contact with water intended for human consumption, including but not limited to brass used for recycled water systems, are to be made of CDA/UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA Standard C800.

6-2 SHOP DRAWINGS

Shop drawings of all welded steel pipe specials three inches diameter and larger, including that adjacent to the pumps, fittings, and specials shall be submitted in accordance with Part III, Subsection 1-4.

6-3 WELDED STEEL PIPE

- 6-3.1 General.** Welded steel pipe and fittings shall be manufactured of steel plate with a minimum of 1/4-inch thickness for 6-inch pipe and larger. The suppliers shall be responsible to provide the minimum pipe thickness size as required by AWWA M-11 corresponding with the required pressure shown on these plans and minimum thickness noted in these specifications. For all piping and fittings within the limits of the buildings or vaults, including all buried and above grade pipelines, the thickness shall not be less than 3/8 of an inch. Pipe materials, fabrication and shop testing of straight pipe shall conform to the requirements of the "AWWA Standard for Steel Water Pipe 6 Inches and Larger" (AWWA C200). All outlets, four inches in diameter and larger shall be provided with reinforcing designed for the water working pressure specified or shown. Shop drawings of all welded steel pipe and fittings, three inches in diameter and larger, shall be furnished in accordance with General Specifications Section 1-4. Unless otherwise provided, the nominal diameter shown shall be considered to be the inside diameter after lining.
- 6-3.2 Joints.** Unless otherwise shown, all joints in welded steel pipe shall be circumferentially welded in the field using slip-bell joints or butt-welding straps. Where butt straps are used, 5-inch diameter hand holes shall be provided to facilitate repair of the mortar lining.
- 6-3.3 Steel Welded Fittings.** Steel welding fittings shall conform to the requirements of the "Specifications for Factory-Made Wrought Carbon Steel and Ferritic Alloy Steel Welding Fittings" (ASTM A234).
- 6-3.4 Flanges.** Where the design pressure is 275 psi or less, flanges shall conform either to AWWA C207 Class E, or ANSI B16.5 150-lb. class. Where the design pressure is greater than 275 psi, flanges shall conform to AWWA C207 Class F or ANSI B16.1, Class 250. All pipe and flanges shall be of the class as noted on the plans. Flanges shall have flat faces. Pipe flanges shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown. Attachment of the flanges to the pipe shall conform to the applicable requirements of the above-referenced AWWA Standard C207. All pipe flanges shall match the pipe inner diameter and the flanges shall be lined in accordance with Subsection 6-3.7.
- 6-3.5 Welding.** All hand welding shall be done by welders certified in accordance with ASME "Boiler and Pressure Vessel Code", Section IX or the "Standard for Field Welding of Steel Water Pipe Joints" (AWWA C206).

6-3.6 Shop Testing - Upon completion of the welding but before lining, each steel plate special shall be bulk-headed and tested under a hydrostatic pressure of not less than 1.5 times the pressure for which the pipe has been designed, provided however, that if straight pipe used in fabricating the specials has been previously tested, the circumferential welds may be tested by a dye penetrant process using Turco Dy-Chek, or approved equal, with no further hydrostatic test. Any pinholes or porous welds, which may be revealed by the test, shall be chipped out and re-welded and the pipe or fitting re-tested. The Contractor shall notify the Owner at least two weeks prior to shop testing to allow the Owner to witness the tests.

6-3.7 Lining – Except as otherwise provided, welded steel pipe and fittings shall be lined with cement mortar in accordance with the “Standard for Cement-Mortar Protective Lining and Coating for Steel Water Pipe” (AWWA C205).

6-3.8 Coating - The exterior surfaces of welded steel pipe and fittings, which are in valve structures or above ground shall be cleaned, primed and finish painted as specified in the Section 10. All buried welded steel pipe and fittings shall be coated with cement mortar in accordance with the “Standards for Cement – Mortar Protective Lining and Coating for Steel Water Pipe” (AWWA C205).

6-3.9 Installation

- A. At all times when the work of installing pipe is not in progress, all openings into the pipe shall be kept tightly closed to prevent entrance of animals and foreign materials. 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 Owner.
- B. The pipe sections shall be laid in place to true alignment and grade in accordance with the drawings. Special care shall be taken in placing the pipe and making the field joints.
- C. Bell holes of ample size shall be dug where they are to be welded. Joints to be field-welded shall be done by welders certified for this Contract in accordance with the “Standard for Field Welding of Steel Water Pipe Joints” (AWWA C206). The cost of qualifying the welder shall be borne by the Contractor.
- D. In the case of mortar-lined pipe, before the spigot is inserted into the bell, the bell end of the pipe shall be daubed with mortar containing 1 part lumnite cement of not more than 3 parts of sand, inserted into the bell and forced to the bottom of the bell. Excess mortar on the inside shall be swabbed out.
- E. In the case of mortar coated pipe, after the welding is completed and inspected by the Engineer, the outside annular space 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 mixture of 1 part of cement to 3 parts of sand, by weight, and shall be

sufficiently fluid to permit to be poured into the joint space. It shall 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 as manufactured by Industrial Specialties, El Monte, California, or approved equal.

- F. Where butt-straps or closure pieces are used, both the interior and exterior surfaces of the butt-straps or closure pieces shall be given a coating equivalent to the factory-applied cement mortar or enamel coating of the adjoining pipe sections. Any exterior cement mortar coating in such cases shall be reinforced with wire mesh. Any interior cement mortar lining shall be similarly reinforced where the exposed length of the butt-strap or closure piece, as measured between the ends of connected pipe section, exceeds 4 inches.

6-4 DUCTILE IRON PIPE AND FITTINGS

6-4.1 DESCRIPTION

This section includes materials and installation of ductile-iron pipe and fittings for potable and recycled water systems.

Ductile iron pipe shall be designed in accordance with the requirements of the latest revision of ANSI/AWWA C-150/A21.50 and shall be manufactured, inspected and tested in accordance with the requirements of the latest revision of ANSI/AWWA C-151/A21.51 and these Special Provisions.

Cement-mortar linings shall be standard thickness and in accordance with the latest revisions of ANSI/AWWA C-104/A21.4.

The Ductile Iron Pipe shall be encased in polyethylene in accordance with the requirements of the latest revision of ANSI/AWWA C-105/A21.5.

6-4.1.2 REFERENCE STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

ANSI B1.1	Unified Inch Screw Threads
ASTM A193	Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
ASTM A307	Standard Specification for Carbon Steel Bolts and Studs
ASTM C150	Standard Specification for Portland Cement
ASTM A536	Standard Specifications for Ductile Iron Castings
AWWA C104	Cement Mortar Lining for Ductile Pipe and Fittings for Water Mains
AWWA C105	Polyethylene Encasement for Ductile Iron Pipe

AWWA C110	Ductile Iron Fittings
AWWA C111	Rubber-Gasket Joints for Ductile Iron Pipe and Fittings
AWWA C115	Flanged Ductile Iron Pipe with Threaded Flanges
AWWA C116	Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Grey Iron Fittings
AWWA C150	Thickness Design of Ductile Iron Pipe
AWWA C151	Ductile Pipe, Centrifugally Cast
AWWA C153	Ductile Iron Compact Fittings
AWWA C217	Cold-Applied Petroleum Wax Tape Coatings
AWWA C600	Installation of Ductile Iron Water Mains
AWWA C602	Cement-Mortar Lining of Water Pipelines
AWWA C606	Grooved and Shouldered Type Joints

6-4.2 SUBMITTALS

The following items shall be submitted in accordance with General Specifications Section 1-4 and complete the District review process prior to shipping of ductile-iron pipe and fittings:

- A. An affidavit of compliance with AWWA C104, C110, C111, C115, C150, C151, C153, and the requirements of this specification.
- B. Manufacturer's information relating to dimensions, weight, thickness, lining and coating for pipe and fittings conforming to AWWA C151, C110 and C153.
- C. Joint details.
- D. Cathodic protection materials.
- E. Ductile-iron pipe shall bear indelible identification markings as required by AWWA C151.
- F. All pipe shall have a home mark on the spigot end to indicate proper penetration when the joint is made.

6-4.3 DELIVERY, STORAGE, AND HANDLING

Delivery, storage, and handling of ductile-iron pipe and fittings shall follow the recommendations of AWWA C600 and as specified herein:

- A. Handling of pipe shall be performed with lifts, cranes, or other suitable equipment and devices. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the pipe, lings, and coatings. The pipes shall not be dropped or dragged.
- B. During transport, the pipe shall be supported and secured against movement using padded devices in such a manner to prevent damage.
- C. Stored pipe shall be protected from damage and kept free from dirt and foreign materials by closing the ends of the pipe. Other pipeline materials shall be protected by appropriate packaging or wrapping. Gaskets shall be stored in a cool location out of direct sunlight. Bolts, nuts, and washers shall be handled and stored in a dry location in a manner that will ensure proper use with respect to types and sizes.

- D. Pipe laid out for installation shall be placed on earth berms or timber cradles adjacent to the trench in the numerical order of installation.
- E. Maintain plastic end caps on all pipe and fittings in good condition until the pipe is ready to be installed in the trench. Periodically open the plastic end caps and spray clean potable water inside the pipe for moisture control.
- F. Under no circumstances shall ropes or other devices be attached through the fitting's interior for handling.

6-4.4 POLYETHYLENE ENCASEMENT

Polyethylene encasement shall be furnished and installed for all buried ductile iron pipe and fittings, per AWWA Section C105.

6-4.5 DUCTILE-IRON PIPE

- A. Ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C150/21.50 and ANSI/AWWA C151/21.51 and shall be of the sizes and thickness or pressure classes shown on the plans.
- B. Unless supported by calculations signed and sealed by a registered engineer or otherwise specified, ductile iron pipe having push-on mechanical or plain end connections shall be furnished within the following classes:

Pipe Diameter	Minimum Pressure Class	Minimum Thickness Class
Under 6-inch	350	52
6 to 16-inch	350	50
18 to 24-inch	300	50
30 to 36-inch	250	50
42 to 60-inch	200	50

6-4.6 FITTINGS

- A. General
 - 1. Ductile-iron fittings shall be manufactured per AWWA C110, C111, C115, C150, C151, and C153. Gray-iron and cast-iron fittings or flanges shall not be used.
 - 2. Ductile-iron fittings manufactured per AWWA C153 shall be installed on mains 12-inch and smaller only.
 - 3. Joints for fittings shall be mechanical joint, flanged, or push-on in accordance with AWWA C110, C111, and C153.
 - 4. Except as amended herein or otherwise shown on the approved plans, joints for ductile-iron fittings shall have a pressure rating equal to or greater than the adjacent piping.
 - 5. Joints in buried piping may be of the push-on, flanged or mechanical-joint type per AWWA C111 except where particularly specified on the approved plans.
 - 6. Joints that are aboveground, within structures, or submerged shall be flanged unless otherwise shown on the approved plans.

- B. Unless otherwise specified, ductile-iron flanges shall be in accordance with AWWA C115, rated at a working pressure of 250 psi. Where required in order to connect to the flanges of 250 psi butterfly valves, or as otherwise shown on the approved plans, ductile-iron flanges shall be compatible with AWWA C207, Class “F”.

Maximum working pressure of flanges shall be as specified in AWWA or ASME/ANSI. Flanges shall be solid and integrally cast per AWWA C110 or shop-threaded per AWWA C115. Hollow-back flanges, gray-iron or cast-iron flanges and threading of flanges in the field are not permitted.

Where threaded flanges are used, the pipe or spool piece to which they are connected will be hydrostatically tested at the shop in the presence of the Engineer prior to installation. The pipe section or spool piece shall be hydrostatically tested for 15 minutes at the pressure rating of the flanges. No leaks shall be permitted.

- C. Plain ends shall conform to the requirement of AWWA C151 and to the dimensions included within AWWA C110 to accept a mechanical joint, push-on joint, flanged coupling adaptor, flexible coupling, or grooved coupling.
- D. The exterior surfaces of all pipe and fittings shall be factory coated with a minimum one (1) mil thick petroleum asphaltic material per AWWA C110 and C151.
- E. All pipe and fittings shall be cement-mortar lined in accordance with AWWA C104, using the double thickness requirements indicated in said standard, Type II or Type V Portland cement per ASTM C 150 shall be used.

6-4.7 COATING

- A. Buried ductile-iron pipe shall receive an asphaltic coating in accordance with AWWA C151.
- B. Materials for coating of pipe and fittings located above ground and in structures shall be in accordance with Section 10.
- C. Materials for coating buried mechanical joint and hardware shall be in accordance with Section 6-16.H.

6-4.8 INSTALLATION OF DUCTILE IRON PIPE

6-4.8.1 GENERAL

At all times when the work of installing pipe is not in progress, including worker break times, ends of the pipe shall be closed with a vermin-proof and child-proof cap or plug. Do not permit trench water to enter the pipe. Do not place tools, clothing, or other materials in the pipe. The Contractor shall maintain the interior of the pipe in a sanitary condition free from foreign materials.

6-4.8.2 TRENCHING, BACKFILLING AND COMPACTING

Trenching, backfilling and compacting shall be performed in accordance with Section 2 - Earthwork.

6-4.8.3 DEWATERING

The Contractor shall provide and maintain at all times during construction ample means and devices to promptly remove and dispose of all water from any source entering trench excavations or other parts of the work. Any damage caused by flooding of the trench shall be Contractor's responsibility.

Dewatering shall be performed by methods that will maintain a dry excavation, preservation of the final lines and grades and protection of all utilities. If flooding of the trench does occur, the Contractor shall immediately dewater and restore the trench. Damaged or altered pipeline appurtenances or trench materials shall be repaired or replaced as directed by the Engineer.

6-4.9 PIPE INSTALLATION

The Contractor shall furnish and install all pipe, specials, fittings, closure pieces, valves, supports, bolts, nuts, gaskets, jointing materials, and all other appurtenances as shown on the approved plans and as required to provide a complete and workable installation. Install pipe in the trench as follows:

- A. Inspect each pipe and fitting before lowering the pipe or fitting into the trench. Inspect the interior and exterior protective coatings. Patch damaged areas in the field with material recommended by the protective coating manufacturer. Thoroughly clean the ends of the pipe. Remove foreign matter and dirt from inside of the pipe and keep pipe clean during and after installation.
- B. Install pipe according to the manufacturer's approved order of installation. Install pipes uphill if the grade exceeds 10%. Lower the pipe onto the bedding at the proper lines and grades.
- C. The manufacturer's printed installation guide outlining the radius of curvature that can be negotiated with pipe sections of various lengths shall be followed, except they shall not exceed the deflections allowed in AWWA C600 according to joint type. Combined deflections at rubber

gasket or flexible coupling joints shall not exceed that recommended by the manufacturer.

D. The pipe shall have firm bearing along its full length, and bell holes shall be provided at each joint to permit visual inspection of the joint and prevent the pipe from being supported by the bell end or coupling.

E. Pipe Assembly:

1. Push-On Type: Assemble the pipe joint using a lubricant selected from the Approved Materials List. Insert the spigot end into the bell or coupling to the proper insertion mark. Check that the elastomeric ring has not left the groove during assembly by passing a feeler gauge around the completed joint. Drive spigot ends of the pipe into bell ends in accordance with the manufacturer's recommendations. Stabbing shall not be permitted.

2. Mechanical Joint Type: Assembly of mechanical joint fittings shall be in accordance with the manufacturer's recommendations regarding installation.

F. During installation operations, do not place tools, clothing, or other materials in the pipe.

G. 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 break periods 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 Owner. When the work requires and the size of the pipe allows entry of personnel into the pipe, the Contractor shall comply with all Federal and State regulations for confined space entry. Work inside pipelines shall not be undertaken until all the tests and safety provisions of the Code of Federal Regulations 1910.146 and the General Industry Safety Orders of the California Code of Regulations, Title 8, Section 5159 for confined space entry have been performed and the area is verified as safe to enter.

6.4.10 INSTALLING BURIED FITTINGS

Buried ductile iron fittings shall be installed in accordance with this Section.

A. The District's representative will inspect all fittings prior to installation for damage to the interior protective coatings. Patch damaged areas in the field with material similar to the original.

- B. For mechanical joint fittings, clean the bell socket and the plain end of the pipe of all foreign material and dirt. Place the gland on the pipe spigot with the lip extension toward the plain end. Lubricate the pipe spigot and gasket. Use the same lubricant as supplied by the pipe manufacturer. Install the gasket on the pipe spigot with the narrow edge of the gasket toward the plain end. Insert the pipe into the bell socket and press the gasket firmly into the gasket recess. Keep the joint straight during assembly. Push the gland toward the socket and center it around the pipe with the gland lip against the gasket. Insert bolts and hand tighten nuts. Make joint deflection after assembly but before tightening bolts. Uniformly tighten bolts and nuts in a progressive diametrically opposite sequence, and torque nuts to 75- to 90-foot-pounds with a calibrated torque wrench.
- C. For push-on joint fittings, clean the bell ends of the fitting of all foreign material and dirt. Insert the gasket in the groove of the bell and make sure the gasket faces the correct direction. Feel that the gasket is completely and evenly seated in the groove. When pipe is cut in the field, bevel the plain end prior to installation. Lubricate the exposed gasket surface and the beveled pipe spigot with the same lubricant supplied by the pipe manufacturer. Insert the spigot into the bell and force it slowly into position, keeping the joint straight while pushing. Make joint deflection after the joint is assembled.
- D. When necessary to deflect pipe with push-on joints from a straight line in either the horizontal or vertical plane, do not exceed the following joint deflection angles for buried fittings. The angles shown are for each joint of a ductile iron fitting and are maximum deflections.

Nominal Pipe Size (inches)	Joint Deflection (degrees)
12 and smaller	4
14 to 20	3
24	2.5

Deflections of pipe with restrained joints shall not exceed a maximum of 80 percent of the manufacturer's recommended maximum deflection.

6-4.11 FLANGED PIPE AND FITTINGS

Flanged connections shall be installed where indicated on the Approved Drawings.

- A. Bolt holes shall straddle the horizontal and vertical centerlines.
- B. The bolts, nuts and flange faces shall be thoroughly cleaned by wire brush prior to assembly.

- C. Bolts, nuts and washers shall be lubricated with a District-approved anti-seize compound.
- D. Assemble all bolts, nuts and washers in the flange.
- E. All nuts shall be tightened in an alternating “star” pattern to the manufacturer’s recommended torque with a calibrated torque wrench.
- F. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight. Replace galled, cracked, or distorted bolts and nuts.

6-5 MECHANICAL COUPLINGS

Mechanical couplings shall be designed for a water working pressure equal to the design pressure for the pipe on which they are to be installed, and shall be equipped with Grade E rubber gaskets.

6-6 GASKETS

Except as otherwise provided, gaskets for flanged joints shall be 1/16-inch thick asbestos-free, NBR rubber binder from the Approved Materials List.

Wherever blind flanges are shown, the gaskets shall consist of 1/16-inch thick reinforced rubber which shall cover the entire inside surface of the blind flange and shall be cemented to the surface of the blind flange.

6-7 INSULATING BUSHINGS OR UNIONS

Where shown, pipe or fittings made of non-ferrous metals shall be isolated from ferrous metals by Lochinvar “V”-Line insulating couplings as distributed by FARWEST Corrosion Control Company, or approved equal.

6-8 SMALL STEEL PIPE

Unless otherwise shown, galvanized steel pipe and black steel pipe in sizes six inches in diameter and smaller shall conform to the requirements of the “Specifications for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses” (ASTM A53), and shall be standard weight, unless otherwise shown. Galvanized steel pipe shall be wrapped with PVC tape, one half lap. Fittings shall be of galvanized malleable iron, unless otherwise shown.

6-9 COPPER TUBING AND SOLDERS

When copper pipe is to be furnished, the pipe shall conform to ASTM B-88 for Type K hard drawn or soft annealed, as shown on the Plans for Standard Drawings.

When wrought copper solder-type fittings are shown on the Plans or Standard Drawings, the joints shall be soldered with 95/5 non-lead solder.

When brass or bronze fittings with threaded, copper flare or sweat weld (solder) ends are shown on the Plans or Standard Drawings, the fittings shall conform to AWWA C-800. Fittings shall be furnished by Mueller, Jones, Ford, or approved equal.

6-10 FLANGE INSULATING KITS

Flange insulating kits shall be installed where indicated on the drawings. Each kit shall consist of full length polyethylene insulating sleeves and double washer sets for each flange bolt and full face Type "E" phenolic insulating gasket.

6-11 DISINFECTION OF PIPING

6-11.1 DESCRIPTION

- A. This section describes requirements for disinfection by chlorination of potable and recycled water mains, services, pipe appurtenances and connections.
- B. Disinfection of pipelines shall not proceed until all appurtenances and any necessary sample ports have been installed and the District provides authorization.
- C. Every effort shall be made to keep the water main and its appurtenances clean and dry during the installation process.
- D. All piping, valves, fittings, and appurtenances which become contaminated during installation shall be cleaned, rinsed with potable water, and then sprayed or swabbed with a 5 percent sodium hypochlorite disinfecting solution prior to installation.
- E. Water mains under construction that become flooded by storm water, runoff, or ground water shall be cleaned by draining and flushing with metered potable water until clear water is evident. Upon completion, the entire main shall be disinfected using a method approved by the District.

6-11.2 REFERENCE STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

AWWA B301 – Standard for Liquid Chlorine
AWWA C651 – Disinfecting Water Mains

6-11.3 SERVICE APPLICATION

- A. All potable and recycled water mains and appurtenances taken out of service for inspection, repairs, or other activity shall be disinfected before they are returned to service.
- B. All new potable and recycled water mains and temporary high lines shall be disinfected prior to connection to the District's existing system.
- C. All components incorporated into a connection to the District's existing system shall be disinfected prior to installation.

6-11.4 SUBMITTALS

A written disinfection and dechlorination plan signed by a certified chlorinator shall be submitted to the District for review and approval prior to starting disinfection operations.

6-11.5 DELIVERY, STORAGE AND HANDLING

Chlorination and dechlorination shall be performed by competent individuals knowledgeable and experienced in the operation of the necessary application and safety equipment in accordance with applicable Federal, State and Local laws and regulations and possessing a C-34 license from the State of California. The transport, storage and handling of these materials shall be performed in accordance with Code of Federal Regulations (CFR) 1910.120 Hazardous Waste Operations and Emergency Response, CFR 49.172 Hazardous Materials Regulations, and the General Industry Safety Orders of the California Code of Regulations, Title 8, Section 5194.

6-11.6 CONCURRENT DISINFECTION AND HYDROSTATIC TESTING

The specified disinfection of the pipelines may be performed concurrently with the hydrostatic testing in accordance with Section 6-12. In the event repairs are necessary, as indicated by the hydrostatic test, additional disinfection may be required by the District in accordance with this specification.

6-11.7 CONNECTION TO EXISTING MAINS

Prior to connection to existing mains, disinfection and bacteriological testing shall be performed in accordance with this specification, and hydrostatic testing shall be performed per Section 6-12. District authorization for connection to the existing system shall be given only on the basis of acceptable hydrostatic, disinfection and bacteriological test results.

6-11.8 LIQUID CHLORINE (GAS)

- A. Liquid chlorine contains 100-percent available chlorine and is packaged in steel containers in net weights of 150 lb. or 1 ton.
- B. Liquid chlorine shall be used with appropriate gas flow chlorinators, heaters, and injectors to provide a controlled, high-concentration solution feed to the water. The chlorinators and injectors shall be the vacuum-operated type.
- C. Only vacuum-operated equipment shall be used. Direct-feed chlorinators, which operate solely from gas pressure in the chlorine cylinder, shall not be permitted. The equipment shall incorporate a backflow prevention device at the point of connection to the potable water source used to fill the line being tested.
- D. The chlorinating agent shall be applied at the beginning of the system to be chlorinated and shall be injected through a corporation stop, a hydrant, or other approved connection to ensure treatment of the entire system being disinfected.
- E. Only a certified, licensed chlorination and testing contractor shall perform gas chlorination work. The chlorination contractor must also possess a Grade II Treatment Plant Operator Certification from the State of California if required by the District.
- F. Appropriate testing method shall be used to insure proper dosage.

6-11.9 SODIUM HYPOCHLORITE (LIQUID)

- A. Sodium hypochlorite is available in liquid form in glass or plastic containers, ranging in size from 1 qt. to 5 Gal. The solution contains approximately 10% to 15% available chlorine.
- B. Sodium hypochlorite solution shall be used for cleaning and swabbing piping and appurtenances immediately prior to installation and for disinfecting all components of connections to the District's existing system.
- C. Sodium hypochlorite solution may be used for the initial disinfection of newly installed potable and recycled water mains. The solution shall be applied at a terminus of the system to be chlorinated using an injector which can adjust the amount of solution being injected into the piping system. The solution shall be injected in the appropriate concentration to achieve the specified

concentration range of chlorine throughout the entire piping system. Where pumping equipment is used in conjunction with an injector, an integral backflow prevention device shall be installed and connected to the potable water supply.

- D. Water trucks, pumping equipment, piping, appurtenances and all other equipment in contact with potable water shall be disinfected prior to use.
- E. Sodium hypochlorite solution may also be used to increase the total chlorine residual if the concentration from the initial chlorination of the system is found to be low. The solution shall be added to the system in sufficient amounts at appropriate locations to insure that the disinfecting solution is present at a concentration within the specified range throughout the piping system.
- F. Only a certified, licensed chlorination and testing contractor shall perform liquid chlorination work. The chlorination contractor must also possess a Grade II Treatment Plant Operator Certification from the State of California if required by the District.
- G. Appropriate testing method shall insure proper dosage.

6-11.10 TABLET OR GRANULAR HYPOCHLORITE (CALCIUM HYPOCHLORITE OR HTH)

Tablet or granular hypochlorite shall not be used at any time.

6-11.11 PROCEDURE FOR DISINFECTING WATER MAINS AND APPURTENANCES

- A. The pipeline shall be filled at a rate not to exceed 300 GPM or a velocity of 1 foot per second, whichever is less.
- B. Disinfection shall result in an initial total chlorine concentration of 50 ppm 150 ppm. This concentration shall be evenly distributed throughout the system to be disinfected.
- C. All valves shall be operated with the disinfection solution present in the pipeline. All appurtenances such as air-vacuum relief valves, blowoffs, hydrants, backflow prevention devices, and water service laterals shall be flushed with the treated water a sufficient length of time to ensure a chlorine concentration within the specified range in all components of each appurtenance. (Note the limitations for discharge of chlorinated water outline below.)

- D. The District will verify the presence of the disinfection solution throughout the system by sampling and testing for acceptable chlorine concentrations at the various appurtenances and/or at the test ports provided by the Contractor. Areas of the system found to be below the specified chlorine concentration level shall receive additional flushing as noted above and/or additional disinfection solution as necessary. (Note the limitations for discharge of chlorinated water outlined below.) Addition of disinfection solution after the initial charging of the line shall be made by either the liquid chlorine (gas) method, or the sodium hypochlorite method as directed by the District.
- E. The chlorinated water shall be retained in the system for a minimum of 24 hours. The District will test the free chlorine residual. The system shall contain a free chlorine residual of not less than 80% of the initial free chlorine residual before the 24-hour soaking period began. If the free chlorine residual has decreased more than 20%, the system shall be soaked for an additional 24-hour period. If the free chlorine residual has decreased, the system shall be flushed in accordance with the procedure detailed herein, and shall be re-disinfected. A minimum of 25 mg/l. residual shall be present after 24 hours.
- F. Following a successful retention period as determined by the District, the chlorinated water shall be flushed from the system at its extremities and at each appurtenance, using potable water from a source designated by the District. The minimum water velocity during flushing shall be 3 feet per second or as directed by the District. Flushing shall continue until the replacement water in the new system is equal in chlorine residual to the potable source of supply as verified by the District. (Note the limitations for discharge of chlorinated water outlined below.)
- G. The testing firm will perform bacteriological sampling and testing and provide a certificate of compliance to the District that the unit tested met the AWWA C651 requirements.

