

PROJECT NO. SSJID-24007

CONSTRUCTION SPECIFICATIONS

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
LATERAL X-W PIPELINE CONNECTION PROJECT
PROJECT

SAN JOAQUIN COUNTY, CALIFORNIA

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
11011 E. HIGHWAY 120
MANTECA, CALIFORNIA 95336-9750
PHONE: (209) 249-4619

August 2, 2024

TABLE OF CONTENTS

**South San Joaquin Irrigation District
Lateral X-W Pipeline Connection Project**

BIDDING REQUIREMENTS

00101 Invitation to Bid and Notice to Contractors 4
01012 Instructions to Bidders 6

BID FORMS

00201 Bid Forms..... 10
00202 Bid Bond 18

CONTRACT DOCUMENTS

00301 Contract 20
00302 Faithful Performance Bond 32
00303 Payment Bond 34
00304 Worker’s Compensation Insurance Certificate..... 36
00305 Contractor Safety Agreement 37

CONDITIONS OF THE CONTRACT

00401 General Conditions
 Section 1 – General 38
 Section 2 - Award and Execution of Contract 41
 Section 3 – Scope of Work 42
 Section 4 – Control of Work 43
 Section 5 – Control of Materials 46
 Section 6 - Legal Relations and Responsibilities to the Public 47
 Section 7 - Prosecution and Progress 53
 Section 8 - Measurement and Payment 56
00402 Special Provisions 62

GENERAL & SPECIFIC REQUIREMENTS

00501 General Construction Notes 67
00502 Summary of Work and Special Considerations 68

APPENDICES

- Appendix A – Contract Plan Set
- Appendix B – Storm Water Pollution Prevention Plan

ENGINEER'S SIGNATURE PAGE

These construction plans and specifications for the

Lateral X-W Pipeline Connection Project
Project No. SSJID-24007

Have been prepared by, or under the direct supervision of, the following Registered Engineer:

Handwritten signature in blue ink, appearing to read "F. Killingsworth".

Forrest Killingsworth, P.E.
RCE: 75427
South San Joaquin Irrigation District
110011 E. Highway 120
Manteca, California 95336-9750
Phone: (209) 249-4600

DOCUMENT 00101
INVITATION TO BID AND
NOTICE TO CONTRACTORS

Sealed bid proposals will be received by the South San Joaquin Irrigation District for:

Lateral X-W Pipeline Connection Project
San Joaquin County, California
Project No. SSJID-24007

Bids are to be received at the **South San Joaquin Irrigation District Office, 11011 E. Highway 120, Manteca, California** until **2:00 p.m. on Thursday, September 4, 2024**, at which time the bids will be publicly opened and read to perform the work as follows:

Clearing and grubbing of trees and removal of private irrigation facilities within Project right of way. Removal and off haul of approximately 2,215 linear feet of 36" diameter and 42" diameter concrete cast-in-place pipe. The installation of approximately 4,011 linear feet of 48" diameter rubber gasketed reinforced concrete pipe (RGRCP) connecting the Lateral X irrigation line to the Lateral W irrigation line. The Work includes the construction of three (3) concrete control boxes, vents, installing a private irrigation service connection, and constructing a road crossing at Sedan Ave. Contractor shall furnish the specified materials, hardware, concrete/grout, other materials, equipment, tools, labor, incidentals, and traffic control as necessary to perform the Work. Contractor is not responsible for furnishing and installation of canal gates, railing, grating, and ladders on the new control boxes or for the steel covers on the top of vents, this work will be fabricated and installed by District crews. Engineer's estimate of the contract work is **\$2,446,000**.

The Work identified here is not meant to be an exhaustive or inclusive list but is intended to illustrate broadly the work required for completion of this Project.

It is expected that the Work will be completed by **February 1st, 2025**, with an anticipated issuance of the Notice to Proceed prior to **November 1st, 2024**.

A MANDATORY pre-bid meeting is scheduled for Wednesday, August 14, 2024 at 10:00 a.m., at the District Office at 11011 E. Highway 120, Manteca. Prospective bidders are hereby notified that the Project site is located on private property and access thereto is limited to the meeting time scheduled and as accompanied by a representative of the District. Those wishing to attend this meeting should contact the District at **(209) 249-4619** to confirm attendance, and meeting date and time.

NO CONTRACTOR OR SUBCONTRACTOR MAY BE LISTED ON A BID PROPOSAL FOR A PUBLIC WORKS PROJECT (SUBMITTED ON OR AFTER MARCH 1, 2015) UNLESS REGISTERED WITH THE DEPARTMENT OF INDUSTRIAL RELATIONS ("DIR") PURSUANT TO LABOR CODE SECTION 1725.5. To register log on to the DIR website.
<https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRRegistrationForm>

THIS PROJECT IS SUBJECT TO COMPLIANCE MONITORING AND ENFORCEMENT BY THE DEPARTMENT OF INDUSTRIAL RELATIONS.

Bids must be accompanied by bidder's security in the amount to at least ten percent (10%) of the bid amount. Companies supplying sureties or bonds shall be admitted to supply such instruments within the State of California, shall be listed by the Office of the Insurance Commissioner, shall have a minimum **A.M. Best rating of "A" or better**, and have a demonstrated ability to meet their ongoing obligations to policyholders.

All Bids are to be compared on the basis of the Engineer's estimate of the quantities of work to be done. South San

Joaquin Irrigation District reserves the right to reject any and all Bids. Bid award will be made on the basis of a single schedule of the base bid. The award, if made, will be to the lowest single responsive and responsible Bidder.