6-11.12 DISCHARGE OF CHLORINATED WATER

- A. Indiscriminate onsite disposal or discharge to sewer systems, storm drains, drainage courses or surface waters of chlorinated water is prohibited. Permits may be available through various agencies that may allow discharge through formal and written permitting process.
- B. The environment to which the chlorinated water is to be discharged shall be examined by the Developer and their private Engineer. Where necessary, federal, state and local regulatory agencies should be contacted to determine special provisions for the disposal of chlorinated water. Any indication that the discharge of chlorinated water may cause damage to the environment shall require the neutralizing of the chlorine residual by means

of a reducing agent in accord with AWWA C651 and the requirements of this specification.

- C. Chlorine shall be neutralized. A reducing agent shall be applied to the water as it exits the piping system. The Developer shall submit to the California Regional Water Quality Control Board, Santa Ana Region, a completed "Notice of Intent" related to the discharges to surface waters. The Developer will be indicated as the person responsible for the discharge, for paying the fees associated with the "Notice of Intent", and for compliance with the terms and conditions stipulated in Order No. 98-67, including the monitoring and reporting program. The Developer shall monitor the chlorine residual during the discharge operations.

Total residual chlorine limits in these locations, and for the discharge of chlorinated water from the testing of pipelines to surface waters of the Santa Ana Region are as follows:

Total Residual Chlorine Effluent Limitations

Instantaneous Maximum - 0.1 mg/l

The various methods of de-chlorination available can remove residual chlorine to concentrations below standard analytical methods of detection, 0.02 ppm, which will assure compliance with the effluent limit. The developer will perform all necessary tests to ensure that the total residual chlorine effluent limitations listed above are met.

- D. In locations where no hazard to the environment is evident based on the joint examination described above, the chlorinated water may be broadcast for dust control on the surface of the immediate site after de-chlorination. Care shall be exercised in broadcasting the water to prevent runoff.

6-11.13 BACTERIOLOGICAL TESTING

A testing firm will perform bacteriological sampling and testing of all new system installations. The testing methodology employed shall be as set forth in "Standard Methods for the Examination of Water and Wastewater" (current edition). Testing requirements are as set forth in the California Domestic Water Quality and Monitoring Regulations and commensurate with current requirements for surface water testing. The District will analyze the samples for the presence of coliform bacteria and heterotrophic-type bacteria (heterotrophic plate count). The evaluation criteria employed by the District for a passing test sample is as follows:

- A. Coliform bacteria: no positive sample.

6-11.14 RE-DISINFECTION

If the initial disinfection fails to produce satisfactory bacteriological test results, the pipeline system shall be re-flushed and re-sampled. If the second set of samples does not produce satisfactory results, the pipeline system shall be re-chlorinated, flushed, and re-sampled. The chlorination, flushing, and sampling procedure shall continue until satisfactory results are obtained. Re-disinfection and retesting shall be at the Contractor's expense.

6-11.15 DISINFECTING TIE-INS AND CONNECTIONS

Pipes, fittings, valves and all other components incorporated into connections with the District's existing system shall be spray disinfected or swabbed with a liquid chlorine solution in accordance with AWWA C651 and as specified herein. Upon connection to the main, the line shall be flushed as directed by the District. Disinfection by this method is generally limited to assemblies of 20-feet or less in length. Alternate methods such as "pre-disinfection" prior to installation in accordance with AWWA C651 may be required at the discretion of the District.

6-12 HYDROSTATIC TESTING OF PRESSURE PIPELINES

6-12.1 DESCRIPTION

This section describes the requirements and procedures for pressure and leakage testing of all ductile iron (DI) and polyvinyl chloride (PVC) pressure mains.

- A. The Contractor shall provide the District with a minimum of four working days notice prior to the requested date and time for hydrostatic tests.
- B. The Contractor shall furnish all labor, materials, tools, and equipment for testing.
- C. Temporary blocking during the tests will be permitted only at temporary plugs, caps or where otherwise directed by the District.
- D. All valves and appurtenances shall be operated during the test period. The test shall be conducted with valves in the open position.
- E. At the onset of testing, all valves, air vacuum assemblies, blowoffs, and services shall be monitored for possible leakage and repairs made, if necessary, before the test proceeds. The appurtenances shall be monitored through the duration of the testing.
- F. For pipe with porous lining, such as cement mortar, the pipe shall be filled with water and placed under a slight pressure for a minimum of two working days prior to the actual hydrostatic test.

6-12.8 FIELD TEST PROCEDURE

- A. Before applying the specified test pressure, care shall be taken to release all air within the pipe and appurtenances to be tested. Air shall be released through services, fire hydrants, air release valves, or other acceptable locations.
- B. A four (4) hour hydrostatic pressure test shall be performed after the pipe and all appurtenances have been installed and after any trench backfill compaction with heavy-duty compaction equipment has been completed. The hydrostatic test pressure shall be 50 psi above the pressure class of the pipe at the lowest point in the section being tested and shall be at least equal to the design class of the pipe at the highest point in the line.

The test pressure shall be applied and continuously maintained by pumping for a period of four (4) hours. During the pumping phase of the test, the test pressure shall be maintained at not less than 95% of the specified test pressure at all times.

At the end of the fourth (4th) hour, the pressure shall meet the requirements stated above. Pumping shall then be discontinued for one hour and the drop in pressure shall be recorded. Pumping shall then be resumed to restore the initial test pressure, and the quantity of water pumped into the line shall be accurately measured. This measured quantity shall not exceed that which would result from leakage at the following rates:

- 1. The allowable leakage for steel (flanged or welded) and ductile iron (flanged) pipe shall be zero.
- 2. The leakage for polyvinyl chloride (PVC) pipe, and for steel or ductile-iron pipes with rubber joints shall be considered as the total amount of water pumped into the pipe system after the fifth (5th) hour of testing. Allowable leakage during the fifth (5th) hour shall be in accordance with the following formula:

$$\frac{2 \text{ gal} \times \text{nominal diameter of pipe (in)} \times \text{length of pipe (ft)}}{24 \text{ (hrs)} \times 5,280 \text{ (ft)}}$$

If the leakage exceeds the allowable loss, the leak points shall be located and repaired as required by the District. All defective pipe, fittings, valves and other appurtenances discovered shall be removed and replaced with sound material. Additional disinfection shall be performed as necessary per Section 11. The hydrostatic test shall be repeated until the leakage does not exceed the rate specified above. All visible leaks shall be similarly repaired.

6-13 PVC PRESSURE PIPE (AWWA C900)

6-13.1 DESCRIPTION

This section includes materials, installation, and testing of polyvinyl chloride (PVC) pressure pipe conforming to AWWA C900. Size range is 4 inches through 12 inches.

6-13.2 REFERENCE STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

6-13.3 PVC PIPE

Pipe shall be polyvinyl chloride (PVC) conforming to AWWA C900 with material cell classification 12454-8 per ASTM D 1784. Provide standard pipe having integral bell and spigot with elastomeric gasket and cast iron equivalent outside diameter. Provide pipe in standard 20-foot laying lengths. Straight pipe sections with plain ends for use with high deflection couplings are not available. Random lengths will not be permitted. Provide Class 200 pipe for all mains not directly connected to a pumping facility.

6-13.4 PIPE IDENTIFICATION SYMBOLS

- A. Interpret pipe identification symbols used on the Drawings as follows: 8" PVC-200 designates type of pipe (polyvinyl chloride); nominal pipe size (8 inches); and working pressure rating (Class 200). Colors for potable and recycled water shall be in accordance with Design Standards.
- B. Legibly mark pipe in blue at 5-foot intervals and each coupling to identify the nominal pipe size, OD base, PVC, dimension ratio number and pressure class, AWWA C900, and the seal of the testing agency that verified the suitability of the material for potable water service.

6-13.5 SUBMITTALS

- A. Submit shop drawings in accordance with Standard Specification Section 01300.
- B. Submit manufacturer's catalog data and descriptive literature for 900 PVC pipe. Show dimensions, materials of construction, and typical identification markings.
- C. Provide affidavit of compliance with AWWA C900.
- D. Submit copies of the following required tests conducted on the project pipe by the manufacturer:
 - 1. Quick-burst strength of pipe and couplings.

2. Flattening resistance of pipe.
3. Record of additional tests after test sample failure.

6-13.6 INSPECTION AND FIELD VERIFICATION

- A. The District's Representative may inspect materials, productions, and testing at manufacturer's plant.
- B. Where new pipelines are to be connected to existing waterline of the District, the Contractor shall verify in the field the location, elevation, pipe material, pipe outside diameter, and any other characteristics of the existing waterline before proceeding with the pipe installation. This field verification shall be performed in the presence of the District's Representative.
- C. Ship, store, and place pipe at the storage yard or installation site by supporting the pipe uniformly. Avoid scratching the pipe surface. Do not stack higher than 4 feet nor stack with weight on bells. Cover to protect from sunlight.
- D. Do not install pipe that is gouged or scratched, forming a clear depression.
- E. Do not install pipe contaminated with a petroleum product (inside or outside).
- F. Do not install any pipe that shows evidence of exposure to sunlight, age, surface deterioration, or other physical damage. The decision of the District's Representative shall be final as to the acceptability of the pipe to be installed.

6-13.7 HANDLING OF PIPE

Lift pipes with mechanical equipment using wide belt slings or a continuous fiber rope which avoids scratching the pipe. Do not use cable slings or chains. Pipes up to 12 inches in a diameter may be lowered by rolling on two ropes controlled by snubbing. Pipes up to 6 inches in diameter can be lifted by hand.

6-13.8 SANITATION OF PIPE INTERIOR

- A. During laying operations, do not place tools, clothing, or other materials in the pipe.
- B. When pipe laying is not in progress, including lunch breaks, close the ends of the installed pipe with a plug to deter contamination of pipe.

6-13.9 HIGH DEFLECTION COUPLINGS

Provide polyvinyl chloride (PVC) or ductile iron (DI) couplings with twin elastomeric gaskets which allow 2 degrees of deflection at each gasket for a total

of 4 degrees per coupling. Provide couplings for cast iron equivalent outside diameter. Couplings shall be selected from the Accepted Materials List.

6-13.10 CLOSURE/REPAIR COUPLINGS

Provide polyvinyl chloride (PVC) couplings with twin elastomeric gaskets which are designed to connect plain ends of straight pipe. Provide couplings for cast iron equivalent outside diameter and Class 200 pressure rating. Do not deflect pipe in these couplings. Closure/Repair Couplings shall be selected from the Accepted Materials List.

6-13.11 FITTINGS

Ductile iron fittings for use with C900 PVC pressure pipe shall be in accordance with Section 6-4, Ductile Iron Pipe and Fittings.

6-13.12 FLANGES

Flanges on ductile iron fittings shall conform to AWWA C110 or ANSI B16.42 Class 150. Refer to Section 6-4.

6-13.13 BOLTS, NUTS AND GASKETS FOR FLANGES

Bolts, nuts and gaskets shall be in accordance with Section 6-16.

6-13.14 OUTLETS

A. For outlets 2 inches and smaller with working pressures 150 psi or less, attach a service saddle and corporation stop to the pipe. Provide service saddles with full width, cast bronze bodies conforming to ASTM B 62, O-ring gaskets, and iron pipe threads. Provide Type 304 stainless steel double band straps with four bolts or a single wide strap with four bolts. All stainless steel shall be fully passivated for enhanced corrosion resistance. All saddles shall be pre-sized at the factory for installation on cast iron equivalent outside diameter PVC pipe conforming to AWWA C900. Service saddles shall be selected from the Accepted Materials List.

B. For outlets 2 1/2 inches and larger, use a ductile iron tee with a flanged outlet. Sizes below 3 inches will require a reducing fitting.

6-13.15 COUPLINGS

Flexible pipe couplings and flange coupling adapters shall be in accordance with Section 6-21 and shall be selected from the Accepted Materials List.

6-13.16 PIPE LAYOUT FOR STRAIGHT AND CURVED ALIGNMENTS

- A. Use integral bell end pipe for straight alignments and for radii greater than 1,150 feet.
- B. Use the following various combinations of plain end pipe lengths with high deflection couplings and integral bell end pipe for curved alignments in both horizontal and vertical directions. Do not bend pipe between couplings. Saw cut integral bell end of standard pipe and bevel end for use with deflection couplings. Use 9.5-foot plain end pipe lengths with deflection couplings for all radii between 140 feet to 270 feet. Use 19-foot plain end pipe lengths with deflection couplings for all radii between 270 feet to 560 feet. Use an integral bell end pipe length joined together with a 19-foot plain end pipe length to form a chord. Use deflection couplings on each end of the chord and continue this combination through the curved alignment for all radii between 560 feet to 1,150 feet. Pipe lengths shorter than 9 feet will not be used unless specifically authorized by the District's Representative.

6-13.17 INSTALLING PIPE IN TRENCH

- A. See Technical Specification Section 2 for earthwork requirements.
- B. Inspect each pipe and fitting before lowering into the trench. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
- C. Handle pipe in a manner to avoid any damage to the pipe. Do not drag pipe over the ground, drop it onto the ground, or drop objects on it. Do not drop or allow pipe to fall into trenches.
- D. Laying tolerances for the installed pipe shall not vary greater than 0.3-foot horizontally, or greater than 0.1-foot vertically from the alignment and elevations shown on the Drawings.
- E. Grade the bottom of the trench to the line and grade to which the pipe is to be laid, with allowance for pipe thickness. Remove hard spots that would prevent a uniform thickness of pipe base material (imported sand). Before laying each section of the pipe, check the grade with a straightedge and correct any irregularities found. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between bell holes, except that the grade may be disturbed for the removal of pipe handling slings.
- F. At the location of each joint, dig bell holes in the bottom of the trench and at the sides to permit visual inspection of the entire joint and to prevent the pipe from being supported by the bell end or fitting.
- G. Keep the trench in a dewatered condition during pipe laying. Removal of water shall be in conformance with Technical Specification Section 2.

- H. 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 break periods 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 Owner.

6-13.18 ASSEMBLING PIPE JOINTS

- A. The spigot and integral bell or coupling shall be dirt free and slide together without displacing the rubber ring gasket. Lay the pipe section with the integral bell facing the direction of laying.
- B. Clean the groove of the bell or coupling of all foreign materials. If the gasket groove is dirty or contains debris, carefully remove the gasket and clean the groove. Insert the gasket back into the groove of the bell or coupling prior to installation. Observe the correct direction of the shaped gasket. Feel that the gasket is completely and evenly seated in the groove.
- C. Mark the full insertion depth on the spigot end of the pipe. This mark indicates when the pipe is fully inserted into the bell or coupling. Lubricate the exposed gasket surface and the beveled spigot up to the full insertion mark with the lubricant supplied by the pipe manufacturer. For repair couplings, lubricate pipe for the entire distance the coupling will travel on the pipe. If the lubricated pipe end touches dirt, clean the pipe end and reapply lubricant.
- D. Insert the spigot into the bell or coupling and force it slowly into position.
- E. Check that the rubber ring gasket has not left the groove during assembly by passing a feeler gage around the completed joint.

6-13.19 INSTALLING SERVICE SADDLES

- A. Place the service saddle on the pipe and hand tighten the nuts while positioning the saddle in its final location. Uniformly tighten the nuts in a progressive diametrically opposite sequence and torque with a calibrated torque wrench to the saddle manufacturer's recommended values.
- B. Connect a corporation stop to the saddle. Apply Teflon joint compound or tape to the male threads before installing the corporation stop. Make joints watertight.
- C. Mount a tapping machine on the corporation stop to cut a hole in the pipe with a shell type cutter made specifically for PVC pipe. Do not use other devices or hand equipment to bore through the pipe wall.

6-14 HIGH DENSITY POLYETHYLENE PRESSURE PIPE (HDPE) AND FITTINGS

See ANSI/AWWA C906-99.

6-15 RECYCLED WATER PIPELINES

6-15.1 PIPELINES

Recycled water pipelines will be constructed per Elsinore Valley Municipal Water District Standard Specifications. Pipelines 12-inches in diameter and smaller will be constructed from PVC pipe that is purple in color. Pipelines with diameters greater than 12-inches will be constructed from DIP pipe and enclosed in purple colored polyethylene encasement. Further, for recycled water pipelines, a 2-inch wide purple warning tape with text stating "Recycled Water Pipeline 1-foot below" will be buried in the pipe trench 12-inches above the pipe.

6-15.2 ABOVE GRADE FACILITIES

All above grade facilities that are connected to the Recycled Water Systems shall be painted per the EVMWD Standard Specifications. However, these facilities are to be painted purple in color. Submittal of paint color must be approved by the Engineer prior to construction.

6-16 BOLTS AND NUTS FOR FLANGES

Bolts and nuts shall be as indicated below and shall be selected from the Approved Materials List.

- A. High Strength zinc-plated bolts and nuts shall be used for the installation of pipelines up to 20-inch diameter and shall be carbon steel conforming to ASTM A307, Grade A, unless otherwise indicated on the approved drawings. Bolts shall be standard ANSI B1.1, Class A coarse threads. Nuts shall be standard ANSI B1.1, Class 2H coarse threads.
- B. Stainless steel bolts and nuts shall be used for the installation of pipelines 24-inch diameter and larger and for submerged flanges. Bolts and nuts shall be Type 316 stainless steel conforming to ASTM A193, Grade B8M, Class 2 for bolts, and Grade 8M for nuts.
- C. All bolt heads and nuts shall be hexagonal, except where special shapes are required. Bolts shall be of such length that not less than 1/4-inch or more than 1/2-inch shall project past the nut in tightened position.

- D. All bolt and nut threads shall be cleaned by wire brush and thoroughly lubricated with an anti-seize compound, selected from the Approved Materials List.
- E. Gaskets shall be asbestos-free, drop-in ring type, 1/16-inch or 1/8-inch thick and shall be acrylic or aramid fiber bound with nitrile. Gaskets shall be suitable for a water pressure of 500 psi at a temperature of 400 degrees F. Select materials from Approved Materials List.
- F. All bolts and nuts shall be new and unused. Bolts and nuts shall not be reused once tightened. Used bolts and nuts shall be discarded and removed from the job.
- G. Tighten nuts uniformly and progressively.
- H. Buried bolts and nuts shall receive a heavy coat of Bitumastic 50 or equal coating selected from the Approved Materials List prior to being wrapped with polyethylene.

6-17 POLYETHYLENE ENCASEMENT

- A. Polyethylene encasement shall be used for all ferrous metal materials not otherwise protectively coated and as specified hereafter. Polyethylene wrap shall be used for all buried ductile iron valves and fittings.
- B. Polyethylene encasement shall be as indicated below and shall be selected from the Approved Materials List. Polyethylene materials shall be kept out of direct sunlight exposure.
 - 1. Polyethylene sleeves shall be used for the protection of buried ductile iron pipe and shall be a minimum of 12 mil thick polyethylene plastic in accordance with AWWA C105.
 - 2. Polyethylene wrap shall be used for the protection of buried ferrous fittings and valves and shall be a minimum 8 mil thick polyethylene plastic in accordance with AWWA C105.
 - 3. Polyethylene wrap and sleeves shall be used for the protection of buried ferrous fittings and valves and shall be clear or blue for use with potable water and purple for use with recycled water.
- C. Polyethylene or vinyl adhesive tape a minimum of 50mm (2") wide or plastic tie straps shall be used to secure polyethylene encasement.
- D. Polyethylene encasement shall completely encase and cover all metal surfaces.

Pipe: All ductile-iron pipe shall be encased with polyethylene sleeves in accordance with Method A described in AWWA C105, or with polyethylene wrap in accordance with Method C described in AWWA C105.

Fittings: Fittings such as tees, bends and reducers shall be encased with polyethylene wrap in accordance with AWWA C105.

Valves: Vales shall have only the stem and operating nut exposed and the wrap shall be attached so that valve operation will not disturb the wrapping or break the seal.

- E. Polyethylene sleeves shall be secured with polyethylene or vinyl adhesive tape or plastic tie straps at the ends and quarter points along the sleeve in a manner that will hold the sleeve securely in place during backfill. Polyethylene wrap shall be secured with polyethylene or vinyl adhesive tape in a manner that will hold the wrap securely in place during backfill.

6-18 WARNING/IDENTIFICATION TAPE

- A. Warning identification tape shall be used to identify location of underground utilities and to act as a warning against accidental dig-ins of buried utilities. Warning/identification tape shall be used on all underground water and recycled water mains, casings, force mains, sewer mains, and all related appurtenances. Warning/identification tape shall also be used on cathodic protection wiring systems and tracer wire brought into and out of access ports.
- B. Warning/identification tape shall be as indicated below and in accordance with the Approved Materials List.
 - 1. Tape shall consist of one layer of aluminum foil laminated between two colored layers of inert plastic film (non-metallic) formulated for prolonged underground use that will not degrade when exposed to alkalis, acids and other destructive substances commonly found in soil. The lamination bond should be strong enough that the layers cannot be separated by hand.
 - 2. Tape shall be puncture-resistant and shall have an elongation of two times its original length before tearing or separating.
 - 3. Tape shall bear a continuous, printed message every 16- to 36-inches warning of the installation buried below. Tape shall be colored to identify the type of utility intended for identification. Printed message and tape color shall be as follows:

<u>Printed Message</u>	<u>Tape Color</u>
Caution: Waterline Buried Below	Blue
Caution: Recycled Waterline Buried Below	Purple
Caution: Sewer line Buried Below	Green
Caution: Cathodic Protection Cable Buried Below	Red
Caution: Electric Line Buried Below	Red

Ink used to print messages shall be permanently fixed to tape and shall be black in color.

- C. Tape shall be minimum 5 mil x 6” wide with a printed message on one side.
- D. Warning/identification Tape shall be installed as described below in accordance with the Standard Drawings.
 - 1. Tape shall be placed at the top of the pipe zone 12” above and centered over the utility intended for identification. Tape used with onsite potable and recycled water irrigation systems shall also be installed at 12” above the pipe.
 - 2. Tape shall be installed with the printed side up and run continuously along the entire length of the utility intended for identification. Tape shall be installed on the main piping and all appurtenant laterals, including blowoffs, air valve assemblies, fire hydrants, and services. Tape splices shall overlap a minimum of 24” for continuous coverage.
 - 3. Tape shall be installed prior to placement of the Trench Zone Backfill.

6-19 TRACER WIRE

- A. Tracer wire shall be used on all buried water, recycled water mains and sewer force mains for the purpose of providing a continuous signal path used to determine pipe alignment after installation. Tracer wire is not required in installation of gravity sewer mains.
- B. Tracer wire shall be as indicated below and shall be selected from the Approved Materials List.

1. Tracer wire shall be installed with all water and recycled water mains.
2. Wire shall be placed on the top centerline of the pipeline and shall run continuously along the entire length of pipe prior to placement of trench backfill. Wire shall be continuous throughout the pipeline, including within pipe casing.
3. Tracer wire shall be secured to the pipe at 6' intervals with plastic adhesive tape, duct tape or plastic tie straps. The wire may alternately be secured to the pipe by looping the tracer wire around itself such that tracer wire remains continuous atop the pipe during backfill operations.
4. Tracer wire access ports shall be installed in accordance with the Standard Drawings within the concrete splash pad of all fire hydrants installed as a part of the work. Tracer wire test to fire hydrant in a CP test box at intervals of not more than 500 feet. Locations of all tracer wire access ports installed shall be noted on the as-built drawings.
5. Wire shall extend into the access port and terminate with a coiled 24" length of wire. All tracer wire not located atop pipe shall be installed within a conduit at a minimum depth of 24" in accordance with the Standard Drawings.
6. The Contractor shall test tracer wire for electrical continuity in the presence of the Inspector prior to the installation of any paving over atop pipelines or appurtenances. Testing shall be accomplished using a Greenlee 77HP tone generator, or similar device, and a testing telephone handset.

6-20 JOINT RESTRAINT SYSTEM

- A. Joint restraint systems may be used for PVC and ductile iron pipe with prior authorization of the District. Joint restraint systems shall be used in the place of, or in conjunction with, concrete thrust blocks as directed. Contractor shall submit shop drawings, calculations, and catalog data for joint restraint systems in accordance with Part III Subsection 1-4.
- B. Joint restraint systems for PVC pipe, when authorized for use, shall be ductile-iron and shall consist of a split-ring restraint with machined (not cast) serrations on the inside diameter, a back-up ring, and connecting bolts.

Joint restraint system for ductile iron pipe shall be in accordance with the Approved Materials List.

- C. Joint restraint systems shall be installed in accordance with the manufacturer's recommendations and as described below:

1. Length of pipe to be restrained on each side of bends, tees, reducers and other fittings shall be determined by the Private Engineer or manufacturer of the restraint device.
2. Split ring restraint shall be installed on the spigot end of pipe, connected to a back-up ring which seats behind the bell of the adjoining pipe or fitting.
3. Restraint devices can be installed prior to lowering pipe into the trench.
4. Coat all nuts, bolts and washers with Bitumastic 50 or 3M undercoating 08881 and encase in polyethylene wrap in accordance with Section 6-17. Grease is not permitted.

6-21 FLEXIBLE PIPE COUPLINGS

A. Flexible pipe couplings shall be in accordance with the Approved Materials List and as described below:

1. Steel Couplings shall have middle rings made of steel conforming to ASTM A 36/A 36M, A 53 (Type E or S), or 512 having a minimum yield strength of 207 MPa (30,000 psi). Follower rings shall be ductile-iron per ASTM A 536, or steel per ASTM A 108, Grade 1018 or ASTM A 510, Grade 1018. Minimum middle ring length shall be 7" for pipe sized 6" through 24".
2. Sleeve bolts shall be made of stainless steel per ASTM A 193 and shall have a minimum yield strength of 276 MPa (40,000 psi), an ultimate yield strength of 414 MPa (60,000 psi), and shall conform to AWWA C111.

B. Flexible pipe couplings shall be installed in accordance with the manufacturer's recommendations and as described below. Flexible couplings are not permitted on steel pipe.

1. Use plain-end pipe with flexible couplings per AWWA C200. Provide joint harnesses per AWWA M11 for aboveground applications or where indicated on the Approved Plans.
2. Flexible couplings may be used only where indicated on the drawings.
3. Clean oil, scale, rust, and dirt from the pipe ends and touch-up the epoxy coating and allow time for curing before installing the coupling. Clean the gaskets before installing.
4. Follow the manufacturer's recommendations for installation and bolt torque using a properly calibrated torque wrench.
5. Lubricate the bolt threads per Section 6-16 prior to installation.

6-22 GROOVED END OR SHOULDERED COUPLINGS FOR DUCTILE IRON OR STEEL PIPE

A. Grooved end or shouldered couplings shall be in accordance with the Approved Materials List and as described below:

1. Use square-cut shouldered or grooved ends per AWWA C606. Grooved-end couplings shall be malleable iron per ASTM A 47, or ductile iron per ASTM A 536. Gaskets shall be per ASTM D 2000.
2. Bolts in exposed service shall conform to ASTM A 183, 60 MPa (10,000 psi) tensile strength.

B. Grooved-end or shouldered couplings shall be installed in accordance with the manufacturer's recommendations and as described below:

1. Grooved-end or shouldered joint couplings shall be installed per AWWA C606 and the manufacturer's recommendations.
2. Clean loose scale, rust, oil, grease, and dirt from the pipe or fitting groove and touch-up the epoxy coating as necessary, allowing time for curing before installing the coupling.
3. Clean the gasket before installation. Apply a lubricant selected from the Approved Materials List to the gasket exterior including lips, pipe ends, and housing interiors.
4. Fasten the coupling alternately and evenly until the coupling halves are seated. Follow the manufacturer's recommendations for bolt torque using a properly calibrated torque wrench.

6-23 VALVE WELLS

Valve wells shall be furnished in accordance with the District Standard Drawings.

A. Valve well size and material shall be as follows:

<u>Valve Size</u>	<u>Well Size and Material</u>
2"	6" diameter SDR-35 PVC sewer pipe
Larger than 2"	8" diameter SDR-35 PVC sewer pipe

1. PVC gate wells for use in potable water system applications shall be white or blue.
 2. PVC valve wells for use in recycled water system applications shall be purple.
- B. Valve well lids shall be furnished in accordance with the Approved Materials List.
1. Valve well lids shall be circular ductile-iron, and shall include a skirt for a close fit inside the upper portion of the valve well for potable water. Well lids shall be triangular for recycled water systems. Lids shall be cast with EVMWD and the word WATER for use on potable water systems. RECYCLED for use on recycled water systems or SEWER for use on sewer systems.
 2. For valves greater than 2" use one of two types of lids as called for on the Standard Drawings.
- C. Marker posts shall be provided for gate wells not located in paved areas. Marker posts shall conform to the requirements below:
1. Manufactured from composite materials
 2. EVMWD identification on one side.
 3. Provide resistance to vandalism, ultraviolet light and extreme temperature changes.
 4. Minimum 3.8 inch width, 6" maximum width.
 5. Length of 62" to 66".
 6. Available in APWA designed colors.
 7. Fifteen year warranty from manufacturer.
- D. Valve wells shall be installed as shown on the Standard Drawings and as described below:
1. Valve wells shall be installed with lids flush with the final surface.
 2. Valve wells shall be coated to with blue paint for potable water, purple paint for recycled water and green paint for sewer (force main) in accordance with Standard Drawings excepting normally closed valves which should be painted red.
 3. Valve Stem Extensions shall be installed when the valve-operating nut is more than 5' below grade. Stem extensions shall be of sufficient length to bring the operating nut to a point between 12" and 18" below the gate well lid. Valve stem extensions shall be installed in accordance with the Standard Drawings.

6-24 TEMPORARY ABOVEGROUND PIPE (HIGH LINE)

High line piping layout, materials and appurtenances shall be as indicated on the final submittal from the shop drawing review process and shall comply with the Approved Materials List.

- A. All high line piping, fittings, and service connections shall be furnished, installed, and maintained by the Contractor, and the Contractor shall make connections to a water source designated by the District, under District observation.
- B. All pipe, valves, fittings, hose and connections furnished by the Contractor shall be of good quality, clean, and suitable for conveying potable water in the opinion of the District Engineer.
- C. The high line pipe shall be installed in such a manner that it will not present a hazard to traffic and will not interfere with access to homes and driveways along its route.
- D. Valves shall be installed at 200' intervals or as directed by the District Engineer. The use of pressure reducing valves (PRV) may be required as directed by the District Engineer.
- E. The Contractor shall be responsible for disinfecting all high line, connections, flushing, and assisting the District in taking water samples for bacteriological testing.
- F. Following disinfection and acceptance of the high line as a potable water system, the Contractor shall maintain continuous service through the high line piping to all consumers normally served both directly and indirectly by the pipeline.
- G. Upon completion of the work, the Contractor shall remove the high line piping and appurtenances.
- H. If progress in making repairs to the high line is inadequate, the District Engineer may order necessary corrective measures. Corrective measures may consist of directing District personnel or another contractor to complete the work. All costs for corrective measures shall be borne by the Contractor.
- I. High line piping, where shown on the Approved Plans or required by the District Engineer, shall be furnished, installed, disinfected, connected, maintained, and removed by the contractor. The contractor shall provide a submittal to the District showing pipe layout, tie-in details, materials, sizing and flow calculations, schedule and duration of use for each segment, and disinfection for tall high line piping.

6-25 CURB IDENTIFICATION

The contractor shall mark the location of all potable water, recycled water and sewer laterals at the curb crossing by stamping the face of the curb in 50mm (2”) high letters as described below:

- A. Potable water laterals shall be stamped with a letter “W”.
- B. Recycled water laterals shall be stamped with a letter “RW”.
- C. Sewer laterals to be stamped with a letter “S”.
- D. Irrigation meter laterals shall be stamped with a letter “IW” that are private and cross back into public right-of-way.

6-26 METER BOX INSTALLATION

Meter boxes shall be installed at the locations shown on the Approved Plans and in accordance with the Standard Drawings. Near the completion of the project, a final meter box adjustment to finish grade may be required. Water meters shall not be installed until final adjustments are made to the meter box and approved by the District. Meter boxes shall not be installed in driveways or sidewalks.

6-27 ABANDONMENT OR REMOVAL FROM SERVICE OF EXISTING FACILITIES

Before excavating for new mains that are to replace existing pipes or services, the Contractor shall make provisions for the continuation and maintenance of service to customers as directed by the District Engineer.

Abandonment or removal from service of existing mains, appurtenances or water services shown on the Approved Plans or as called for by the District Engineer shall be as indicated below and in accordance with the Standard Drawings:

A. Abandonment in place:

- 1. Existing pipe 4” and smaller shall have a short section of pipe removed and pipe ends encased in concrete.

2. Existing pipe 6" through 14" shall be cut and plugged with concrete or shall be pressure-grouted at intervals of 200'. District to determine the extent of grouting required, if any.
3. Existing pipe 16" and larger shall be entirely filled by pressure-grouting to a bulkhead or by blown sand. District to determine the extent of grouting required, if any.
4. Existing pipe ends shall be filled with concrete in accordance with the Standard Drawings.
5. All valves shall be turned to the closed position.
6. Gate wells shall be cut 24" below grade and filled with concrete or removed and replaced with compacted backfill.
7. Water service corporation stops shall be closed. Meter boxes and curb stops shall be removed.
8. Water services to be abandoned that are connected to pipelines that will remain in service shall be abandoned in-place in accordance with the Standard drawings. A plug shall be placed in the service pipe where it was disconnected from the potable or recycled water main.
9. Sewer laterals shall be cut and plugged with concrete at the main as directed by the District Engineer for the specific circumstance and material type identified.
10. Sewer manholes shall have the cover and frame, concrete ring, grade rings and cone section removed. Inlet and outlet piping shall be plugged with concrete, manhole void shall be filled with sand, and a 12" thick, reinforced concrete slab shall be poured over the top of remaining manhole. The Contractor shall backfill hole to ground surface with compacted select fill.

B. Removal by excavation:

1. Existing pipe and appurtenances shall be removed from the ground as indicated on the Approved Plans or as directed by the District Engineer.
2. Contractor shall provide measures that allow for the removal of existing sewer mains and appurtenances with no leakage of raw sewage. Transportation of sewer mains and appurtenances removed from service shall be in waterproof trucks to prevent raw sewage from leaking on public streets.
3. Removal of asbestos-cement pipe (ACP) and sewer mains and appurtenances shall be in accordance with all applicable State and Federal requirements. Legal disposal is the responsibility of the Contractor. Obtain concurrence from the agency having disposal jurisdiction with respect to disposal sites.
4. Backfill, compaction, and surface repair of all excavations for removal of pipe and appurtenances shall be made in accordance with the Approved Plans, Section 2 of the Technical Specifications, and the Standard Drawings.

6-28 SALVAGE

When the Contractor is required to remove existing pipe and appurtenances, or portions thereof, from the ground, such materials may, at the discretion of the Engineer, be considered salvage. All materials identified as salvage are considered property of the District.

- A. The Contractor shall remove and temporarily stockpile all materials identified as salvage in a safe location that will not disrupt traffic or shall deliver salvage to the District's Field Operations Yard as directed by the District Engineer.
- B. The Contractor shall legally dispose of all other materials in an appropriate manner. Disposal is the responsibility of the Contractor. Obtain concurrence from the agency having disposal jurisdiction with respect to disposal sites and transportation methods.

6-29 RECONNECTION

- A. The Contractor may encounter unused service laterals or appurtenant piping connected to an existing pipeline being replaced. Laterals and appurtenance piping that will not be connected to the new pipeline shall be abandoned as described above.
- B. Existing service laterals or appurtenances shall be connected to new pipelines as shown on the Approved Plans or as directed by the District Engineer in accordance with the Standard Drawings.

6-30 COPPER TUBING, BRASS AND BRONZE PIPE FITTINGS

6-30.1 DESCRIPTION

This section includes materials and installation of copper tubing, brass and bronze pipe fittings and appurtenances.

6-30.2 REFERENCE STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

ANSI B1.1	Unified Inch Screw Threads
ANSI B1.2	Gauges and Gauging for Unified Inch Screw Threads
ANSI B1.20.1	Pipe Threads, General Purpose (Inch)
ANSI B16.24	Cast Copper Alloy Pipe Flanges and Flanged Fittings
ASTM A 307	Carbon Steel Bolts and Studs
ASTM B 43	Seamless Red Brass Pipe, Standard Sizes
ASTM B 62	Composition Bronze or Ounce Metal Castings
ASTM B 88	Seamless Copper Water Tube
ASTM B 88M	Seamless Copper Water Tube (Metric)
AWWA C800	Underground Service Line Valves and Fittings

6-30.3 SUBMITTALS

- A. Submit shop drawings in accordance with General Specifications, Section 1-4.
- B. Submit manufacturer's catalog data and descriptive literature for copper tubing, brass piping, brass nipples and fittings, bronze ball valves, angle meter stops, corporation stops, meter flange adapters and service saddles. Show dimensions and material of construction by specification number and grade.

6-30.4 RECYCLED WATER IDENTIFICATION

Copper Tubing, Brass, and Bronze Pipe Fittings for recycled water shall be identified with purple color coating, purple polyethylene sleeve, identification labels, or signs.

6-30.5 COPPER TUBING

- A. Copper tubing shall conform to the requirements of ASTM B 88 Type K or seamless copper water tube. Copper tubing shall be soft. Components shall be selected from the Approved Materials List in accordance with the Standard Drawings.
- B. Trenching, bedding, backfilling and compacting shall be performed in accordance with Technical Specifications Section 2 and the Standard Drawings. Provide a minimum cover of 30-inch below finished street grade.
- C. Cut tubing true and square and remove burrs.
- D. Bends in soft copper tubing shall be long sweep. Shape bends with shaping tolls. Form bends without flattening, buckling, or thinning the tubing wall at any point.
- E. Assemble copper tubing and fittings per the manufacturer's recommendation in accordance with the Standard Drawings.

6-30.6 BRASS PIPE, NIPPLES, AND FITTINGS

Threaded nipples, brass pipe and fittings shall conform to ASTM B 43, regular wall thickness. Threads shall conform to ANSI B1.20.1. Fittings shall be compression type.

6-30.7 BRONZE APPURTENANCES

- A. Corporation stops, curb stops, meter and angle meter stops, meter flange adapters, and bronze-bodied service saddles shall be selected from the Approved Materials List in accordance with the Standard Drawings.
- B. Fittings shall be compression type.
- C. All items specified herein shall be manufactured of bronze conforming to ASTM B 62.
- D. Service saddles shall be the double strap type or approved equal. Service saddles shall be used on all service and appurtenance connections on PVC piping. For piping materials other than PVC, service and appurtenance connections shall be performed in accordance with the Approved Drawings.

6-31 SERVICE SADDLES

- A. Service saddles shall be located a minimum of 18-inch from any pipe joint or fittings.
- B. Service saddles for connections shall be located a minimum of 18-inch from other saddles. Additionally, multiple service saddles for connections that are installed on the same side of a single pipe length shall be alternately staggered between 10° and 30° from horizontal to prevent a weak plane in the pipe.
- C. The surface of the pipe shall be clean and all loose material shall be removed to provide a hard, clean surface.
- D. The service saddle shall be tightened in accordance with the manufacturer's recommendations to ensure a tight seal, using care to prevent damage or distortion of the service saddle or corporation stop due to over-tightening.
- E. The tap into the pipe shall be made in accordance with the pipe manufacturer's recommendation. Tapping tools and shell cutters with internal teeth or double slots that will retain the coupon shall be used.

6-32 COLD-APPLIED WAX TAPE COATING

6-32.1 DESCRIPTION

This section includes materials and application of a three-part, cold-applied wax tape coating system for buried piping and appurtenances per AWWA C217 and a polyethylene over wrap per AWWA C105.

6-32.2 SUBMITTALS

Submit manufacturer's catalog data sheets and application instructions per General Specifications Section 1-4.

6-32.3 PRIMER

- A. Primer shall be a blend of petrolatums, plasticizers, and corrosion inhibitors having a paste-like consistency. The primer shall have the following properties:

Color	Brown
Pour Point	100°F to 110°F
Flash Point	350°F
Coverage	1 gallon/100 square feet

B. Primer shall be Trenton Wax Tape Primer, Denso Paste Primer, or equal.

6-32.4 WAX TAPE

A. Wax tape shall consist of a synthetic-fiber felt, saturated with a blend of microcrystalline wax, petrolatums, plasticizers, and corrosion inhibitors, forming a tape coating that is easily formable over irregular surfaces. The tape shall have the following properties:

Color	Brown
Saturant Pour Point	115°F to 120°F
Thickness	40 mils minimum
Tape Width	Various
Dielectric Strength	100 volts/mil

B. Wax tape shall be Trenton No. 1 Wax Tape, Denso “Densyl Tape”, or equal.

6-32.5 PLASTIC WRAPPER

A. Wrapper shall be a polyvinylidene chloride plastic with three 50-gauge plies wound together as a single sheet. The wrapper shall have the following properties:

Color	Clear
-------	-------

Thickness	1.5 mils
Tape Width	6 inches

- B. Plastic wrapper shall be Trenton Poly-Ply, Denso Tape PVC Self-Adhesive, or equal.

6-32.6 POLYETHYLENE SHEET WRAPPING

The encasements shall consist of a polyethylene sheet or tube of at least 8-mils thickness conforming to AWWA C105/A21.5-10 for linear low-density polyethylene (LLDPE) film.

6-32.7 WAX TAPE COATING APPLICATION

- A. Surfaces shall be clean and free of all dirt, grease, water, and other foreign material prior to the application of the primer and wax tape.
- B. Apply primer by hand or brush to all surfaces to be wrapped, including overlapping adjacent dielectric and cement mortar coatings by 4 inches minimum. Work the primer into all crevices and completely cover all exposed metal surfaces.
- C. Apply the wax tape immediately after the primer application. Work the tape into the crevices around fittings. Wrap the wax tape spirally around the pipe and fittings. Use a minimum overlap of 55% of the tape width. Apply wax tape where shown on drawings and to buried mechanical and restrained joints, joint bolts, grooved-end couplings, flexible couplings, joint harnesses, valves and insulating flanges. Apply per Manufacturer's recommendations.
- D. Work the tape into the crevices and contours of irregularly shaped surfaces and smooth out so that there is a continuous protective layer with no voids or spaces under the tape.
- E. Wrap the completed wax tape installation with the plastic wrapper. Wrap spirally around the pipe and fittings. Use a minimum overlap of 55% of the wrapper. Secure plastic wrapper to pipe with 6-inch wide adhesive tape.

6-32.8 APPLICATION OF POLYETHYLENE SHEET COATING

Wrap completed wax tape coating system with polyethylene film and secure around the adjacent pipe circumference with adhesive tape per AWWA C105/A21.5-10. See Section 6-17 "Polyethylene Encasement."

SECTION 7 – VALVES

7-1 GENERAL

The Contractor shall furnish and install all valves shown and specified. All valves shall be new and of current manufacture.

- 7-1.1** The flanges of valves shall be flat faced. Flanges shall conform in dimensions and drilling to ANSI B16.1 Class 125 for valves designed for a working pressure of 200 psi or less; flanges for class 250 valves shall conform to dimensions and drilling of ANSI B16.1 Class 250 for valves designed for a working pressure of greater than 200 psi.
- 7-1.2** Unless otherwise specified, each valve body shall be shop tested under a test pressure equal to twice its design water-working pressure.
- 7-1.3** Unless otherwise specified, all interior bronze parts of valves shall conform to the requirements of the "Specification for Composition Bronze or Ounce Metal Castings" (ASTM B 62). Unless otherwise specified, all interior stainless steel components shall be Type 18-8 stainless steel.
- 7-1.4** Except where otherwise provided, ferrous surfaces, exclusive of stainless steel surfaces, in the water passages of all valves, 4 inch and larger, shall be factory epoxy-coated by the valve manufacturer as specified in Section 11 – Epoxy Coating. The exterior of all valves for buried service shall be epoxy-coated as specified in Section 11 - Epoxy Coating. **The epoxy lining and coating of all valves will be inspected by the Owner prior to any valve being installed. The Contractor shall notify the Owner seven days prior to valve installation to arrange for inspection.**
- 7-1.5** Valve operators shall turn clockwise to close the valve.
- 7-1.6** Shop drawings on all valves shall be furnished in accordance with Part III, Subsection 1-4.
- 7-1.7** The Contractor shall furnish at no additional cost to the Owner, the services of a factory representative to adjust all valves over 4 inches to assure satisfactory operation.
- 7-1.8** All brass components with wetted surfaces that come in contact with water intended for human consumption shall be made of "Lead Free" brass.

"Lead Free" brass is defined in this specification as a brass alloy having not more than 0.25% total lead content by weight. These components are to meet requirements of AWWA Standard C800 and be made from CDA/UNS Copper

Alloy C89520 (EnviroBrass) in accordance with the chemical and mechanical requirements of ASTM B584, copper alloy CD No. C89833 (Federalloy) or approved equal.

“Lead Free” fittings are to be cast, stamped or embossed with a mark, such as “NL”, “EBII”, “DF” or approved other, to indicate that the product is made from a “Lead Free” alloy and to visually differentiate “Lead Free” fittings from non-lead free fittings.

Brass components that do not come in contact with water intended for human consumption, including but not limited to brass used for recycled water systems, are to be made of CDA/UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA Standard C800.

7-2 BUTTERFLY VALVES

7-2.1 Butterfly valves shall conform to the latest edition of AWWA C504. Valves shall be of the class and end type specified on the plans. All body bolts shall be Type 316 stainless steel. Valves shall be provided with a 2-inch square AWWA operating nut and opened by turning counterclockwise.

7-2.2 All butterfly valves shall be of the tight-closing, rubber-seat type, with rubber seats which are recess mounted and securely fastened to the valve body and in full compliance with AWWA C504. Valves shall be bubble tight at rated pressures and shall be satisfactory for applications involving valve operation after long periods of inactivity. Valve discs shall rotate 90 degrees from the full open position to the tight shut position. Valves shall meet the full structural requirements of the applicable classes of AWWA C504.

7-2.3 Valve bodies shall be constructed of cast-iron ASTM A126, Class B unless otherwise specified on the Plans. Flange drilling shall be in accordance with ANSI B 16.1 standard for cast-iron flanges. Two trunnions for shaft bearings shall be integral with each valve body. Body thickness shall be strictly in accordance with AWWA C504.

7-2.4 All valve discs shall be constructed of high-strength cast iron in accordance with ASTM A48, Class 40. All disc seating edges shall be smooth and polished.

Shafts of all valves shall be turned, ground, and polished. Valve shafts shall be constructed of 18-8, Type 304 stainless steel.

7-2.5 Valve seats shall be of a continuous natural rubber or a synthetic rubber compound mounted on the body and a stainless steel seat mounted on the disc. Bonded-in seats must be simultaneously molded-in, vulcanized, and bonded to the body and the seat bond must withstand 75-pound pull under test pressure in accordance with ASTM A276. Valve seats on valves 24-inches and larger shall be field adjustable and replaceable without dismantling operator, disc, or shaft

and without removing the valve from the line. Valves employing a complete rubber liner will not be acceptable in any size.

- 7-2.6** Each valve shall be provided with one or more thrust bearings in accordance with AWWA C504. Thrust bearings which utilize a ferrous metal bearing surface in direct rubbing contact with an opposing ferrous metal surface will not be acceptable.

Valves shall be fitted with sleeve-type bearings. Bearings shall be corrosion resistant and self-lubricating. Bearing load shall not exceed 2,500 psi.

- 7-2.7** The use of a stop or lug cast integrally with or mechanically secured to the body for the purpose of limiting disc travel by means of direct contact or interference with the valve disc in either the open or closed position will not be acceptable.

- 7-2.8** Valve operators shall be designed to hold the valve in any intermediate position between fully opened and fully closed without creeping or fluttering.

For buried service operation, valve operators shall be of the enclosed worm gear type. For non-buried service, operator shall be enclosed worm gear type with handwheel and valve position indicator.

7-3 SMALL BALL VALVES

Small ball valves, less than 4 inches in diameter, shall be all brass with screwed ends designed for a water-working pressure of 300 psi.

7-4 AIR-RELEASE, AIR/VACUUM, AND COMBINATION AIR VALVES

- 7-4.1 Standards** – Valves shall meet or exceed the latest revision of ANSI/AWWA C512 Standard for: Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service, and as additionally specified herein.

7-4.2 Valve Design and Operation

- A. Air-release valves shall function to slowly release pockets of air which accumulate at high points, changes in the line gradient, or sharp directional changes of the piping system.
- B. Air and vacuum valves shall function to exhaust large quantities of air upon pump start up or from pipelines when being filled and to admit large quantities of air when pipelines are drained to prevent vacuum collapse of the pipe or prevent pump air lock.
- C. Combination valves perform both the functions of the air/vacuum and air release valves. Functions of both may be contained in one valve body, or as separate valves of each function piped together as one unit. When two

valves are piped together, an isolation valve shall be installed between the two units.

- D. Manufacturer's identification tag indicating function and size shall be affixed to the valve.

7-4.2.1 Materials of Construction

<u>Item</u>	<u>Material</u>	<u>Specification</u>
Body and cover	Cast iron Or Ductile Iron	ASTM A126, Class B ASTM A536, Grade 65-45-12
Float, and all Internal Parts/Trim	All 316 Stainless Steel	Type 316
Seats/Seals	Buna N	Chlorine resistant
Drain Plugs	Cast Iron	ASTM A126, Class B
Casing Bolts/nuts	Steel	ASTM A 307

7-4.3 Valve Inlet Connections

- A. Valves 2 inches and smaller shall have threaded inlets.
- B. Valves 3 inches and larger shall have flanged inlets.
- C. The contractor shall install a shut off valve at the inlet of all air-release, air/vacuum, or combination valves, as shown on plans and standard details.

7-4.4 Special Provisions

- A. Class 300.
- B. Valves 3-inch and smaller: Contractor shall install a downward facing screened vent opening. Valves 4-inch and larger shall be ordered with factory domed screened outlet.

7-4.5 Manufacturer - APCO, Valmatic, Crispin

7-5 AIR RELEASE VALVES

Air release valves shall be of the size shown on the plans and shall have screwed ends. Bodies shall be high-strength cast iron, and the float, seat, and all moving parts shall be constructed of Type 316 Stainless Steel. Seat washers and gaskets shall be of a material insuring water-tightness. Valves shall be designed for a water-working pressure of 250 psi. The air release valve is to release the small pockets of air, which gather at the high point of a system. The air release valve shall be an APCO Model No. 200A, Valmatic or approved equal.

7-6 GATE VALVES AND RESILIENT WEDGE VALVES

7-6.1 Gate Valves

- 7-6.1.1** The flanges of valves may be raised or plain faced. Flanges of valves designed for a working pressure of 200 psi or less shall be faced and drilled to a 125-pound American Standard dimension. Flanges of all valves designed for a working pressure of greater than 200 psi shall be faced and drilled to 250-pound American Standard dimensions.
- 7-6.1.2** Each valve body shall be tested under a test pressure equal to twice its design water working pressure, in accordance with AWWA C500.
- 7-6.1.3** All interior parts of valves manufactured of bronze or brass, except valve stems, shall conform to the requirements of ASTM B62. Gate valve stems shall have a minimum tensile strength of 70,000 psi, a yield strength of 40,000 psi, and elongation of at least 15 percent in 2-inches. The stem is to be visibly marked so that it meets this requirement.
- 7-6.1.4** All valves connecting to mains shall be flanged on the main side, unless otherwise specified.
- A. Gate Valves: Gate valves shall conform to AWWA C500. Gate valves shall be designed for a minimum working water pressure of 150 psi (and appropriate for the pressure class of the pipe connecting to them) and shall be iron bodied, bottom wedging, ABIP double disc with parallel seats, non-rising stem opening to the left, and provided with O-ring stem seal, and a 2-inch square operating nut for buried service and handwheel for above-ground service. All interior parts of gate valves, including discs, but not including valve stems, shall be constructed of bronze conforming to the requirements of ASTM B62. After the valves are assembled and tested, the manufacturer's name or symbol, the size of the valve, the year of manufacture, and the working water pressure shall be cast in the bonnet or body of the valve. Gate valves shall be furnished with ends as specified on the Plans or by the Owner's Representative.
 - B. Tapping Valves and Sleeves: Tapping valves shall conform to and be tested in accordance with AWWA C500 with the exception of the ends and the seat rings. The valves shall be designed for a minimum working water pressure of 150 psi and shall be iron bodied, bottom wedging, ABIP double-disc with parallel seats, opening to the left, provided with a 2-inch square operating nut, non-rising stem, and O-ring stem seal. The ends shall be flanged. The flange on one end shall have slotted bolt holes to fit all standard tapping machines. Seat rings shall be oversized to permit

the use of full-size cutters. The cast-iron tapping sleeves may be provided with mechanical joints, caulking joint, or corey type.

7-6.2 Resilient Wedge Valves

- 7-6.2.1** All valves shall be new and of current manufacture. Resilient wedge valves may be used only for nominal pipe sizes from 3-inches to 12-inches in diameter.
- 7-6.2.2** Valves shall be furnished and installed with the type of ends shown on the Plans and as herein specified.
- 7-6.2.3** Valves shall be manufactured to meet all applicable requirements of the latest edition of AWWA C509. Flange drilling shall be in accordance with ANSI B 16.1 standard for cast-iron flanges.
- 7-6.2.4** Valves shall have non-rising stems, opening by turning counter-clockwise. Buried valves shall be provided with 2-inch square operating nut with arrow cast in metal to indicate direction of opening, and above-ground valves shall be equipped with a handwheel. Valve stems shall be cast integral with stem collar and furnished of cast, forged, or rolled bronze. Stem nuts shall be independent of the wedge and shall be made of solid bronze. All body nuts and bolts shall be AISI type 316 stainless steel.
- 7-6.2.5** Cast-iron wedge shall have sealing surfaces of the wedge permanently bonded with resilient material to meet ASTM tests for rubber to metal bond ASTM D429. Each valve shall have a smooth unobstructed waterway free from any sediment pockets. Stuffing boxes shall be O-ring seal type with two rings located in stem above thrust collar. Low friction torque reduction thrust bearings shall be located above and below the stem collar.
- 7-6.2.6** Valves shall have hydrostatic shell test of 400 psi and shutoff test of 200 psi. At the 200 psi shutoff test, the valve must be bubble tight – zero leakage will be allowed.

7-7 SWING CHECK VALVE

7-7.1 Horizontal Swing Check Valve

Horizontal swing check valve shall conform to AWWA C508 and shall be Class 150 flanged as indicated, external lever and weight operated type, designed for minimum friction head loss. The valve shall be designed for a water-working pressure of 150 psi. Valve body shall be of cast iron. Seat ring, gate ring, gate stud and appurtenant items shall be bronze mounted to a cast-iron gate. Lever shaft and hinge pin shall be Type 18-8 stainless steel. Ferrous surfaces in the

water passages of valves 4-inch and larger shall be epoxy-coated in accordance with Section 11. Valve shall be as manufactured by Mueller, Cla-Val or approved equal.

7-7.2 Wafer Swing Check Valve

Wafer swing check valve shall have a quick, spring-assisted, closure that minimizes the possibility of water hammer. Horizontal wafer swing check valve shall conform to AWWA C508 and shall be Class 150 as indicated, designed for minimum friction head loss. The valve shall be designed for water-working pressure of 150 psi. Valve body and disc shall be Carbon Steel. Disc, shaft, pivot, washer, cap screws and spring shall be stainless steel.

Manufacturer – Cla-Val Model 501A

Size – per project plans.

7-8 CORPORATION STOPS

Unless otherwise shown in plans, use ball-type corporation stops for all corporation stop installations. Use male iron pipe thread inlet by copper tube size outlet for copper tube size (CTS) Polyethylene Pressure Pipe.

7-9 ANGLE METER VALVES

Unless otherwise shown in plans, use ball type meter valves for all curb stop installations at the meter inlet. Use CTS Polyethylene Pressure Pipe inlet by meter swivel nut outlet with padlock wings for locking the valve in the closed position.

7-10 SMALL VALVES

Valves 2-inch and smaller, unless otherwise shown, shall be all bronze with screwed ends designed for a water-working pressure of 300 psi. Gate valves shall be a rising stem with double disc and parallel seats.

7-11 WELL FLUSH VALVE

7-11.1 Type – Pilot controlled, solenoid actuated, hydraulically operated diaphragm valve. Globe body, 250 lb. flanged ends, size for plans.

7-11.2 Operation – Normally open, pump start signal energizes solenoid and valve closes. Closing time adjustable between 1 and 10 minutes.

- 7-11.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer. Stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut, and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers, in place of in-line strainers, external position indicator.
- 7-11.4 Solenoid – Stainless steel, NEMA 4X enclosure, 120 VAC, 60 Hz, ASCO Redhat.
- 7-11.5 Manufacturer – Cla-Val Model 61-02 BYK CX-all stainless pilot control.

7-12 ALTITUDE VALVE

- 7-12.1 Type – Pilot controlled, hydraulically operated diaphragm valve. Globe body, 150 lb. flanged ends, size per plans.
- 7-12.2 Operation – Hydraulic control with opening and closing speed adjustment between 30 seconds and 180 seconds. Valve shall control high water level in reservoir without floats or other devices. Value shall not be throttling type, and remain fully open until “shut-off” point in reservoir is reached valve then closes slowly. This valve is designed for one way flow only.
- 7-12.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer. Stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut, and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers, in place of in-line strainers, external position indicators.
- 7-12.4 Manufacturer – Cla-Val Model 81-02

7-13 PRESSURE RELIEF VALVE

- 7-13.1 Type – Pilot controlled, hydraulically operated diaphragm valve. Globe body, 150 lb. flanged ends, sized as shown in the plans.
- 7-13.2 Operation – Operation valve opens fast on high pressure to maintain steady line pressure, but closes gradually to prevent surges.

7-13.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer, stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers in place of in-line strainers, external position indicator.

7-13.4 Manufacturer – Cla-Val Model 50-01

7-14 PUMP CONTROL VALVE

7-14.1 Type – Pilot controlled, solenoid activated, hydraulically operated diaphragm valve with built-in check feature. Globe body, 150 lb. flanged ends, sized as shown in the plans.

7-14.2 Operation – Pump starts against closed valve, valve opens slowly. Opening time adjustable between 1 and 3 minutes. When pump stop signal is sent, valve closes slowly. Closing time adjustable between 1 and 3 minutes. When valve is completely closed, limit switch signals PLC and pump de-energizes. During power failure check feature closes valve to prevent reverse flow.

7-14.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer, stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers in place of in-line strainers, external position indicator.

7-14.4 Solenoid – Stainless steel body, NEMA 4X enclosure, 120 VAC, 60 Hz, ASCO Red-hat.

7-14.5 Manufacturer – Cla-Val Model 60-19.

7-15 CHECK (HYDRAULIC) AND PRESSURE SUSTAINING VALVE

7-15.1 Type – Pilot controlled, hydraulically operated diaphragm valve. Globe body, 250 lb. flanged ends, size per plans.

- 7-15.2 Operation – Normally closed, opens when upstream pressure exceeds set point. Opening time adjustable between 1 and 3 minutes. Opening pressure setting adjustable between 20 psi and 200 psi. Closes when downstream pressure exceeds upstream pressure. Closing time adjustable between 1 and 3 minutes.
- 7-15.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer. Stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut, and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers, in place of inline strainers.
- 7-15.4 Valve Position Indicator Limit Switch - CLA VAL model:X105L, weather-proof enclosure.
- 7-15.5 Manufacturer – Cla-Val Model 50-01 GBCDS KCX - all stainless pilot control.

7-16 FLOW CONTROL VALVE

- 7-16.1 Type – Pilot controlled, solenoid actuated, hydraulically operated diaphragm valve. Angle body, 150 lb. flanged ends, internal and external epoxy coating, size per plans.
- 7-16.2 Operation – Solenoid control with opening and closing speed adjustment between 30 seconds and 3 minutes.
- 7-16.3 Materials and Coating – Ductile iron body and cover, epoxy coated. Cast steel disc retainer and diaphragm washer. Stainless steel valve trim. Buna-n disc. Nylon reinforced Buna-n diaphragm. Stainless steel stem, nut, and spring. Bronze pilot with stainless steel trim and Buna-n diaphragm. Stainless steel external tubing and components with y-type strainers, in place of inline strainers, external position indicator check feature.
- 7-16.4 Solenoid – Stainless steel body, NEMA 4X enclosure, 120 VAC, ASCO Red-hat.
- 7-16.5 Manufacturer – Cla-Val Model 131-01.

APPENDIX B – PROJECT SIGN

APPENDIX C – SCAQMD – RULE 403

APPENDIX D- STANDARD PLANS

Project Name: RCFC&WCD - Wildomar MDP Lateral C-1 SD
 Project Number: 14-0164
 Cost Estimate Date: 5/21/2015

						SHEET #													
Item No.	Description	Unit	Quantity	Unit Cost	Total Cost	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Mobilization	LS	1	\$100,000	\$100,000	1													
2	Water Control	LS	1	\$5,000	\$5,000	1													
3	Traffic Control	LS	1	\$2,500	\$2,500	1													
4	Clearing and Miscellaneous Work	LS	1	\$10,000	\$10,000	1													
5	1.5" Deep Cold Mill	SF	17022	\$0.25	\$4,256														17022
6	Transition Structure No. 1	LS	1	\$15,000	\$15,000		1												
7	Modified Transition Structure No. 1	LS	1	\$9,500	\$9,500								1						
8	Junction Structure 1	EA	1	\$3,500	\$3,500		1												
9	Lateral C-1/C-1A Junction Structure	EA	1	\$25,000	\$25,000											1			
10	Concrete Collar Per RCFC&WCD Std M803	EA	1	\$3,500	\$3,500									1					
11	Manhole No. 1 per Std MH251	EA	2	\$5,500	\$11,000						1			1					
12	Manhole No. 2 per Std. MH 252	EA	5	\$5,500	\$27,500		1	1	1		1	1							
13	Manhole No. 3 per Std MH253	EA	2	\$4,500	\$9,000					1			1						
14	6'x6'x6" Concrete Pad	EA	6	\$750	\$4,500		1	1	1	1		1						1	
15	Concrete Bulkhead per RCFC&WCD Std Dwg M816	EA	2	\$750	\$1,500						1			1					
16	Catch Basin No. 1 per Std CB100	EA	2	\$3,500	\$7,000						2								
17	Gutter Depression per Std Dwg LD201	EA	2	\$1,500	\$3,000						2								
18	Concrete Drop Inlet per RCFC&WCD Std Dwg CB110	EA	1	\$3,500	\$3,500											1			
19	90" RCP (D-1600) (5000 psi)	LF	479	\$530	\$253,870		384.5	94.5											
20	84" RCP (D-1800) (5000 psi)	LF	739	\$475	\$351,068			300	97.3	206.34	135.5								
21	84" RCP (D-1400) (5000 psi)	LF	500	\$450	\$224,955				297.3	171.4	31.2								
22	72" RCP (D-1800)	LF	425	\$380	\$161,500							275	150						
23	72" RCP (D-1200)	LF	97	\$370	\$36,001							97.3							
24	36" RCP (D-Load 1600)	LF	8	\$250	\$2,000										8				
25	18" RCP (Class IV)	LF	400	\$115	\$46,046								4	209.4	187				
26	18" HDPE Pipe	LF	127	\$40	\$5,080								127						
27	Construct Aggregate Base, Class 2	CY	95	\$40	\$3,800														95
28	Hot Mix Asphalt - Type III B2-PG64-10 AC	TONS	225	\$100	\$22,500														225
29	Remove, Salvage and Replace Existing Fence	LF	857	\$3	\$2,571			122	400	235			20			80			
30	Install Temporary Fence at TCE	LF	1273	\$5	\$6,365			142	400	205		340	186						

Project Name: RCFC&WCD - Wildomar MDP Lateral C-1 SD

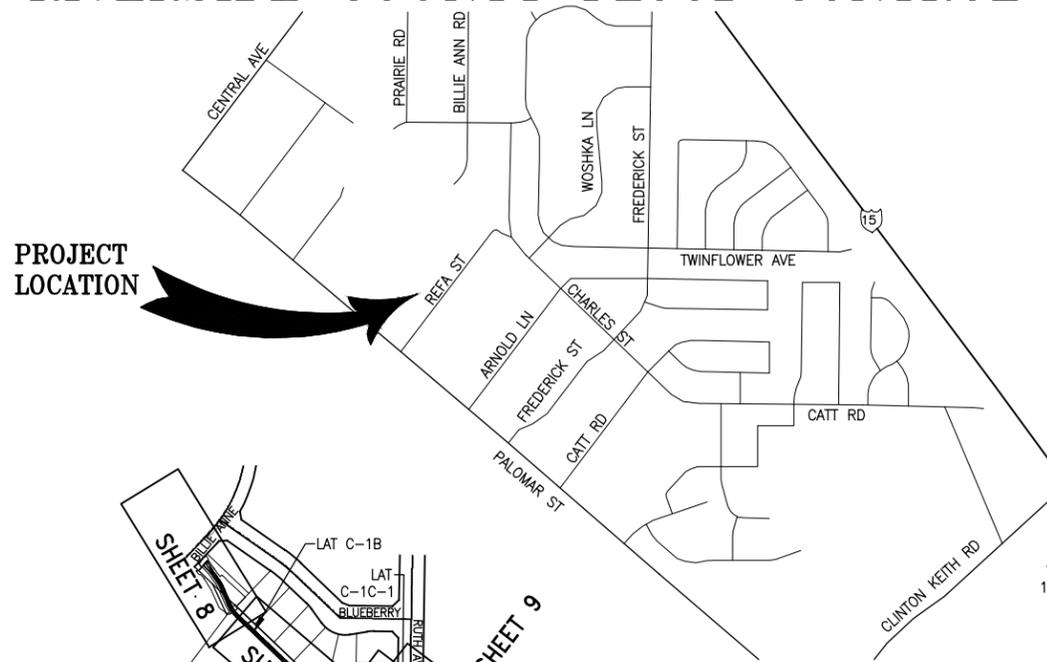
Project Number: 14-0164

Cost Estimate Date: 5/21/2015

											SHEET #									
31	Remove and Replace Existing Private 30" RCP	LS	1	\$1,000	\$1,000			1												
32	Remove Existing Retaining Wall, Footing and Rip-Rap	LS	1	\$5,000	\$5,000								1							
33	Remove Interfering Portions of 84" RCP	LS	1	\$2,000	\$2,000						1									
34	Retrofit Existing Catch Basin	LS	1	\$1,500	\$1,500									1						
35	Protect Existing Pine Tree In place, Deadwood Canopy, Apply Root Stimulator	EA	1	\$4,500	\$4,500			1												
36	Remove Trees, Bushes and Irrigation System in R/W Sta 20+40 to Sta 24+30	LS	1	\$2,000	\$2,000				1	1										
37	Remove Exist Rip-Rap and Headwall, Bulkhead abandoned SD and Backfill	LS	1	\$2,500	\$2,500								1							
38	Construct Flared End Section - Caltrans D94A	EA	1	\$750	\$750									1						
39	Install 18"x6" 45 Deg Reducing HDPE WYE Cleanout	EA	1	\$500	\$500									1						
40	Construct Type G1 Inlet per Caltrans RSP D73	EA	1	\$2,500	\$2,500									1						
41	Install Riprap Energy Dissipater	EA	1	\$1,200	\$1,200									1						
42	Dust Abatement	LS	1	\$5,000	\$5,000	1														
43	Hydroseeding	AC	0.95	\$5,000	\$4,750			0.05	0.18	0.10			0.39	0.22						
44	Storm Water and Non-Storm Water Pollution Control	LS	1	\$7,500	\$7,500	1														
45	Relocate Existing 8" Water	LS	1	\$50,000	\$50,000							1								

\$1,451,712

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT



R.C.F.C. & W.C.D. STANDARD DRAWINGS

MH 251	MANHOLE NO. 1
MH 252	MANHOLE NO. 2
MH 253	MANHOLE NO. 3
MH 257	MANHOLE SHAFT FOR CAST PIPE
MH 259	STANDARD DROP STEP
MH 260	24" MANHOLE FRAME AND COVER
M 803	CONCRETE COLLAR
M 807	SANITARY SEWER PROTECTION
M 814	ABBREVIATIONS AND SYMBOLS
M 816	CONCRETE BULKHEAD
TS 301	TRANSITION STRUCTURE NO. 1
TS 303	TRANSITION STRUCTURE NO. 3
JS 227	JUNCTION STRUCTURE NO. 2
JS 228	JUNCTION STRUCTURE NO. 3
JS 229	JUNCTION STRUCTURE NO. 4 (CASE 1)
CB 109	CATCH BASIN
CB 100	CATCH BASIN NO. 1
CB 110	DROP INLET
LD 201	GUTTER DEPRESSION

RIVERSIDE COUNTY STANDARD DRAWINGS

STD 300	CURB INLET CATCH BASIN
STD 311	GUTTER DEPRESSION FOR CURB OPENING CATCH BASIN

SPPWC STANDARD DRAWINGS

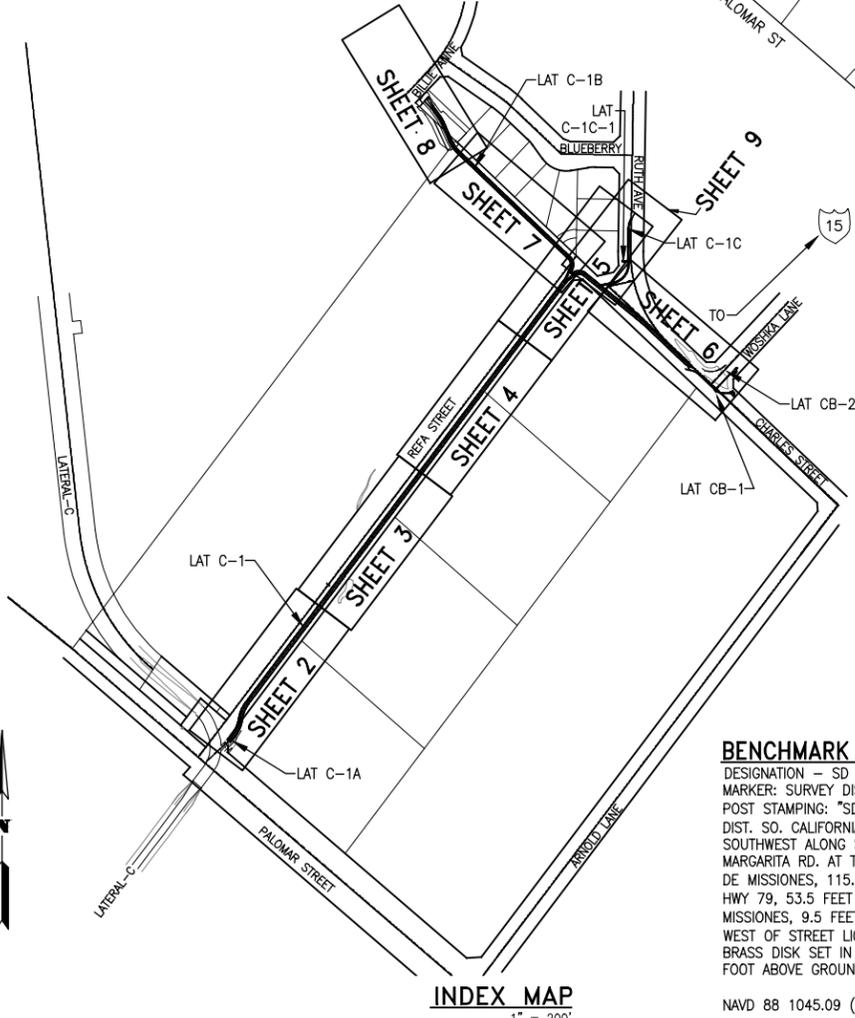
STD 225-2	BLANKET PROTECTION FOR PIPES
STD 300-3	CURB OPENING CATCH BASIN
STD 307-3	CURB OPENING CATCH BASIN WITH MANHOLE IN STREET
STD 314-3	MODIFICATIONS FOR SIDE OPENING CATCH-BASIN
STD 380-4	CONCRETE COLLAR FOR RCP

CALTRANS STANDARD DRAWINGS

D91B	CAST IN PLACE REINFORCED CONCRETE JUNCTION STRUCTURE
D94A	FLARED END SECTION

INDEX

TITLE SHEET	1
PLAN & PROFILE	2-8
CONNECTOR PIPE PROFILES	9-10
DETAILS	11-13
PAVING PLAN	14
WATERLINE RELOCATION PLAN	15



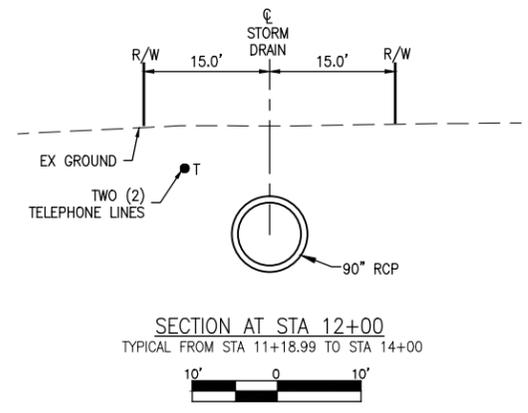
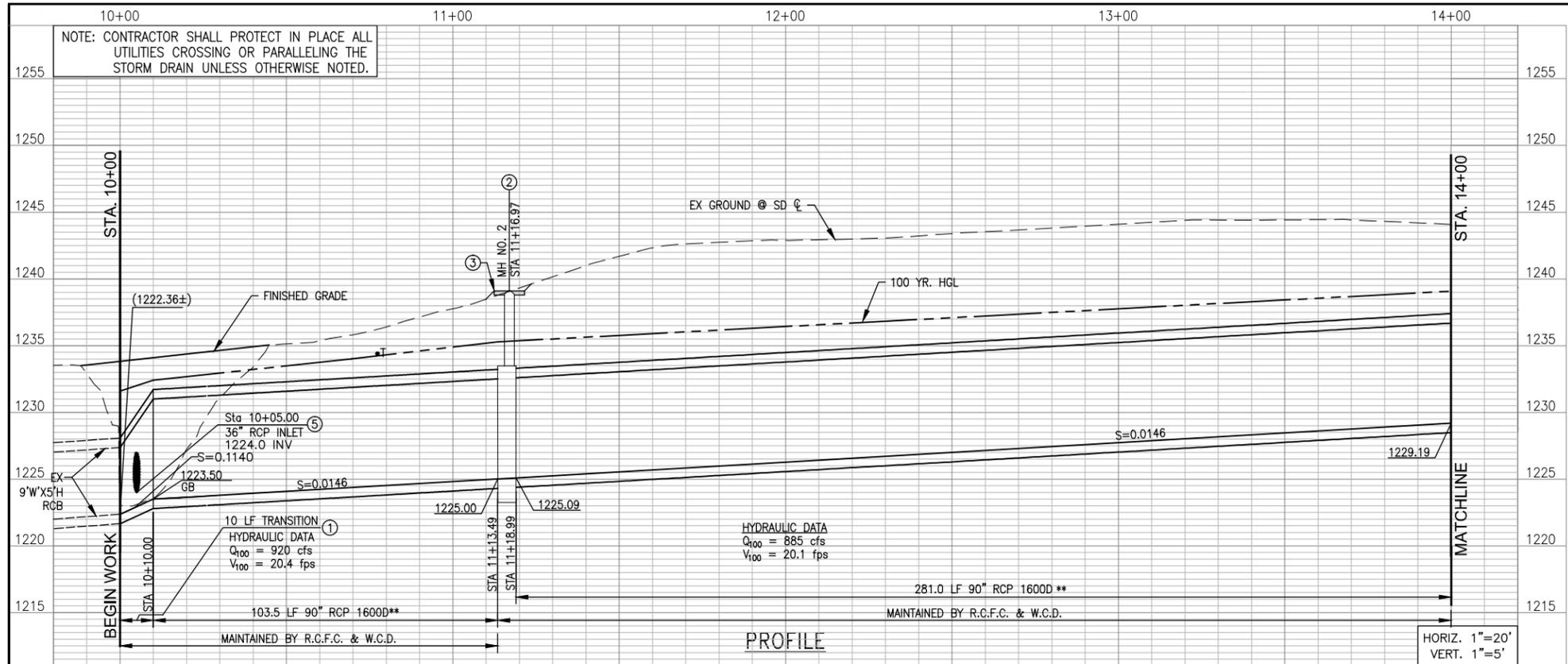
BENCHMARK DATA
 DESIGNATION - SD 6 18 PID - DX5510
 MARKER: SURVEY DISK SET IN TOP OF CONCRETE MONUMENT CONCRETE POST STAMPING: "SD6-18 1992" "MWDSC" DESCRIBED BY METRO WATER DIST. SO. CALIFORNIA 1992 RANCHO CALIFORNIA, 0.6 MILE (1.0 KM) SOUTHWEST ALONG STATE HWY 79 FROM THE INTERSECTION WITH MARGARITA RD. AT THE SOUTHWEST CORNER OF HWY 79 AND AVENIDA DE MISSIONES, 115.5 FEET (35.2 M) SOUTH OF THE CENTERLINE OF HWY 79, 53.5 FEET (16.3 M) WEST OF THE CENTERLINE OF AVENIDA DE MISSIONES, 9.5 FEET (2.9 M) WEST OF CURB FACE, 2 FEET (0.6 M) WEST OF STREET LIGHT STANDARD. A STANDARD MWDSC 3-1/4 INCH BRASS DISK SET IN TOP OF AN 8 INCH DIAMETER CONCRETE POST 0.1 FOOT ABOVE GROUND.
 NAVD 88 1045.09 (FEET) ADJUSTED

GENERAL NOTES

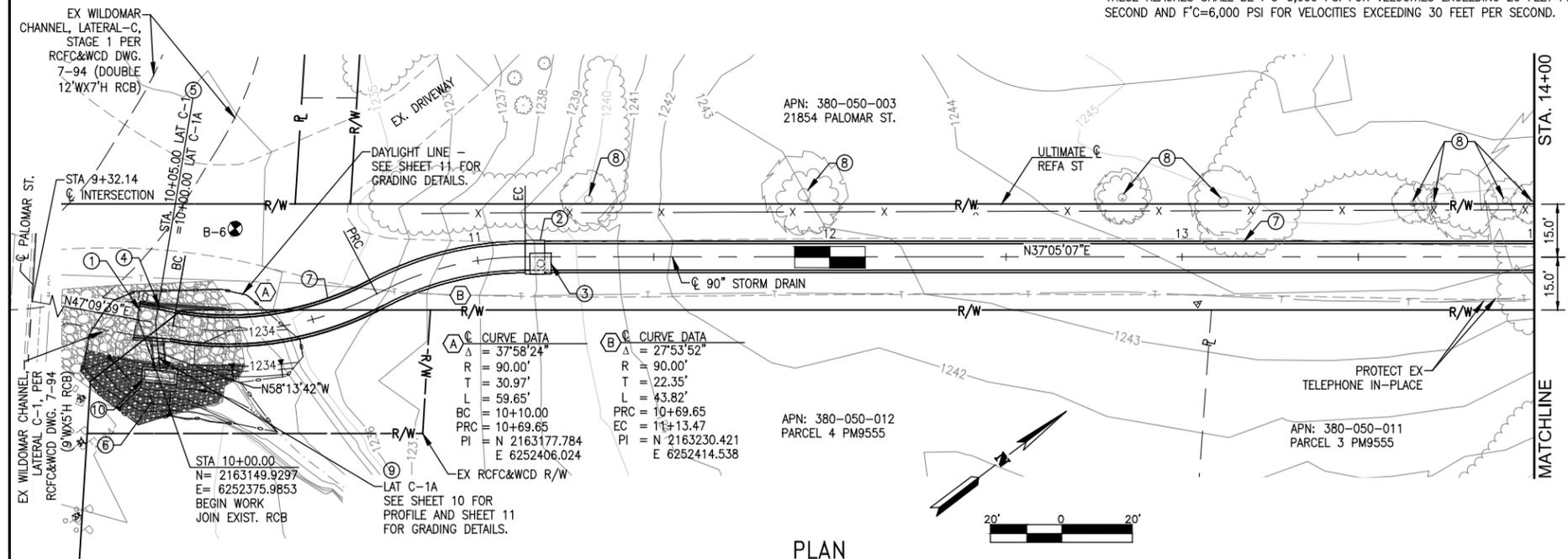
- THE CONTRACTOR SHALL CONSTRUCT THE FLOOD CONTROL IMPROVEMENTS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S M.O.U. STANDARD SPECIFICATIONS DATED JUNE 24, 2008, AND RCFC&WCD STANDARD MANUAL. FOR THE LATEST DRAWINGS OF THE STANDARD MANUAL, PLEASE REFER TO THE "PUBLICATIONS AND RECORDS" PAGE FOUND ON THE DISTRICT'S WEBSITE.
- CONTACT THE ENCROACHMENT PERMIT ENGINEER AT 951.955.1288 IF AN ENCROACHMENT PERMIT IS REQUIRED FROM RIVERSIDE COUNTY FLOOD CONTROL. AFTER THE PERMIT IS ISSUED THE DISTRICT MUST BE NOTIFIED ONE WEEK PRIOR TO CONSTRUCTION.
- CONTACT CONTRACT ADMINISTRATION AT 951.955.1288 IF CONSTRUCTION INSPECTION WILL BE PERFORMED BY RIVERSIDE COUNTY FLOOD CONTROL. THE DISTRICT MUST BE NOTIFIED TWENTY DAYS (20) PRIOR TO CONSTRUCTION.
- ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
- STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE INTERSECTION STATIONS.
- FORTY-EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT 1.800.227.2600.
- ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD 88).
- ALL COORDINATES ARE SHOWN IN FEET AND DECIMALS THEREOF BASED ON THE NORTH AMERICAN DATUM (NAD 83), CALIFORNIA COORDINATE SYSTEM (CCS), ZONE 6 AND EPOCH.
- ALL CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
- ELEVATIONS OF UTILITIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE SPECIFIED, MINIMUM STREET RECONSTRUCTION SHALL BE 4" TYPE "B" HOT MIX ASPHALT OVER 6" CLASS 2 AGGREGATE BASE OR AS SPECIFIED BY THE ENGINEER
- OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EX CULVERTS, PIPES OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 6" OF CLASS "B" CONCRETE.
- PIPE CONNECTED TO THE MAINLINE PIPE SHALL CONFORM TO JUNCTION STRUCTURE NO. 4 (JS 229) UNLESS OTHERWISE NOTED.
- PIPE BEDDING SHALL CONFORM TO RCFC&WCD STD. DWG. NO. M815 EXCEPT FOR COVER <2 FEET. FOR COVER <2 FEET, CONCRETE SLURRY (2000 PSI - 2 SACK) SHALL BE USED. THE ENTIRE TRENCH SHALL BE SLURRY EXTENDING 4 INCHES MINIMUM AND 12 INCHES MAXIMUM ABOVE THE TOP OF THE PIPE.
- B-X INDICATES SOIL BORING LOCATIONS BASED ON THE SOILS REPORT DATED 09/04/2014, BY GEOCON, INC. LOCATIONS SHOWN ARE APPROXIMATE.
- "V" IS THE DEPTH OF CATCH BASINS MEASURED FROM THE TOP OF CURB TO INVERT OF CONNECTOR PIPE.
- CATCH BASINS SHALL BE LOCATED SO THAT LOCAL DEPRESSION SHALL BEGIN AT EX CURB RETURN JOINT, UNLESS OTHERWISE SPECIFIED.
- ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND OTHER EX IMPROVEMENTS TO BE RECONSTRUCTED IN KIND AND AT THE SAME ELEVATION AND LOCATION AS THE EX IMPROVEMENTS UNLESS OTHERWISE NOTED.
- STANDARD DRAWINGS CALLED FOR ON THE PLAN AND PROFILE SHALL CONFORM TO DISTRICT STANDARD DRAWINGS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR IS REQUIRED TO CALL ALL UTILITY AGENCIES REGARDING TEMPORARY SHORING AND SUPPORT REQUIREMENTS FOR THE VARIOUS UTILITY LINES SHOWN ON THESE PLANS.
- DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
- APPROVAL OF THESE PLANS BY THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DOES NOT RELIEVE THE DESIGN ENGINEER OF RESPONSIBILITY FOR THE ENGINEERING DESIGN. IF FIELD CHANGES ARE REQUIRED, IT WILL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO MAKE THE NECESSARY CORRECTIONS.
- THE CONTRACTOR OR DEVELOPER SHALL SECURE ALL REQUIRED ENCROACHMENT AND/OR STATE AND FEDERAL REGULATORY PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK.
- THE CONCRETE COATING ON THE INSIDE OF ALL REINFORCED CONCRETE PIPES MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2 INCHES OVER THE REINFORCING AND INCREASED TO A MINIMUM OF 3-1/2 INCHES OVER REINFORCING FOR BOX CULVERT, WHEN DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE F'C=5,000 PSI FOR VELOCITIES EXCEEDING 20 FEET PER SECOND AND F'C=6,000 PSI FOR VELOCITIES EXCEEDING 30 FEET PER SECOND.
- CONSTRUCTION JOINTS FOR CALTRANS STANDARD REINFORCED CONCRETE BOX SHALL BE PLACED ACCORDING TO RCFC&WCD STANDARD DRAWING NO. BOX 401.
- CONTRACTOR SHALL POTHOLE EX CROSSING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY IF CONFLICT WITH PROPOSED IMPROVEMENTS.
- CONTRACTOR IS ADVISED OF A SOUTHERN CALIFORNIA EDISON EASEMENT OVER REFA STREET RIGHT OF WAY. CONTRACTOR SHALL PROTECT IN PLACE ALL POLES, PAD, CONDUITS AND OTHER APPURTANANCES WITHIN THE EASEMENT AREA.

CITY OF WILDOMAR PUBLIC WORKS DEPARTMENT APPROVED BY: _____ CITY ENGINEER _____ DATE: _____	Don't Dig...Until You Call: U.S.A. Toll Free: 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG	 ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAE STREET, RIVERSIDE CA, 92506 PH. (951) 688-1070 / FAX (951) 788-1256	 REGISTERED PROFESSIONAL ENGINEER ALBERT A. WEBB NO. 087238 CIVIL STATE OF CALIFORNIA	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th colspan="4">REVISIONS</th></tr> <tr><th>NO.</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>	REVISIONS				NO.	DESCRIPTION	DATE	BY													RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT RECOMMENDED FOR APPROVAL BY: _____ PLANNING ENGINEER DATE: _____ APPROVED BY: _____ CHIEF ENGINEER DATE: _____	WILDOMAR MDP LATERAL C-1 STORM DRAIN COVER SHEET	PROJECT NO. 7-0-00076 DRAWING NO. 7-0533 SHEET NO. 1 OF 15
REVISIONS																											
NO.	DESCRIPTION	DATE	BY																								

SUBMITTAL 5 - 100% - FOR REVIEW ONLY 7/17/2015 4:45:59 PM G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-S0.DWG



** THE CONCRETE COATING ON THE INSIDE OF ALL REINFORCED CONCRETE PIPES MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2 INCHES OVER THE REINFORCING AND INCREASED TO A MINIMUM OF 3-1/2 INCHES OVER REINFORCING FOR BOX CULVERT, WHEN DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE F'C=5,000 PSI FOR VELOCITIES EXCEEDING 20 FEET PER SECOND AND F'C=6,000 PSI FOR VELOCITIES EXCEEDING 30 FEET PER SECOND.

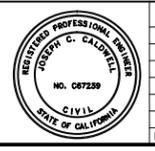


- CONSTRUCTION NOTES:**
- ① CONSTRUCT TRANSITION STRUCTURE NO. 1 PER STD TS301. JOIN TO END OF EX 9'W X 5'H RCB. REMOVE DEBRIS/ROCK FROM WITHIN ENTRANCE OF EX RCB PRIOR TO CONSTRUCTION OF TRANSITION STRUCTURE
 - ② CONSTRUCT MANHOLE NO. 2 PER STD. MH252: D1=90", D2=90"
 - ③ CONSTRUCT 6'x6'x6" THICK CONCRETE PAD CENTERED ON MH RISER REINFORCED WITH #4 @ 18" EW
 - ④ REMOVE EX WINGWALL
 - ⑤ CONSTRUCT JUNCTION STRUCTURE NO.1 PER STD JS226 A=74'36"39", B=36", C=6.50', ELEV. S=1224.00, ELEV. R=1224.67
 - ⑥ REMOVE EX RIPRAP. SALVAGE AND PLACE AROUND DROP INLET. SEE DETAIL ON SHEET 11 FOR REMOVAL AND PLACEMENT LIMITS.
 - ⑦ CONSTRUCT 90" RCP - DLOAD PER PROFILE
 - ⑧ PROTECT IN PLACE EX TREE.
 - ⑨ CONSTRUCT 36" RCP - DLOAD PER PROFILE ON SHEET 10.
 - ⑩ CONSTRUCT CONCRETE DROP INLET PER STD CB110. V=5.5', W=8.6', D=36". PLACE 8'Wx2'H OPENING FACING EAST. SEE SHEET 11 FOR GRADING DETAILS.

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB
ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAE STREET, RIVERSIDE CA 92506
PH. (951) 686-1070 / FAX (951) 788-1256



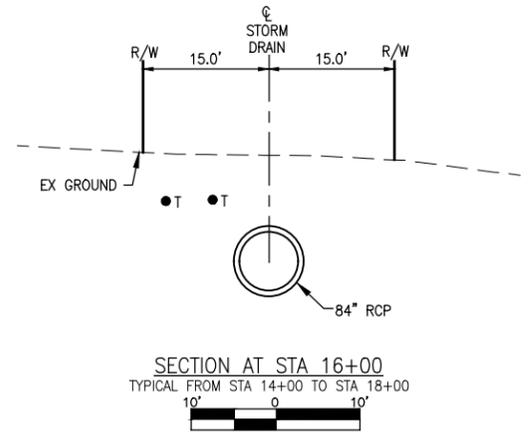
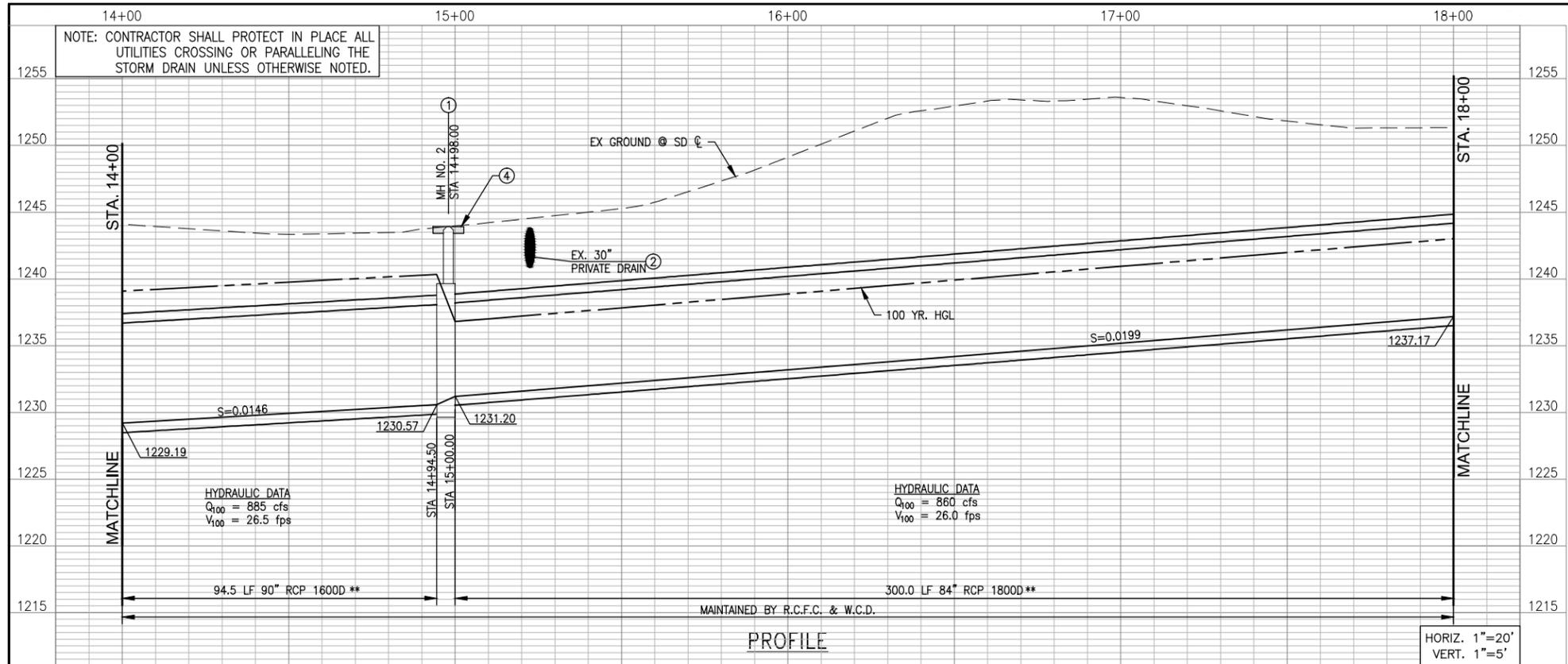
NO.	REVISIONS	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____

WILDOMAR MDP
LATERAL C-1 STORM DRAIN
STA 10+00.00 TO STA 14+00.00

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 2 OF 15

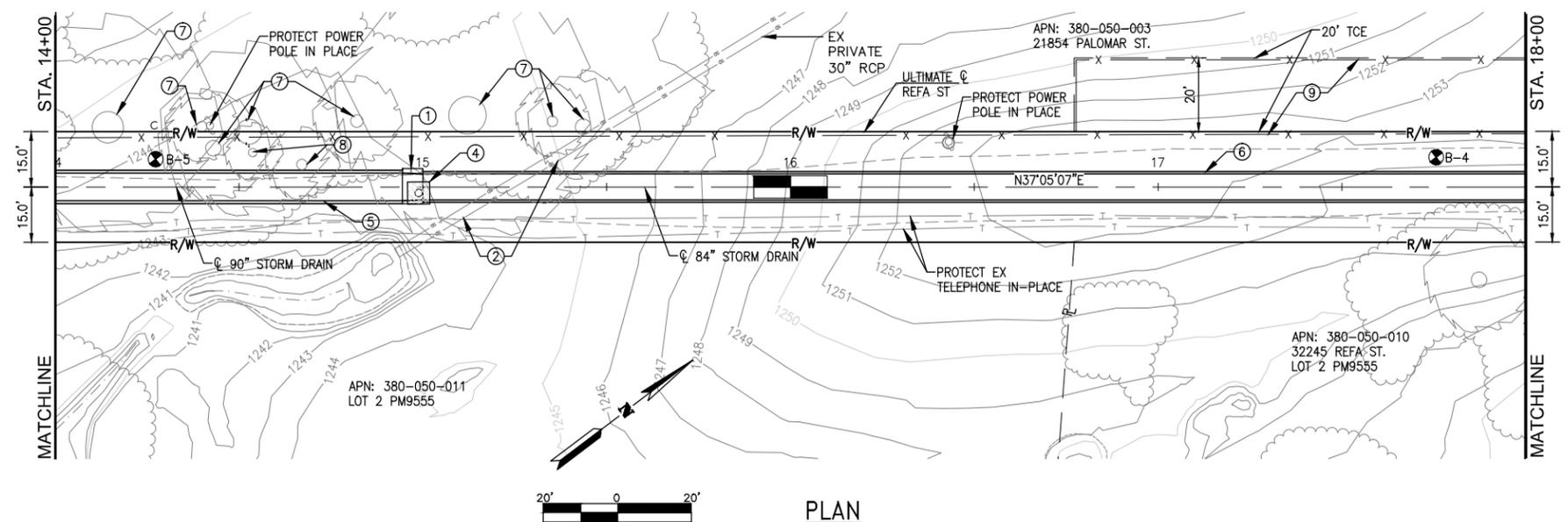
SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:07 PM



** THE CONCRETE COATING ON THE INSIDE OF ALL REINFORCED CONCRETE PIPES MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2 INCHES OVER THE REINFORCING AND INCREASED TO A MINIMUM OF 3-1/2 INCHES OVER REINFORCING FOR BOX CULVERT, WHEN DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE F'C=5,000 PSI FOR VELOCITIES EXCEEDING 20 FEET PER SECOND AND F'C=6,000 PSI FOR VELOCITIES EXCEEDING 30 FEET PER SECOND.

CONSTRUCTION NOTES:

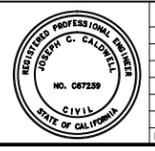
- ① CONSTRUCT MANHOLE NO. 2 PER STD. MH252: D1=84", D2=90"
- ② REMOVE & REPLACE INTERFERING PORTIONS OF EX PRIVATE 30" RCP
- ④ CONSTRUCT 6'x6'x6" THICK CONCRETE PAD CENTERED ON MH RISER REINFORCED WITH #4 @ 18" EW
- ⑤ CONSTRUCT 90" RCP - DLOAD PER PROFILE
- ⑥ CONSTRUCT 84" RCP - DLOAD PER PROFILE
- ⑦ PROTECT TREE IN PLACE.
- ⑧ REMOVE EX 10"-12" TREES (2) AND INTERFERING ROOTS.
- ⑨ REMOVE AND SALVAGE EXISTING FENCE, INSTALL TEMPORARY FENCE AT TCE, REGRADE TCE TO EXISTING CONDITION, HYDROSEED PER SPECIFICATION, AND REPLACE SALVAGED FENCE AFTER CONSTRUCTION



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE:

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



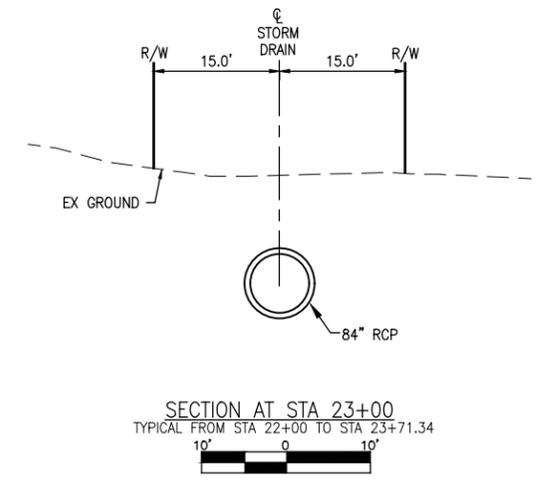
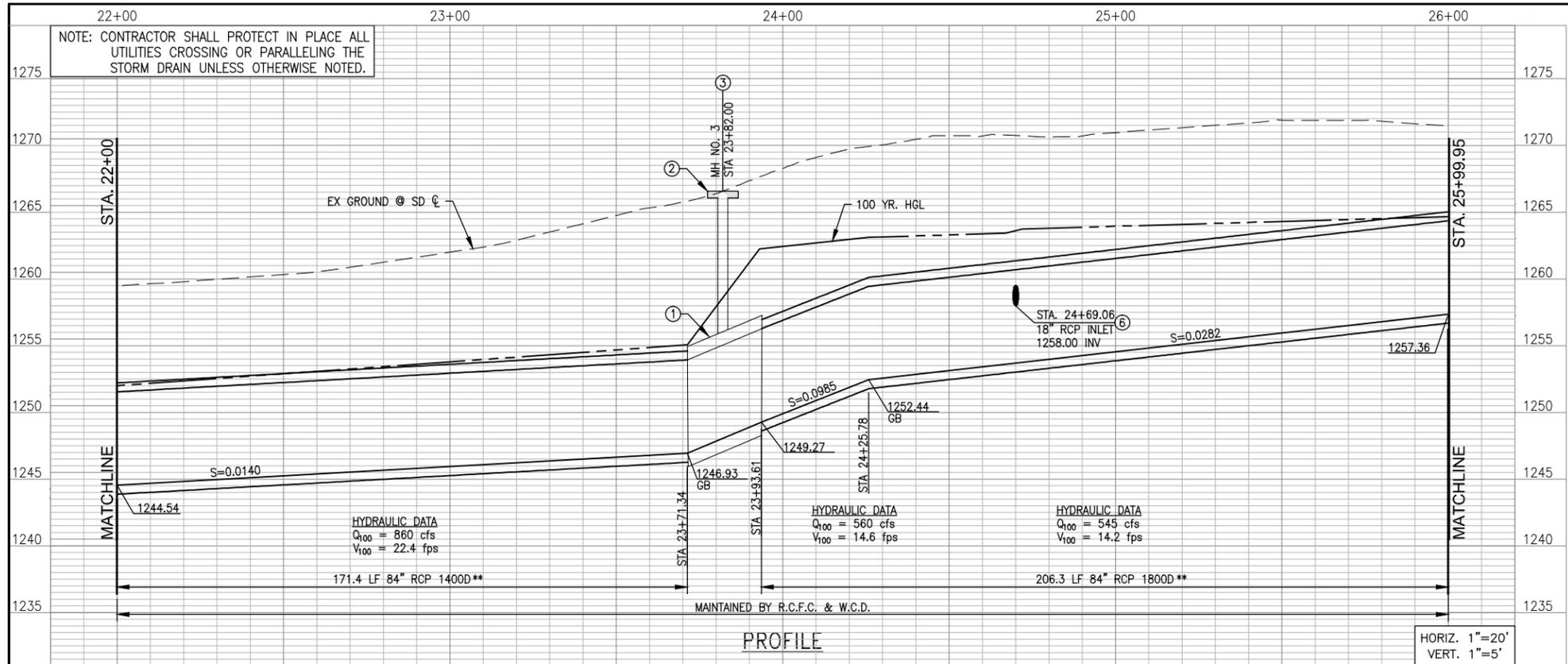
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____

WILDOMAR MDP
LATERAL C-1 STORM DRAIN
STA 14+00.00 TO STA 18+00.00

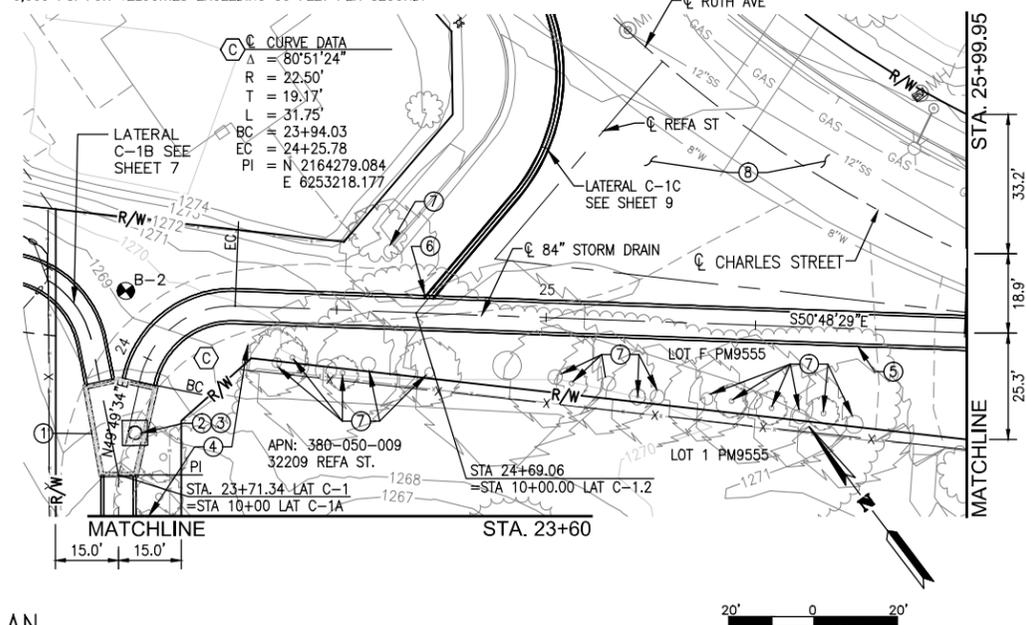
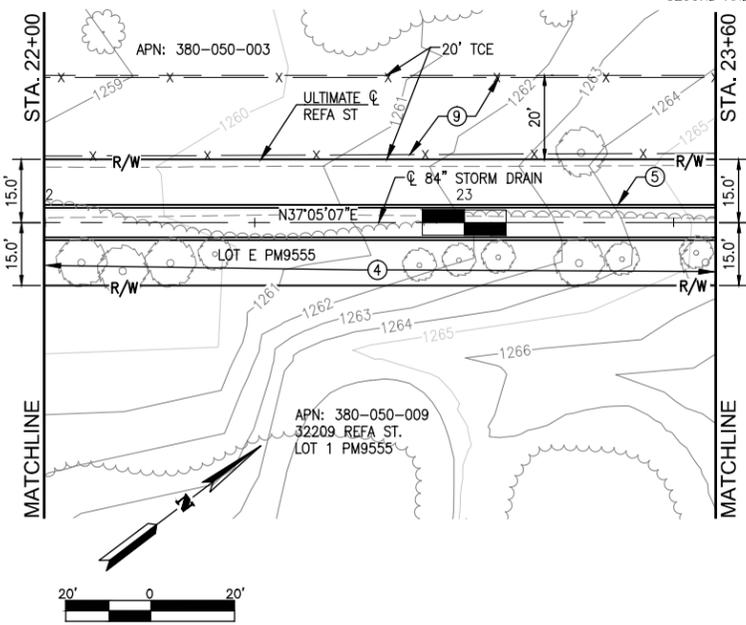
PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 3 OF 15

SUBMITAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:13 PM



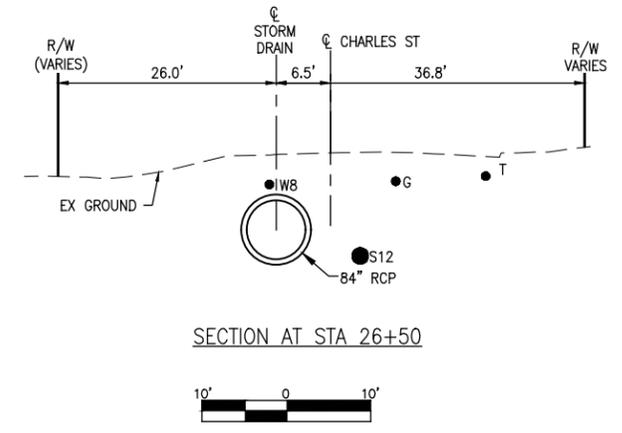
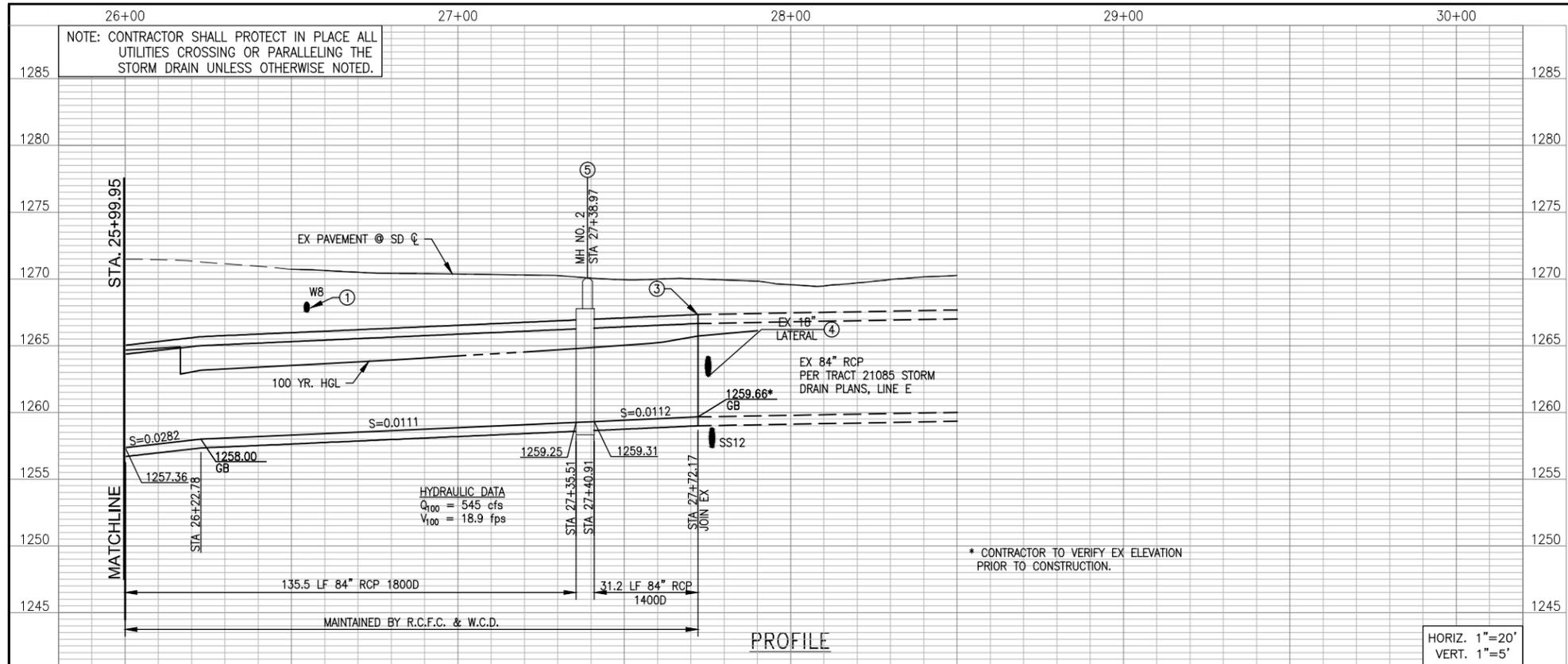
- CONSTRUCTION NOTES:**
- ① CONSTRUCT JUNCTION STRUCTURE PER DETAIL ON SHEET 12
 - ② CONSTRUCT 6'x6' THICK CONCRETE PAD CENTERED ON MH RISER REINFORCED WITH #4 @ 18\"/>
 - ③ CONSTRUCT MANHOLE NO.3 PER STD MH253
 - ④ REMOVE ALL EX TREES, BUSHES, AND IRRIGATION W/IN R/W STA 22+00 TO STA 24+30
 - ⑤ CONSTRUCT 84\"/>
 - ⑥ CONSTRUCT JUNCTION STRUCTURE NO. 4 PER STD. JS229.
 - ⑦ PROTECT IN PLACE EX TREES
 - ⑧ SEE SHEET 14 FOR PAVING PLAN AND TRENCH REPAIR LIMITS
 - ⑨ REMOVE AND SALVAGE EXISTING FENCE, INSTALL TEMPORARY FENCE AT TCE, REGRADE TCE TO EXISTING CONDITION, HYDROSEED PER SPECIFICATION, AND REPLACE SALVAGED FENCE AFTER CONSTRUCTION

** THE CONCRETE COATING ON THE INSIDE OF ALL REINFORCED CONCRETE PIPES MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2 INCHES OVER THE REINFORCING AND INCREASED TO A MINIMUM OF 3-1/2 INCHES OVER REINFORCING FOR BOX CULVERT, WHEN DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE F'C=5,000 PSI FOR VELOCITIES EXCEEDING 20 FEET PER SECOND AND F'C=6,000 PSI FOR VELOCITIES EXCEEDING 30 FEET PER SECOND.



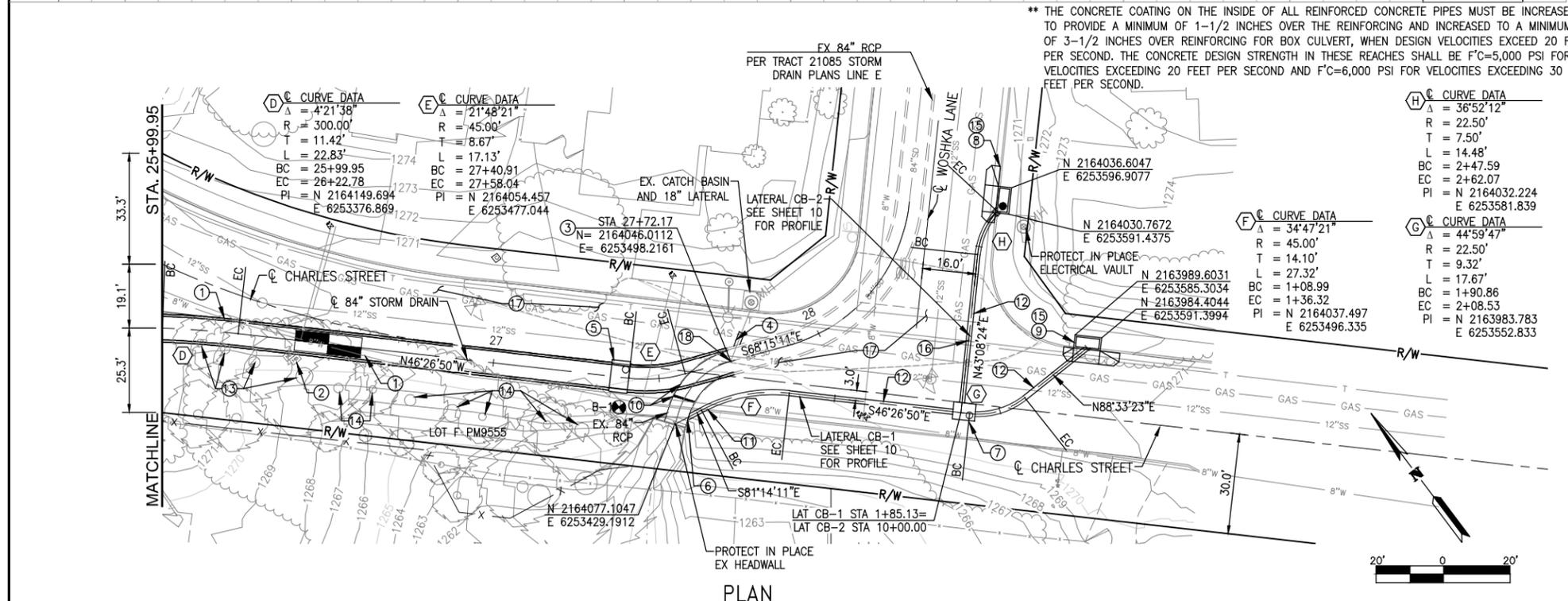
<p>CITY OF WILDOMAR PUBLIC WORKS DEPARTMENT APPROVED BY: _____ CITY ENGINEER</p>	<p>Don't Dig...Until You Call: U.S.A. Toll Free: 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG</p>	<p>ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET, RIVERSIDE CA. 92506 PH. (951) 686-1070 / FAX (951) 788-1256</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DESCRIPTION	DATE										<p>RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT RECOMMENDED FOR APPROVAL BY: _____ APPROVED BY: _____ DATE: _____</p>	<p>WILDOMAR MDP LATERAL C-1 STORM DRAIN STA 22+00.00 TO STA 25+99.95</p>	<p>PROJECT NO. 7-0-00076 DRAWING NO. 7-0533 SHEET NO. 5 OF 15</p>
NO.	DESCRIPTION	DATE																	

SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:28 PM



CONSTRUCTION NOTES:

- ① RELOCATE EX 8" WATER PER EVMWD DRAWING SK-75910
- ② REMOVE & REPLACE EX MAILBOXES IN KIND. TEMPORARY MAIL BOXES SHALL BE COORDINATED WITH POST OFFICE PER SPECIFICATIONS.
- ③ JOIN EXISTING 84" RCP TO NEW 84" RCP AT EXISTING JOINT.
- ④ VERIFY LOCATION OF EXISTING 18" LATERAL CONNECTION PRIOR TO CONSTRUCTION. REPLACE OR RELOCATE IF REQUIRED.
- ⑤ CONSTRUCT MANHOLE NO. 2 PER STD. MH252: D1=84", D2=84"
- ⑥ CONSTRUCT JUNCTION STRUCTURE NO.4 PER STD JS229.
- ⑦ CONSTRUCT MANHOLE NO.1 PER STD. MH251
- ⑧ CONSTRUCT CATCH BASIN NO.1 PER STD. CB100. W=7', V=7.9', SEE PROFILE ON SHEET 10. CONSTRUCT GUTTER DEPRESSION PER STD. LD201. CONSTRUCT CORNER CONNECTION TO CATCHBASIN PER STD. CB109.
- ⑨ CONSTRUCT CATCHBASIN NO.1 PER STD. CB100. W=7', V=7.8'. SEE PROFILE ON SHEET 10. CONSTRUCT GUTTER DEPRESSION PER STD. LD201
- ⑩ REMOVE INTERFERING PORTIONS OF EX 84" RCP (26LF±) AND INSTALL BULKHEAD PER STD M816. THE CITY OF WILDOMAR TO MAINTAIN REMAINING PORTIONS OF 84" RCP CONNECTED TO LATERAL CB-1, INCLUDING BULKHEAD AND HEADWALL.
- ⑪ REMOVE AND REPLACE EX 12" PVC OVERSIDE DRAIN AND AC BERM IN KIND.
- ⑫ INSTALL 18" RCP, CLASS IV.
- ⑬ REMOVE AND DISPOSE OF INTERFERING EX TREES.
- ⑭ PROTECT TREE IN PLACE.
- ⑮ REMOVE INTERFERING PORTIONS OF CURB, GUTTER, AND SIDEWALK TO NEAREST CONSTRUCTION JOINT. REPLACE IN KIND TO THE SATISFACTION OF THE CITY ENGINEER.
- ⑯ REMOVE AND REPLACE TO NEAREST JOINT INTERFERING PORTIONS OF EX CROSS GUTTER IN KIND. SEE SHEET 14 FOR PAVING PLAN.
- ⑰ SEE SHEET 14 FOR PAVING PLAN AND TRENCH REPAIR LIMITS.
- ⑱ PROTECT EXISTING 12" SEWER IN PLACE PER STD. M807



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256

REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. CALDWELL
NO. 087239
CIVIL
STATE OF CALIFORNIA

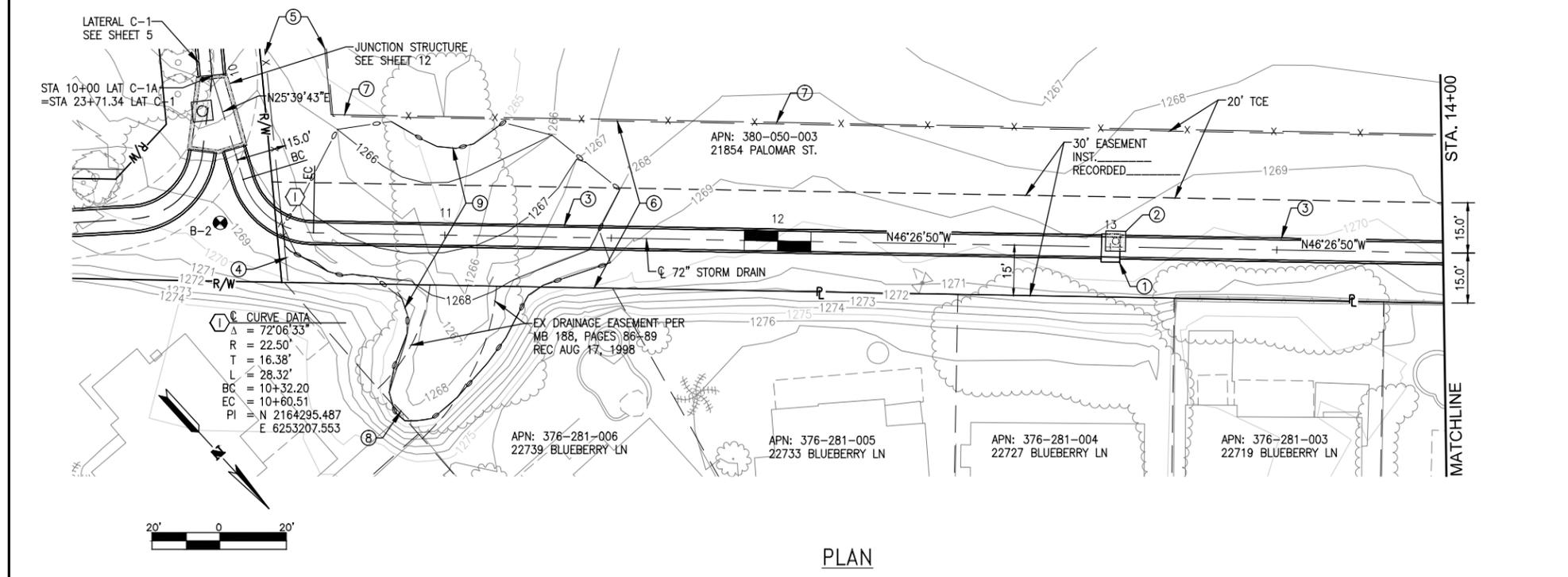
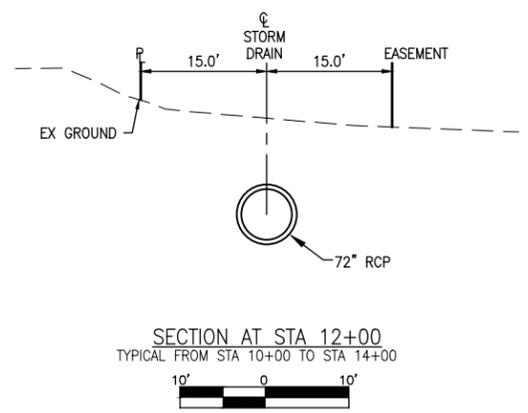
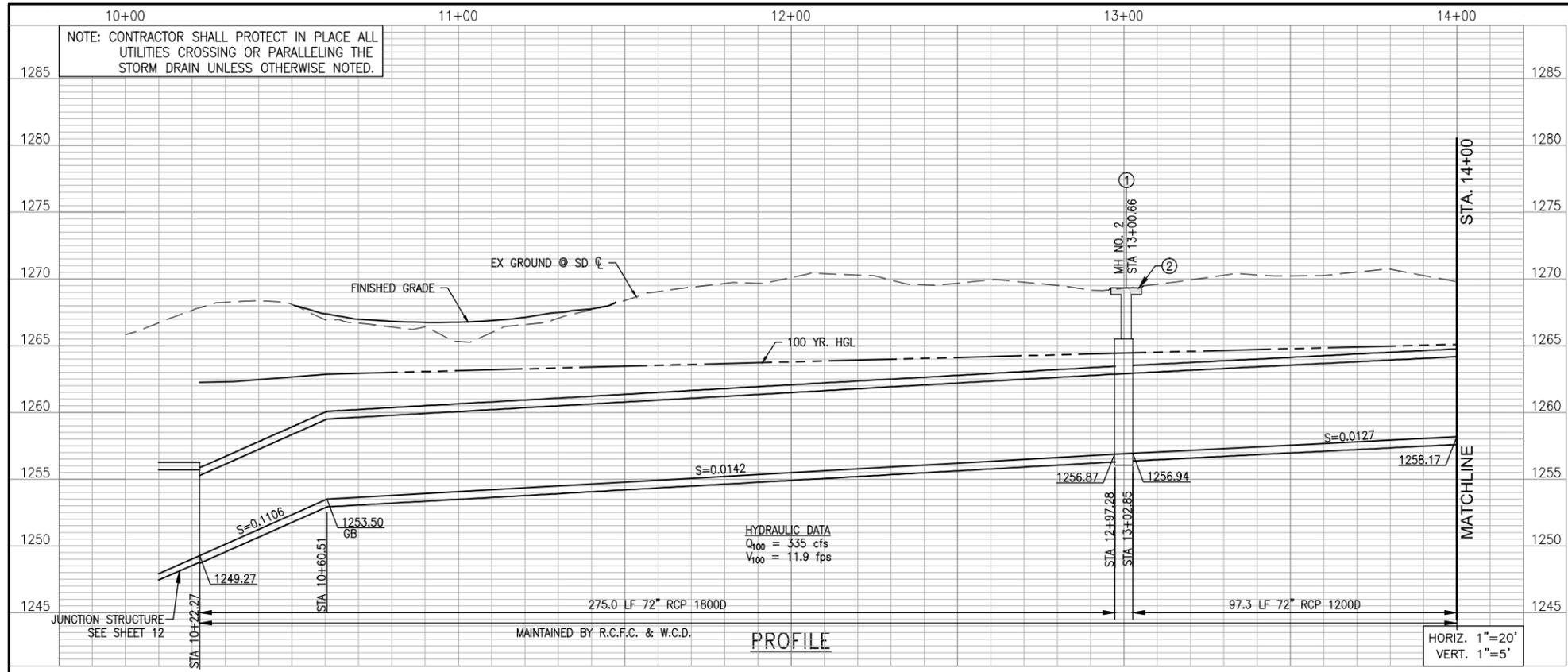
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
APPROVED BY: _____
DATE: _____

WILDOMAR MDP
LATERAL C-1 STORM DRAIN
STA 25+99.95 TO STA 27+72.17
LAT CB-1 & LAT CB-2

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 6 OF 15

SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:31 PM

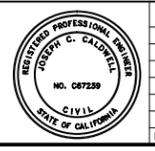


- CONSTRUCTION NOTES:**
- ① CONSTRUCT MANHOLE NO. 2 PER STD. MH252: D1=72", D2=72"
 - ② CONSTRUCT 6'x6'x6" THICK CONCRETE PAD CENTERED ON RISER REINFORCED WITH #4 @ 18" EW
 - ③ CONSTRUCT 72" RCP - D-LOAD PER PROFILE
 - ④ SALVAGE & REPLACE EXISTING FENCE
 - ⑤ REMOVE AND SALVAGE EXISTING FENCE, INSTALL TEMPORARY FENCE AT TCE, REPLACE SALVAGED FENCE AFTER CONSTRUCTION
 - ⑥ RESTORE AREA TO NATURAL CONTOURS AND HYDROSEED PER SPECIFICATIONS.
 - ⑦ INSTALL TEMPORARY FENCE.
 - ⑧ REMOVE EXIST RIP-RAP AND HEADWALL - BULKHEAD ABANDONED SD PER RFC&WCD STD DWG M816. BACKFILL AROUND BULKHEAD AS DIRECTED BY ENGINEER
 - ⑨ GRADE TO CONTOURS SHOWN AND HYDROSEED PER SEPCIFICATIONS

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA 92506
PH. (951) 686-1070 / FAX (951) 788-1256



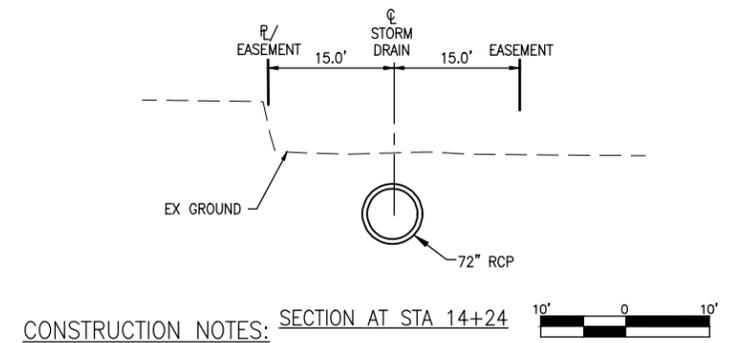
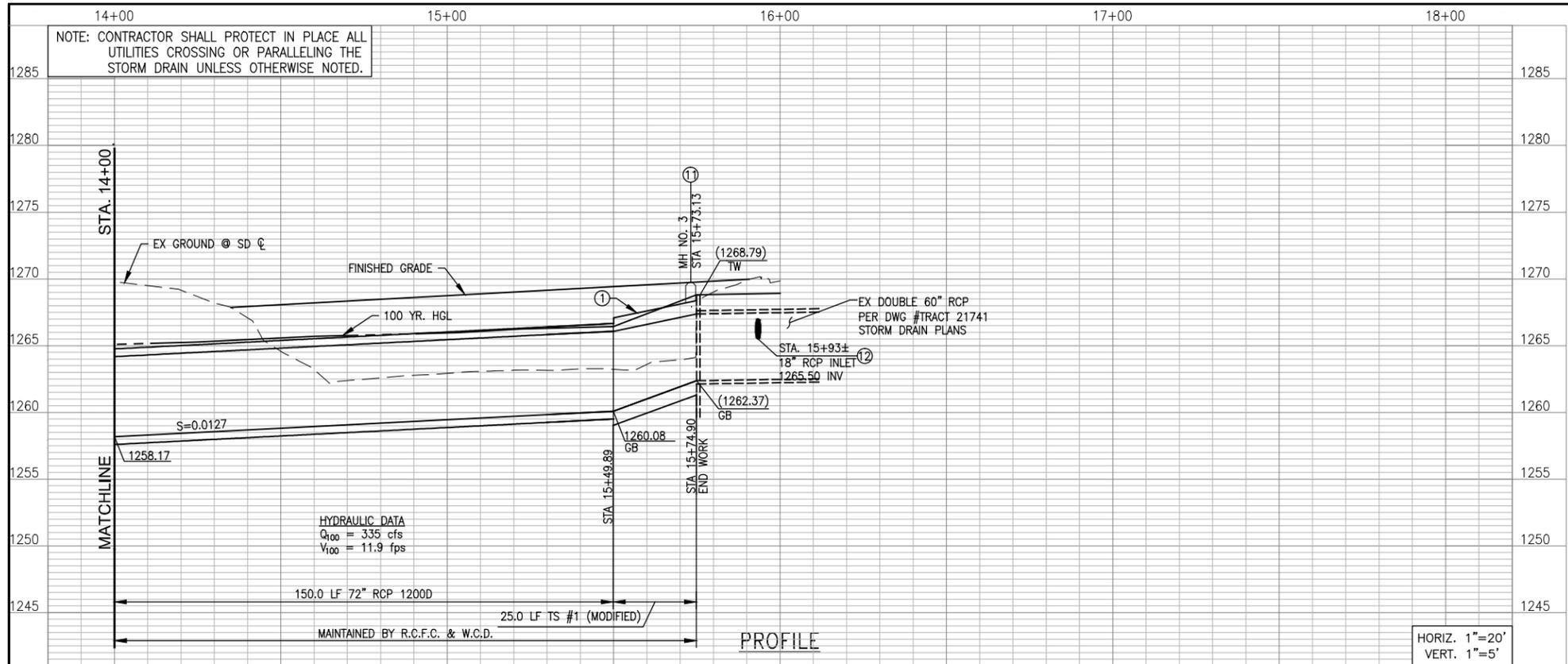
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____

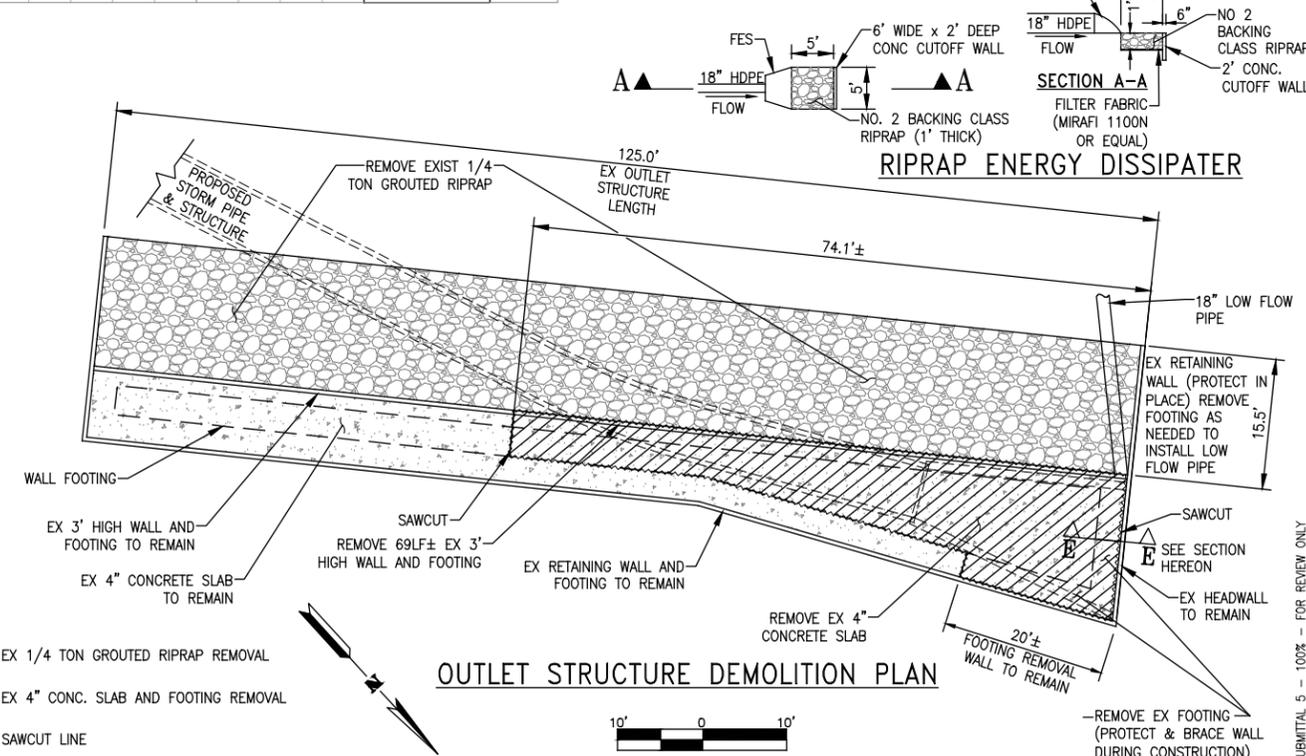
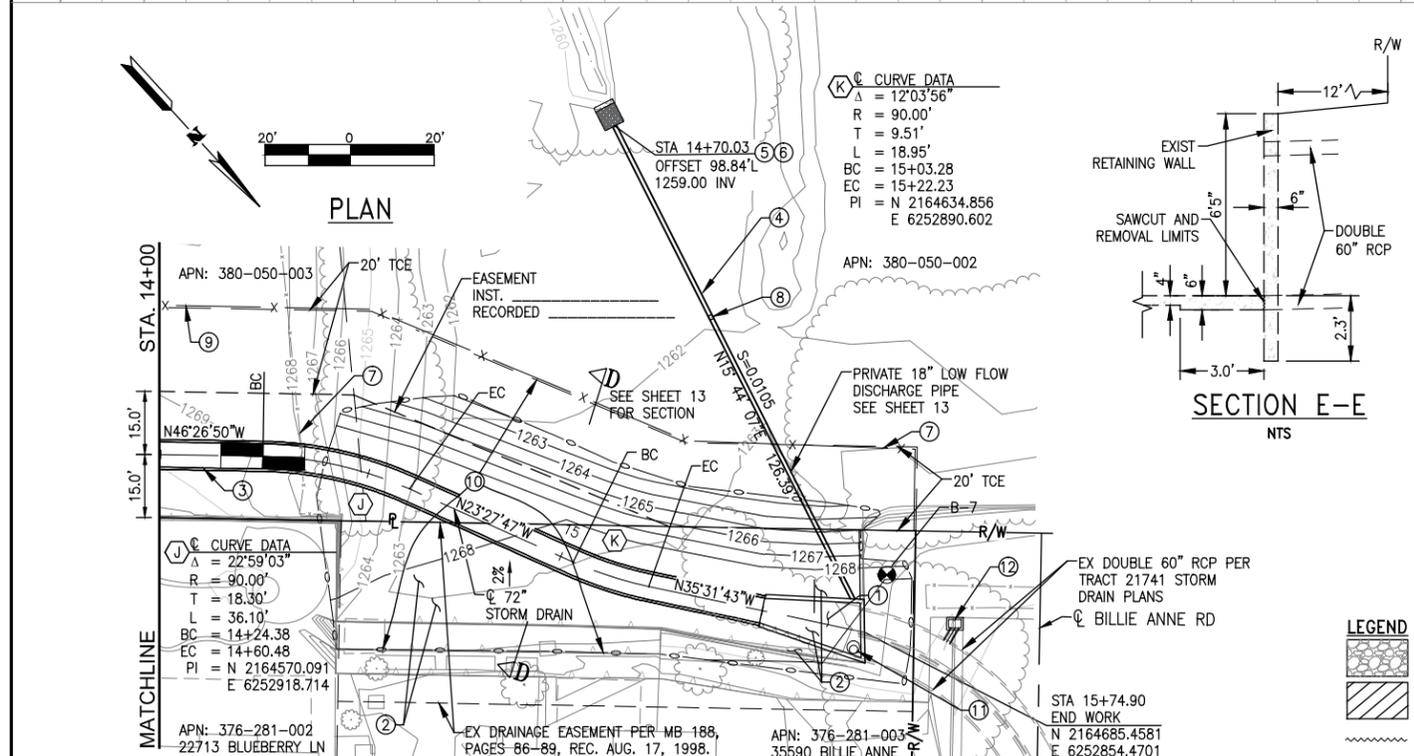
WILDOMAR MDP
LATERAL C-1B STORM DRAIN
STA 10+00.00 TO STA 14+00.00

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 7 OF 15

SUBMITAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:38 PM



- CONSTRUCTION NOTES: SECTION AT STA 14+24**
- ① CONSTRUCT MODIFIED TRANSITION STRUCTURE NO.1 PER STD TS301 & DETAIL ON SHEET 13.
 - ② REMOVE INTERFERING PORTIONS OF EX OUTLET STRUCTURE PER DETAIL HEREON.
 - ③ CONSTRUCT 72" RCP, D-LOAD PER PROFILE
 - ④ CONSTRUCT 18" HDPE PIPE - ADS N12 OR APPROVED EQUAL
 - ⑤ CONSTRUCT FLARED END SECTION PER CALTRANS STD D94A
 - ⑥ CONSTRUCT RIPRAP ENERGY DISSIPATER PER DETAILS HEREON.
 - ⑦ REMOVE & REPLACE EXISTING FENCE WITHIN TCE LIMITS
 - ⑧ INSTALL 18"x6" 45° REDUCING HDPE WYE CLEANOUT.
 - ⑨ INSTALL TEMPORARY FENCE
 - ⑩ RESTORE SURFACE TO ELEVATIONS SHOWN AND HYDROSEED PER SPECIFICATIONS.
 - ⑪ CONSTRUCT MANHOLE NO. 3 PER STD. MH253. REMOVE EXISTING OVERSIDE DRAIN, CONSTRUCT TYPE G1 INLET PER CALTRANS STD RSP D73, H=3'. FIELD FIT TO MATCH EXIST GRADE. INSTALL 4' - 18" RCP (CLASS IV) AND CONNECT TO EXISTING 60" RCP WITH JS NO. 4.
 - ⑫



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2800
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB
ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA 92506
PH. (951) 686-1070 / FAX (951) 788-1256

REGISTERED PROFESSIONAL ENGINEER
RIVERSIDE COUNTY, CALIFORNIA
NO. 687239
CIVIL
STATE OF CALIFORNIA

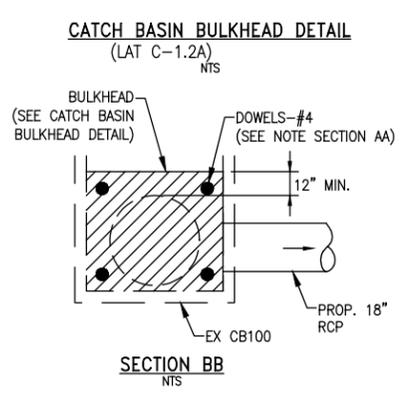
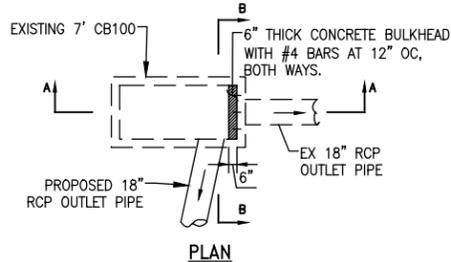
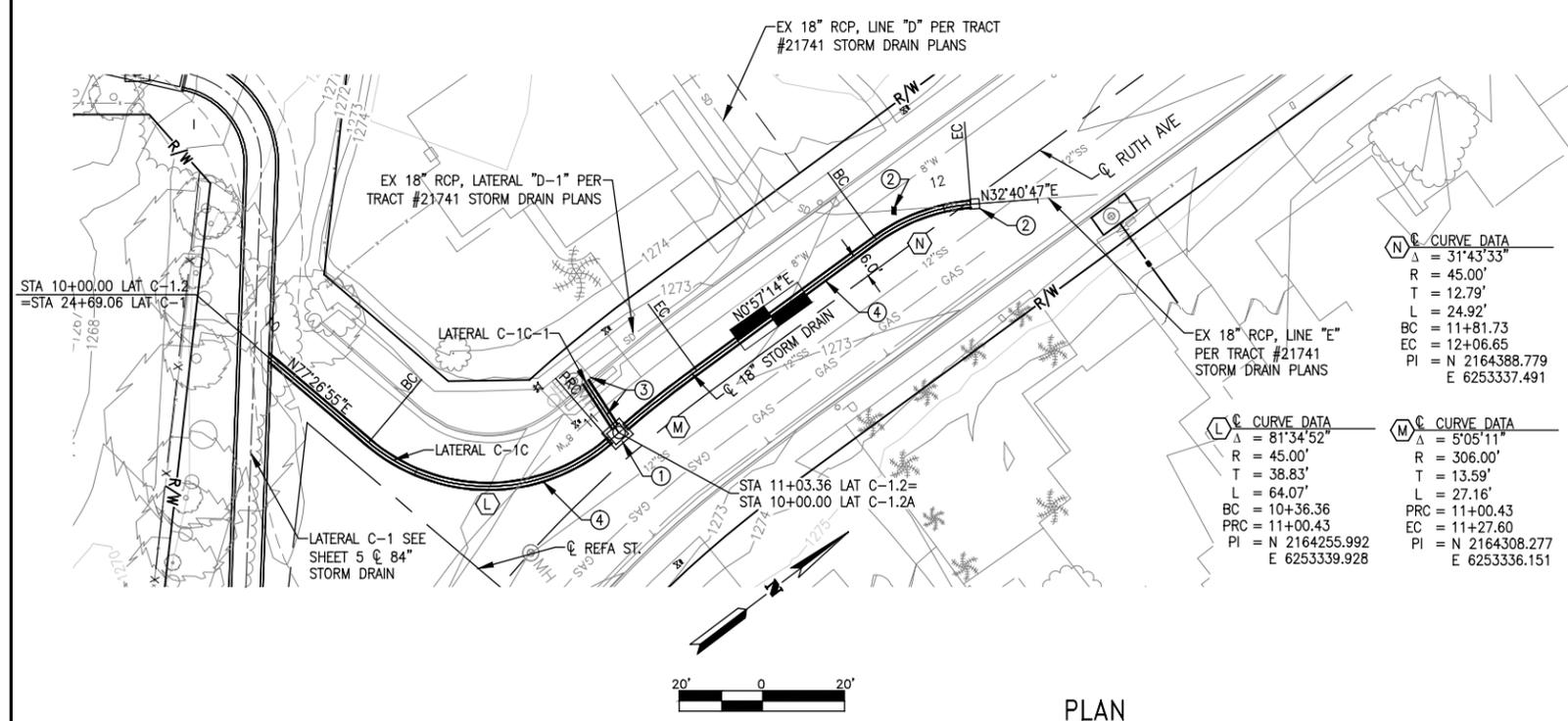
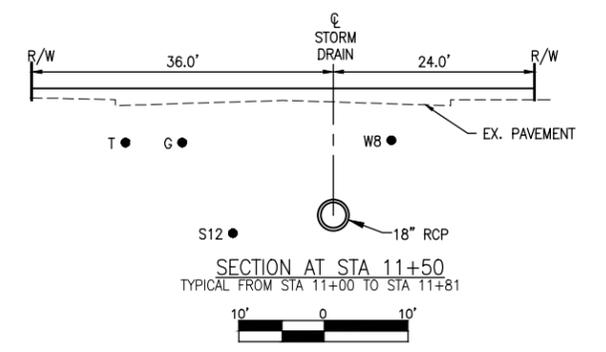
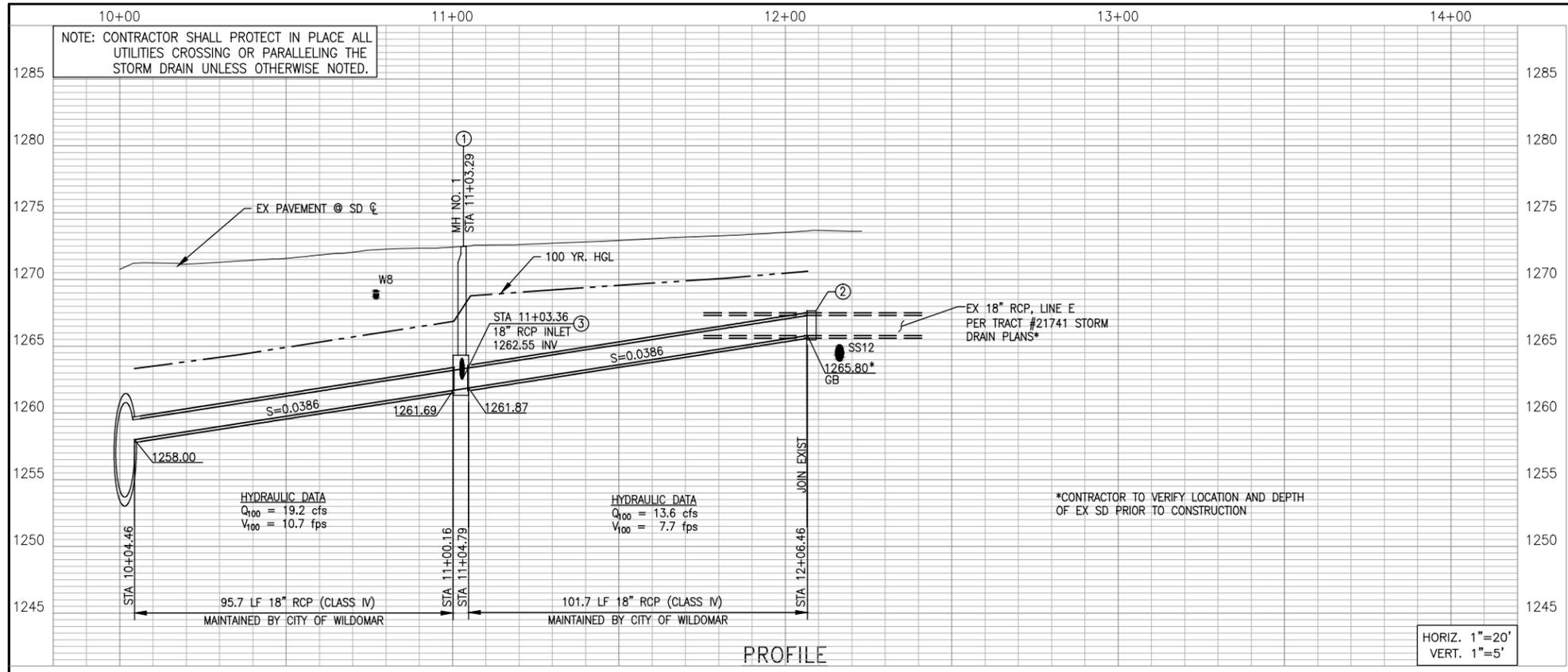
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
APPROVED BY: _____
DATE: _____ DATE: _____

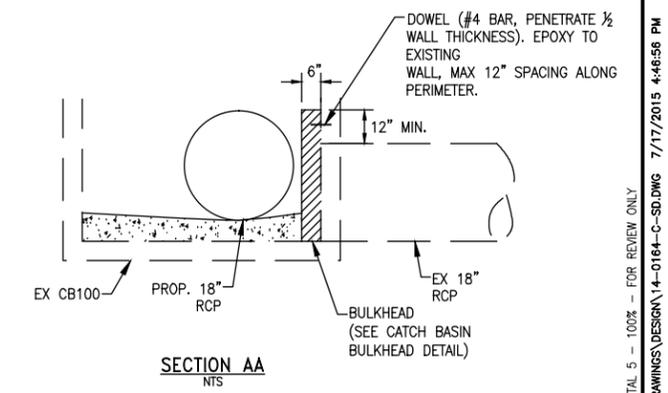
WILDOMAR MDP
LATERAL C-1B STORM DRAIN
STA 14+00.0 TO STA 15+74.90

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 8 OF 15

SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:48 PM



- CONSTRUCTION NOTES:**
- CONSTRUCT MANHOLE NO.1 PER STD. MH251
 - REMOVE INTERFERING PORTIONS OF EX 18" RCP (15LF±). JOIN EX 18" RCP WITH CONCRETE COLLAR PER STD M803. BULKHEAD EX 18" RCP PER STD M816. PLUG DOWNSTREAM END OF LINE "D" WITH 2 SACK SLURRY AS DIRECTED BY ENGINEER
 - INSTALL 18" RCP (CLASS IV). CONNECT TO EX CATCH BASIN PER STD JS228. BULKHEAD EX 18" RCP OUTLET PER DETAIL HEREON. RECONTOUR CATCH BASIN FLOOR WITH PCC TO DRAIN TO NEW OUTLET. SEE SHEET 10 FOR LATERAL PROFILE.
 - CONSTRUCT 18" RCP, CLASS IV



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCray Street, Riverside, CA 92506
PH. (951) 686-1070 / FAX (951) 788-1256

REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. CALDWELL
NO. 087239
CIVIL
STATE OF CALIFORNIA

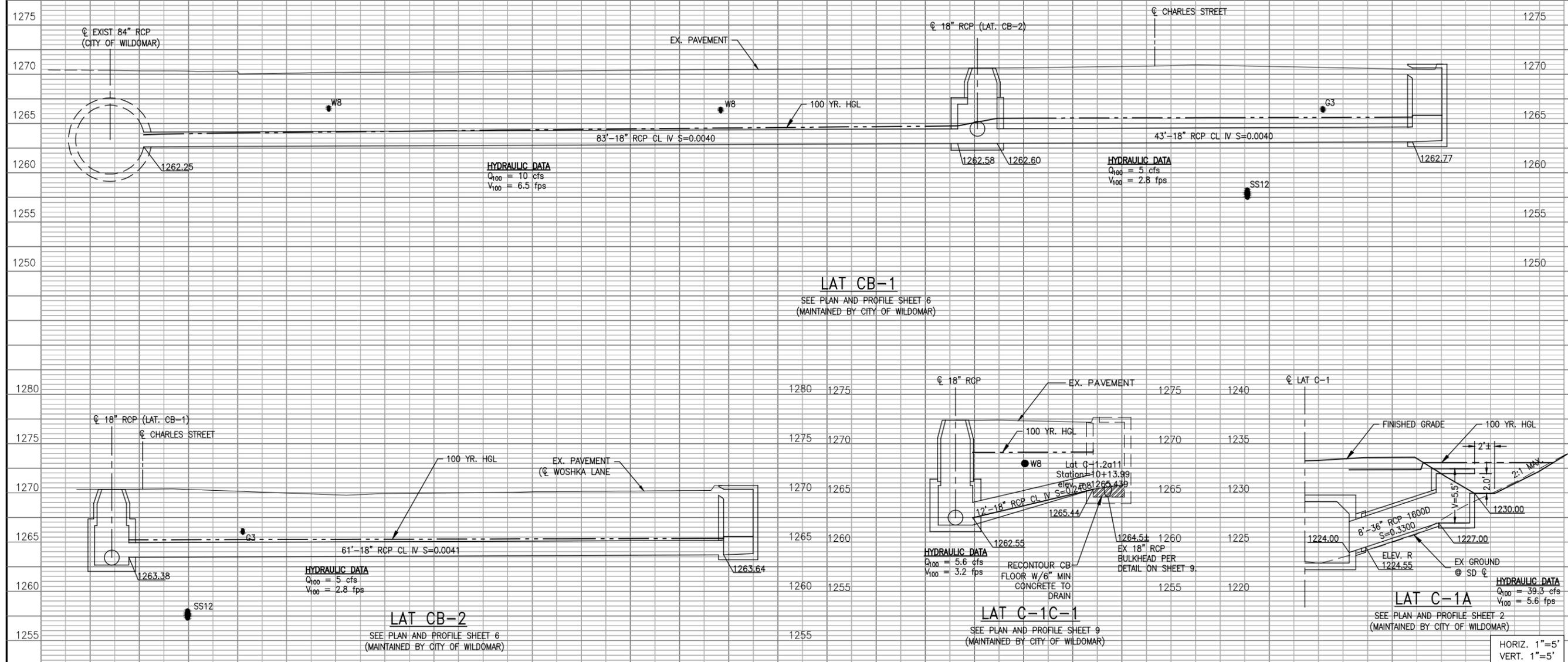
REF.	DESCRIPTION	APPR.	DATE

WILDOMAR MDP
LATERAL C-1C & C-1C-1
PLAN & PROFILE

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 9 OF 15

SUBMITAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:46:56 PM

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.



LAT CB-1
SEE PLAN AND PROFILE SHEET 6
(MAINTAINED BY CITY OF WILDOMAR)

LAT CB-2
SEE PLAN AND PROFILE SHEET 6
(MAINTAINED BY CITY OF WILDOMAR)

LAT C-1C-1
SEE PLAN AND PROFILE SHEET 9
(MAINTAINED BY CITY OF WILDOMAR)

LAT C-1A
SEE PLAN AND PROFILE SHEET 2
(MAINTAINED BY CITY OF WILDOMAR)

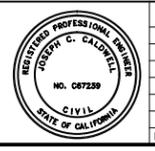
HORIZ. 1"=5'
VERT. 1"=5'



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE:

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McGRAY STREET, RIVERSIDE, CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256

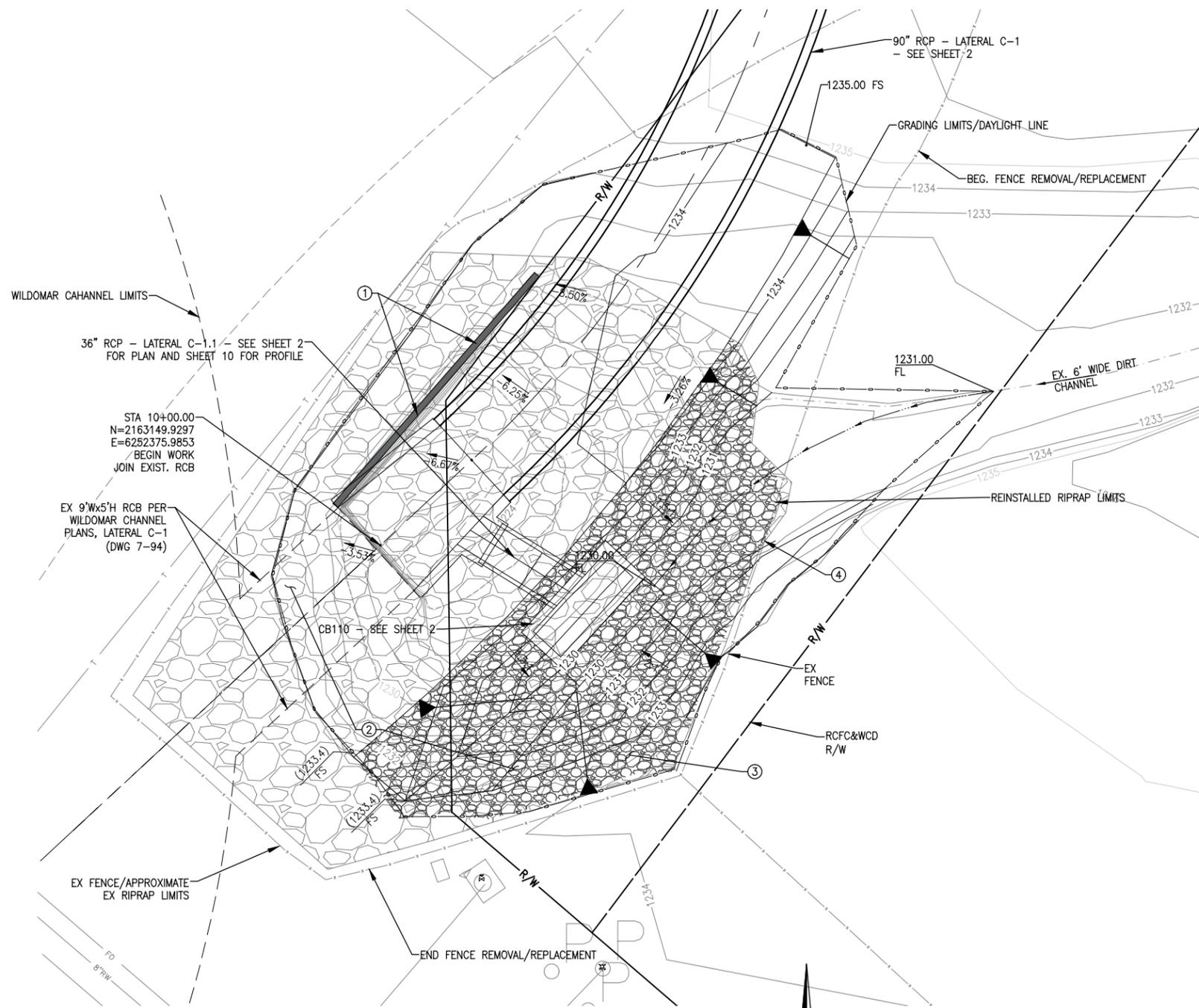


REF.	DESCRIPTION	APPR.	DATE

WILDOMAR MDP
CONNECTOR PIPES
PROFILE

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 10 OF 15

SUBMITTAL 5 - 100% - FOR REVIEW ONLY 7/17/2015 4:46:57 PM G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG



INLET GRADING PLAN



CONSTRUCTION NOTES:

- ① REMOVE EX WINGWALL
- ② REMOVE AND SALVAGE EX RIPRAP WITHIN GRADING LIMITS
- ③ REINSTALL RIPRAP AROUND INLET. MIN RIPRAP DEPTH = 2'.
- ④ REMOVE, SALVAGE AND REPLACE INTERFERING PORTIONS OF EX FENCE AS SHOWN, OR DIRECTED BY ENGINEER.

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE:

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



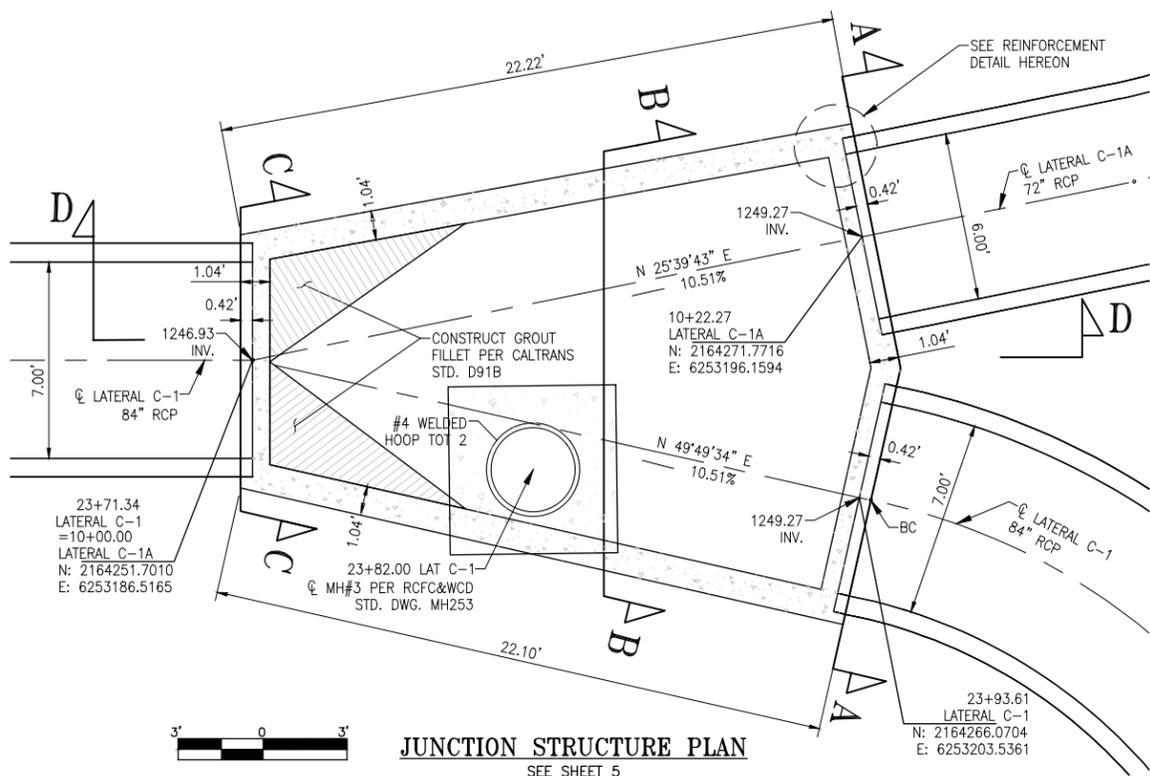
ENGINEER: RCE DATE:

REF.	DESCRIPTION	APPR.	DATE

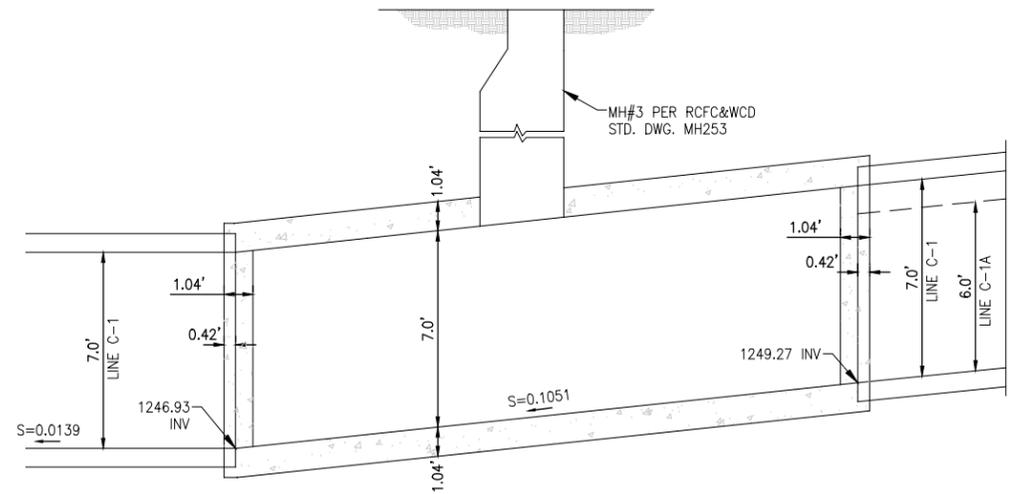
WILDOMAR MDP
LATERAL C-1.1 STORM DRAIN
INLET GRADING DETAILS

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 11 OF 15

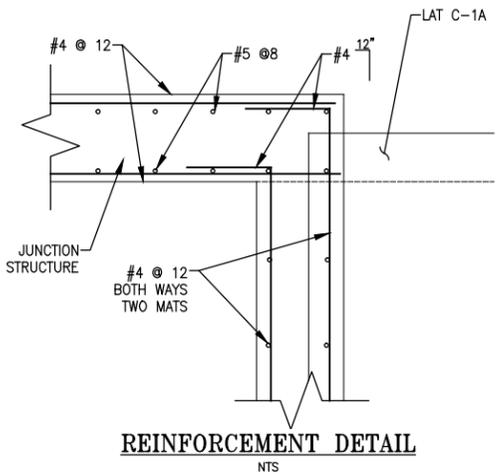
SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:47:02 PM



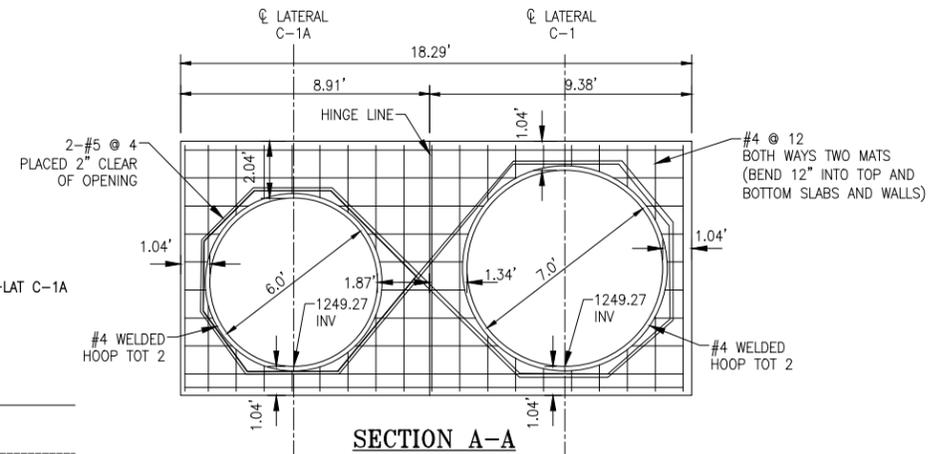
JUNCTION STRUCTURE PLAN
SEE SHEET 5



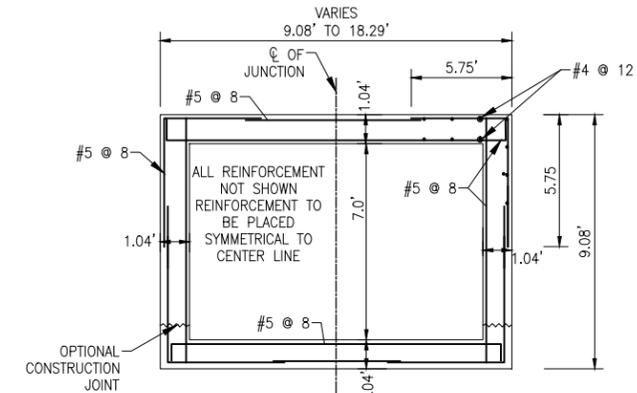
SECTION D-D



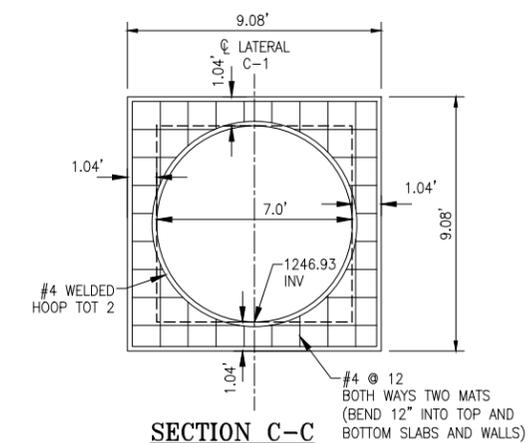
REINFORCEMENT DETAIL
NTS



SECTION A-A



SECTION B-B



SECTION C-C

NOTE:
CONCRETE
F'c = 4,000 PSI
FY = 60,000 PSI

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY:

Don't Dig...Until You Call:
U.S.A. Toll Free:
1-800-227-2600
for the location
of buried
utility lines.
Don't disrupt
vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



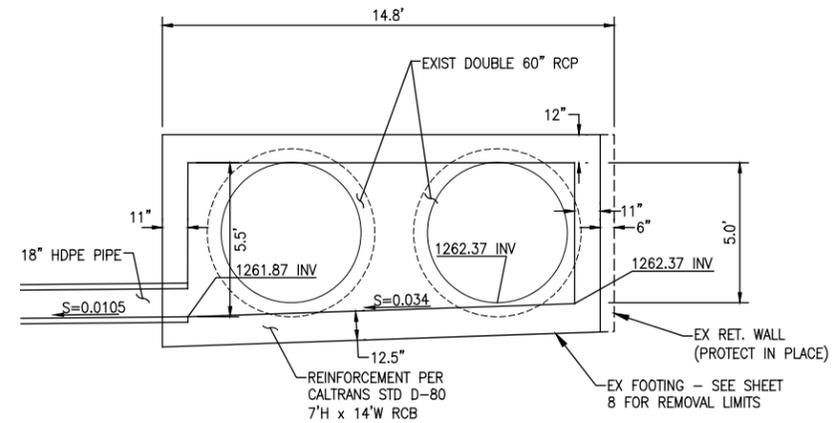
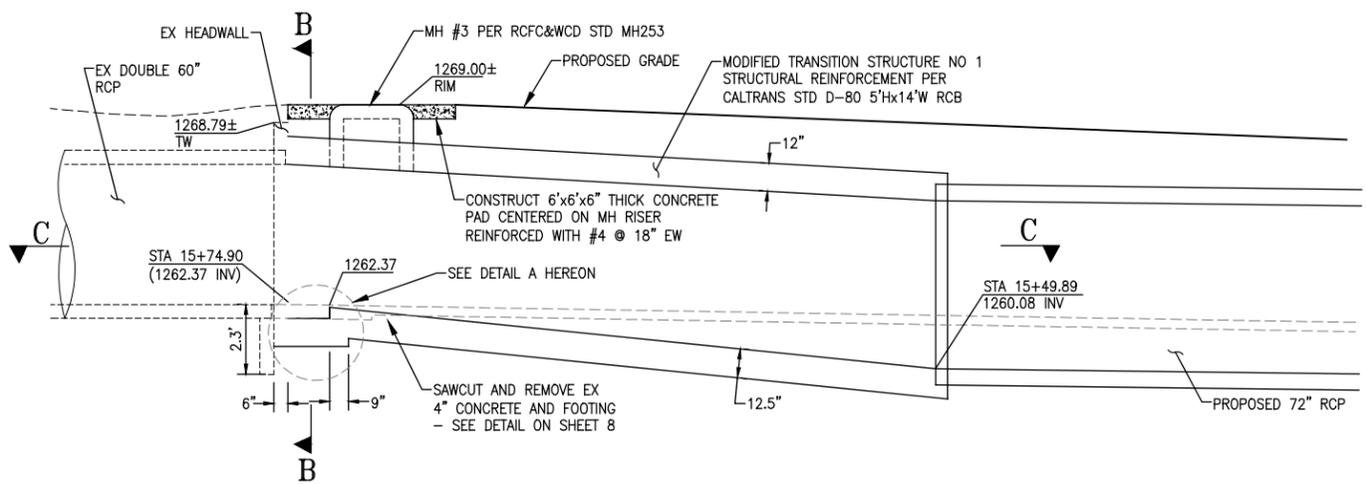
REVISIONS	DATE	DESCRIPTION

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____

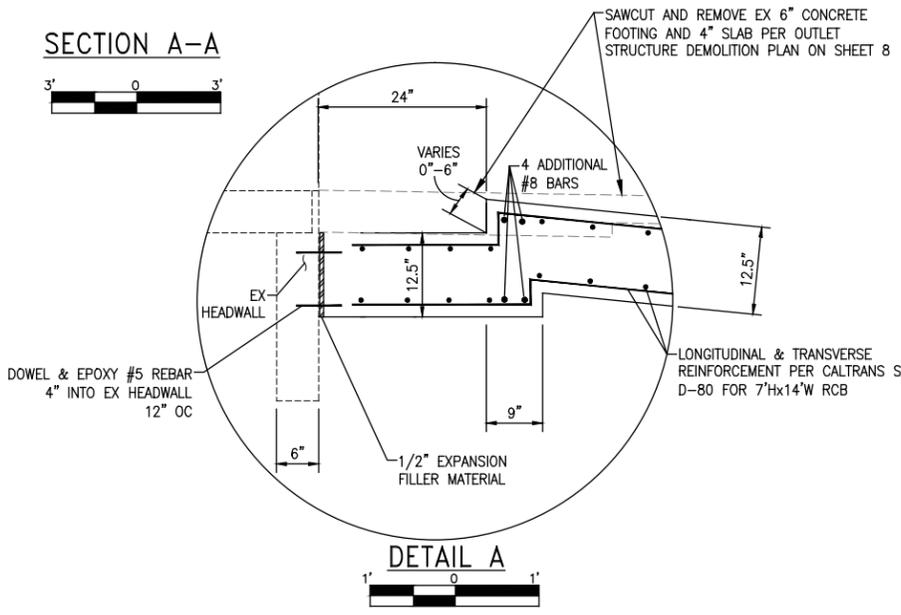
WILDOMAR MDP
LATERAL C-1 STORM DRAIN
JUNCTION STRUCTURE DETAILS

PROJECT NO.
7-0-00076
DRAWING NO.
7-0533
SHEET NO.
12 OF 15

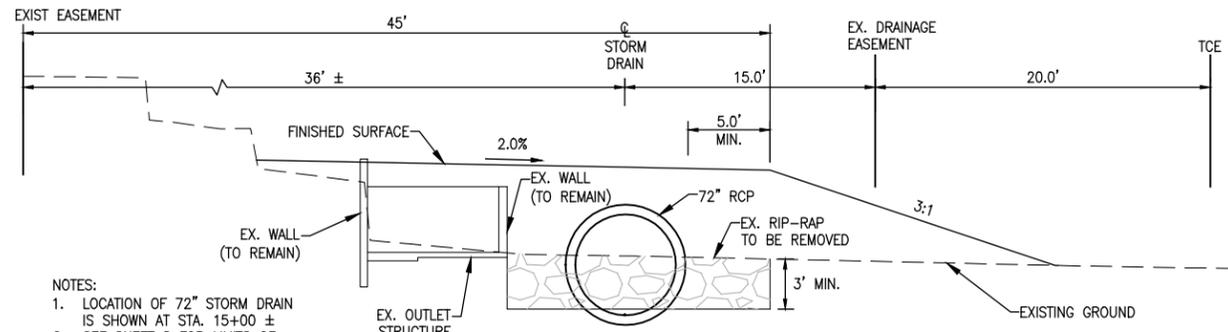
SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-S0.DWG 7/17/2015 4:47:11 PM



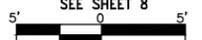
SECTION A-A



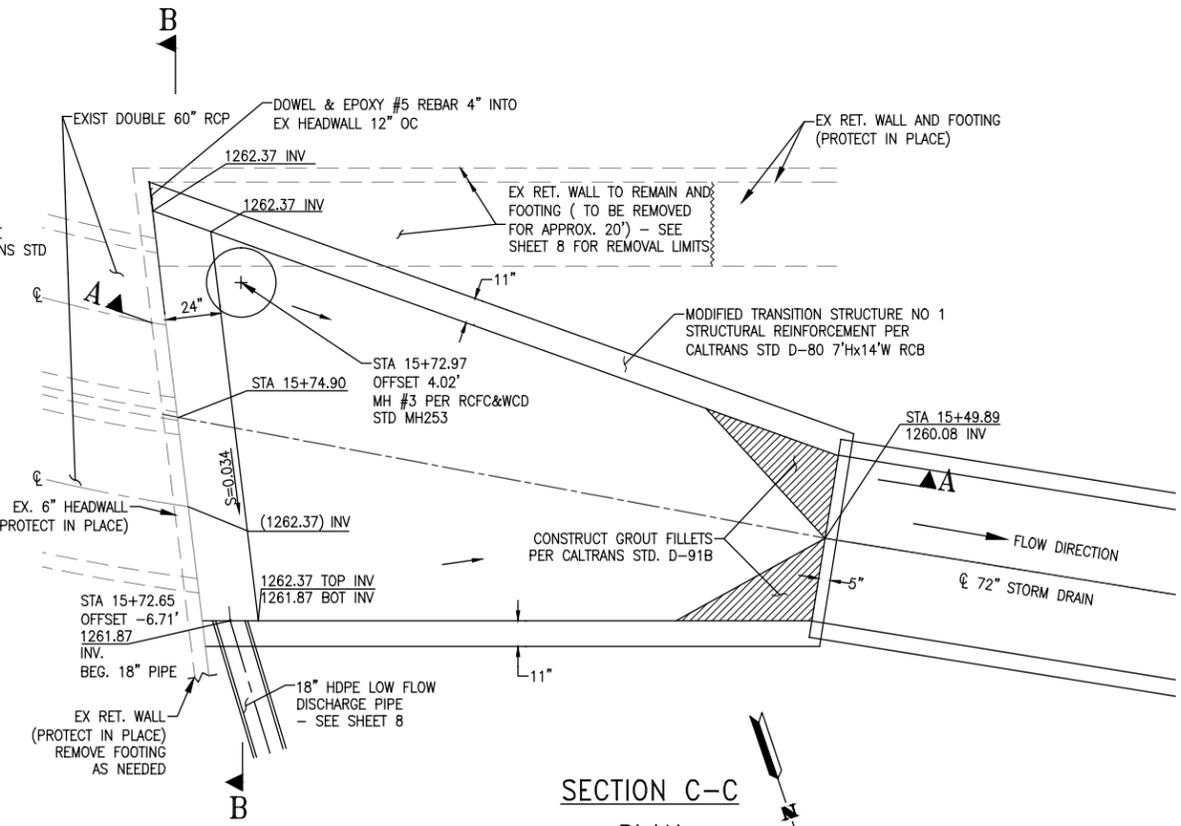
DETAIL A



SECTION D-D



- NOTES:
1. LOCATION OF 72" STORM DRAIN IS SHOWN AT STA. 15+00 ±
 2. SEE SHEET 8 FOR LIMITS OF DEMOLITION



SECTION C-C

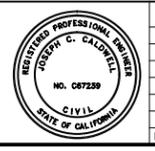
PLAN



CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE:

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. **WEBB** ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAE STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



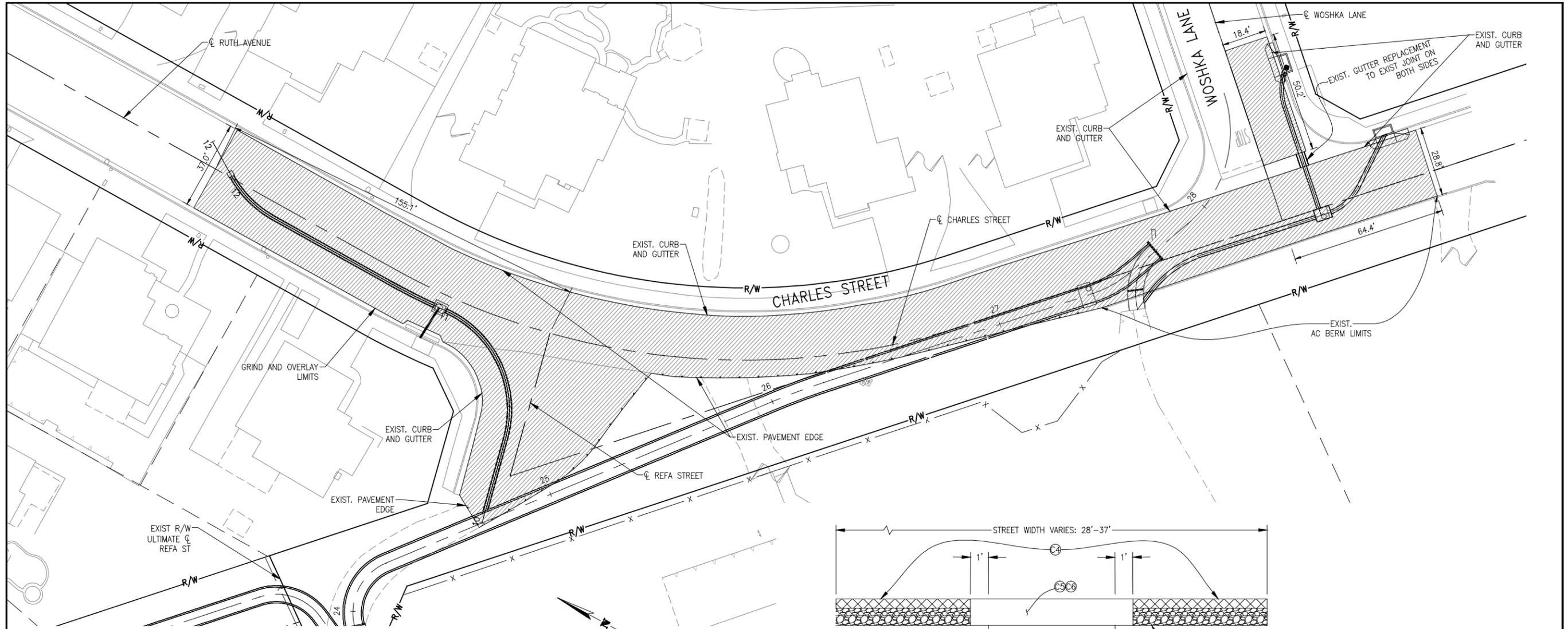
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____

WILDOMAR MDP
OUTLET STRUCTURE
MODIFIED TS#1 DETAIL

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 13 OF 15

SUBMITAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-SD.DWG 7/17/2015 4:47:20 PM



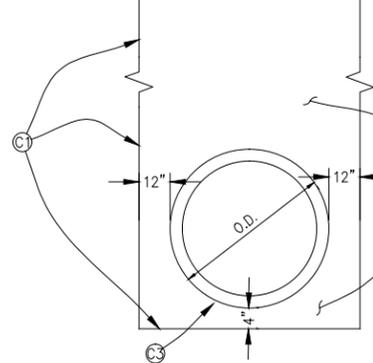
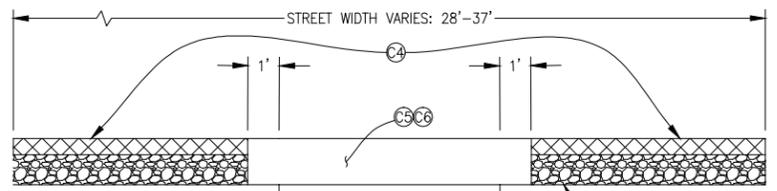
NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES UNLESS OTHERWISE NOTED.

NOTES

1. CONCRETE IMPROVEMENTS (INCLUSIVE OF, BUT NOT LIMITED TO, CROSS GUTTERS, CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, CURB RAMPS, ETC.) THE ENGINEER HAS APPROVED FOR REMOVAL IN PURSUIT OF THE WORK SHALL BE REPLACED IN ACCORDANCE WITH APPLICABLE CITY OF WILDOMAR STANDARDS TO THE SATISFACTION OF THE ENGINEER AND CITY, AND SHALL BE CONSIDERED FOR PAYMENT UNDER THE CONTRACT ITEM OF REPLACEMENT OF CURB & GUTTER, DRIVEWAY, AND SIDEWALK. DAMAGED OR DESTROYED CONCRETE IMPROVEMENTS NOT AUTHORIZED FOR REMOVAL BY THE ENGINEER SHALL BE REPLACED IN ACCORDANCE WITH APPLICABLE CITY OF WILDOMAR STANDARDS TO THE SATISFACTION OF THE ENGINEER AND CITY, AND SHALL NOT BE MEASURED FOR PAYMENT.
2. REPLACE ALL DISTURBED STRIPING, YELLOW CENTER LINE, WHITE EDGE LINES, AND REFLECTIVE PAVEMENT IN KIND, OR AS DIRECTED BY CITY ENGINEER.
3. ALL SIGNING, STRIPING, AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH SECTION 84 OF THE CALTRANS STANDARD SPECIFICATIONS (LATEST EDITION) AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL LAWS.

LEGEND

GRIND AND OVERLAY (1.5" MIN.) LIMITS



DETAIL NOTES

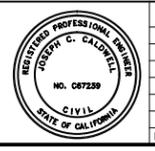
- ① EXCAVATION LIMITS.
- ② BEDDING PER RCFC&WCD STD DWG M815
- ③ SHAPE BEDDING TO FIT CURVATURE AND GRADE OF PIPE.
- ④ AC REPLACEMENT, 1.5" GRIND AND OVERLAY
- ⑤ STRUCTURAL SECTION - 4"AC/10"AB
- ⑥ IN NON-PAVED AREAS FROM STA. 10+50 TO STA. 25+00 RESTORE ENTIRE R/W SURFACE TO ITS EXISTING SURFACE MATERIAL AND CONDITION OR BETTER (EARTH, GRAVEL, ETC.)

RCP BEDDING AND PAVEMENT REPLACEMENT
FOR CONSTRUCTION IN EXISTING PAVED AREAS - ALL OTHER AREAS USE RCFC&WCD STD M815
NTS

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE:

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB
ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



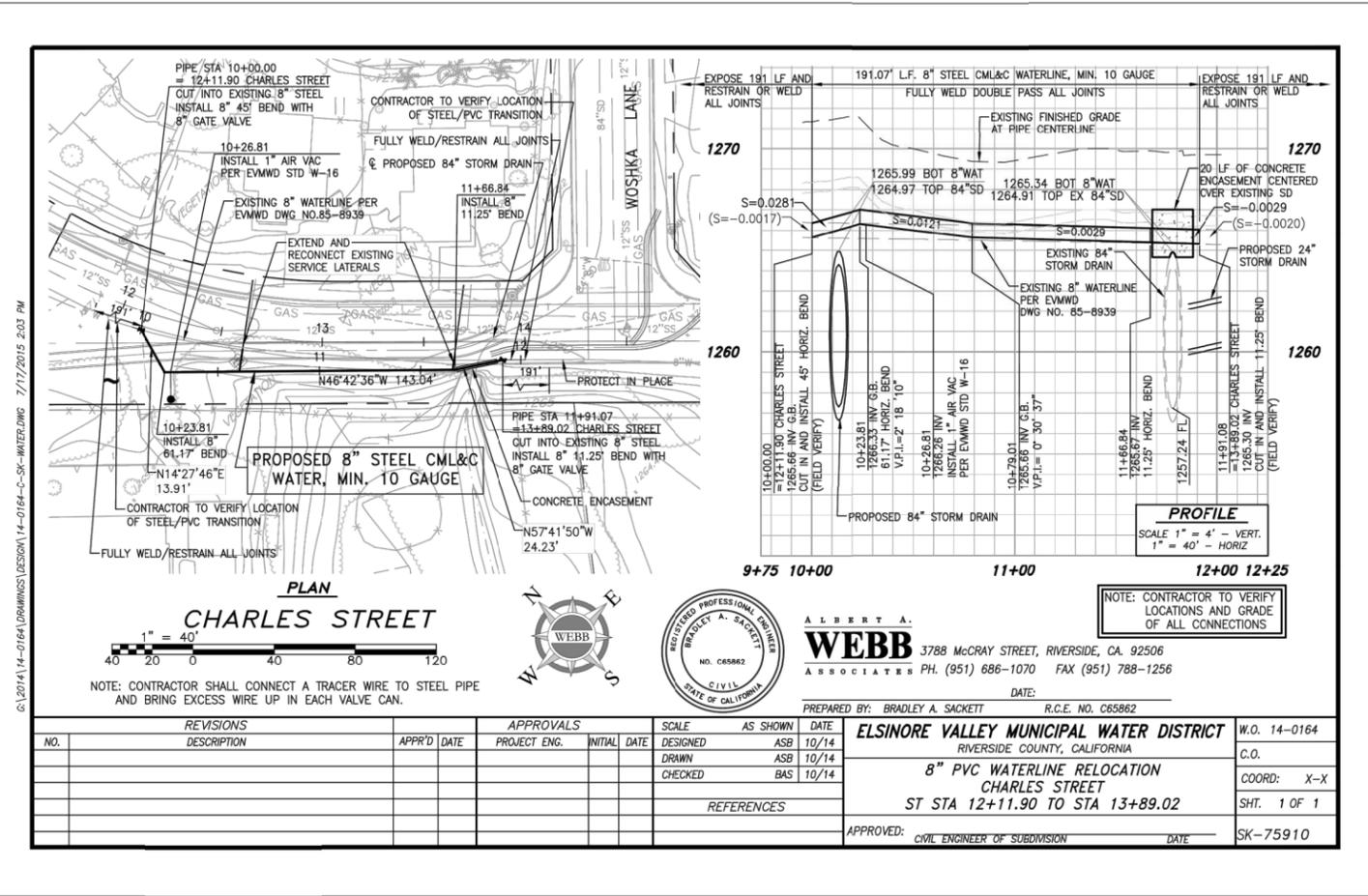
REF.	DESCRIPTION	APPR.	DATE

WILDOMAR MDP
LATERAL C-1 STORM DRAIN
PAVING PLAN

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 14 OF 15

SUBMITTAL 5 - 100% - FOR REVIEW ONLY
G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-PP.DWG 7/17/2015 4:48:50 PM

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES UNLESS OTHERWISE NOTED.



EVMWD SK-75910 - 8" WATERLINE RELOCATION
NOTE - SIGNED DRAWING WILL BE INCLUDED WITH FINAL PLANSET

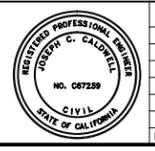
REVISIONS		APPROVALS		SCALE	AS SHOWN	DATE
NO.	DESCRIPTION	APPR'D	DATE	DESIGNED	ASB	10/14
				DRAWN	ASB	10/14
				CHECKED	BAS	10/14
				REFERENCES		

ELSNORE VALLEY MUNICIPAL WATER DISTRICT RIVERSIDE COUNTY, CALIFORNIA 8" PVC WATERLINE RELOCATION CHARLES STREET ST STA 12+11.90 TO STA 13+89.02 APPROVED: _____ DATE: _____ CIVIL ENGINEER OF SUBDIVISION	W.O. 14-0164 C.O. COORD: X-X SHT. 1 OF 1 SK-75910
---	---

CITY OF WILDOMAR
PUBLIC WORKS DEPARTMENT
APPROVED BY: _____
CITY ENGINEER DATE: _____

Don't Dig...Until You Call:
U.S.A. Toll Free: 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET, RIVERSIDE CA. 92506
PH. (951) 686-1070 / FAX (951) 788-1256



REF.	DESCRIPTION	APPR.	DATE

WILDOMAR MDP
LATERAL C-1 STORM DRAIN
WATERLINE RELOCATION PLAN

PROJECT NO. 7-0-00076
DRAWING NO. 7-0533
SHEET NO. 15 OF 15

SUBMITAL 5 - 100% - FOR REVIEW ONLY 7/17/2015 4:48:56 PM G:\2014\14-0164\DRAWINGS\DESIGN\14-0164-C-WT-RELOCATION.DWG