Bids submitted to the District by Contractors who are not licensed in accordance with the provisions of Chapter 9, Division III of the Business and Professions Code, State of California, shall be considered non-responsive and shall be rejected by the District. Prospective Bidders shall be skilled, regularly engaged and licensed in the general class or type of work specified and **possesses a valid California Class "A" Contractor's License.**

Electronic copies of the Plans, Specifications and Bid Forms may be obtained by contacting Dawn Driesen, at (209) 249-4619.

Parties intending to submit a bid are requested to notify Dawn Driesen at (209) 249-4619, to be placed on the "Plan Holder's List."

Technical, construction, and project-specific inquiries and questions should be directed to Chad Parsons, P.E., Associate Civil Engineer, (209) 249-4617 or (209)607-8338, cparsons@ssjid.com.

The envelope enclosing the Bid shall be sealed and addressed to the South San Joaquin Irrigation District and mailed or hand delivered/delivered by courier to 11011 East Highway 120, Manteca, California 95336. The envelope shall be plainly marked in the upper left-hand corner with the name and address of the bidder and shall bear the words "**Bid for**", followed by "**PROJECT NO. SSJID-24007 FOR THE LATERAL X-W PIPELINE CONNECTION PROJECT**" and the date and hour for opening of bids. The certified or cashier's check, money order, or bidder's bond, where applicable, shall be made payable to **South San Joaquin Irrigation District**. The bid security shall be enclosed in the same envelope with the Bid.

END OF DOCUMENT 00101

**DOCUMENT 00102
INSTRUCTIONS TO BIDDERS**

1.01 CONTENTS OF BID FORMS

Prospective Bidders will be furnished with Bid Forms, which will include a schedule of items for which prices are asked, showing the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished.

1.02 APPROXIMATE ESTIMATE OF QUANTITIES

The quantities given in the bid and contract are on a lump sum basis, being given as a basis for the comparison of bids. The District does not, expressly or by implication, agree that the actual amount of work will correspond therewith, and reserves the right to increase or decrease the amount of any class or portion of work, or to omit portions of the work, as may be deemed necessary or advisable by the Engineer.

1.03 EXAMINATION OF PLANS AND SITE OF WORK

- A. The Bidder shall examine carefully the site of the work contemplated, the Plans and Specifications, the Bid and Contract Forms therefore. The submission of a bid 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 scope of work to be performed and the quantities of materials to be furnished, and as to the requirements of the Bid, Plans, Addenda, and the Contract.
- B. Should the Bidder find discrepancies in, or omissions from the drawings or other Contract Documents, or should he be in doubt as to their meaning, he/she shall at once notify the Engineer who shall answer such questions.

1.04 ADDENDA

- A. All questions about the meaning or intent of the Bidding Documents are to be directed to the Engineer at (209) 249-4619. Interpretations or clarifications considered necessary by the Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by the Engineer as having received the Bidding Documents. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- B. The District or Engineer may also issue addenda to modify the Bidding Documents as deemed advisable.

1.05 BID FORMS

- A. The Engineer will furnish to each Bidder a standard Bid Form, which, when filled out and executed, may be submitted as his/her/their/its bid. Bids not presented on forms so furnished, and copies or facsimiles of the Bidder's completed and executed Bid Forms as a bid will be rejected. Additional copies of Bid Forms may be obtained from the Engineer.
- B. The Bid shall set forth the item prices, in clearly legible figures, in the respective spaces provided, and shall be signed by the Bidder, who shall fill out all blanks in the Bid Forms as therein required.
- C. All Bidders submitting bids must sign the Bid Forms, fill out all blanks in the Bid Forms, and submit them along with all of the information and statements required herein. Any bids not containing all the information and the "Non-collusion Declaration" requested may be considered non-responsive and may be rejected.
- D. If an individual makes the bid, his/her/their name and mailing address must be shown. If made by a firm or partnership, the name and mailing address of the firm or partnership must be shown. If made by a corporation, the bid must show the name and mailing address of the corporation.
- E. The bid shall be submitted as directed in the "Notice to Contractors" under sealed cover plainly marked as a

bid, and identifying the project job number to which the bid relates and the date and time of the bid opening therefor. Bids which are not properly marked shall be grounds for rejection.

- F. NO CONTRACTOR OR SUBCONTRACTOR MAY BE LISTED ON A BID PROPOSAL FOR A PUBLIC WORKS PROJECT (SUBMITTED ON OR AFTER MARCH 1, 2015) UNLESS REGISTERED WITH THE DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) PURSUANT TO LABOR CODE SECTION 1725.5. To register log on to the DIR website.
<https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRegistrationForm>**
- G. ALL CONTRACTORS AND SUBCONTRACTORS MUST FURNISH ELECTRONIC CERTIFIED PAYROLL RECORDS DIRECTLY TO THE LABOR COMMISSIONER (aka DIVISION OF LABOR STANDARDS ENFORCEMENT).**
- H. NO CONTRACTOR OR SUBCONTRACTOR MAY BE AWARDED A CONTRACT FOR PUBLIC WORK ON A PUBLIC WORKS PROJECT (awarded on or after April 1, 2015) UNLESS REGISTERED WITH THE DEPARTMENT OF INDUSTRIAL RELATIONS PURSUANT TO LABOR CODE SECTION 1725.5**
- I. THIS PROJECT IS SUBJECT TO COMPLIANCE MONITORING AND ENFORCEMENT BY THE DEPARTMENT OF INDUSTRIAL RELATIONS.**

1.06 CONTRACTOR'S LICENSING LAWS

- A. All Contractors and Bidders submitting bids shall be properly licensed in accordance with the laws of this state and the provisions of Chapter 9 of Division 3 of the Business and Professions Code § 7028.15. Any Bidder or Contractor not so properly licensed shall be subject to the penalties imposed by such laws, and shall result in bid rejection.
- B. All Subcontractors listed in the Bidders bid form shall be licensed in accordance with the provisions of Chapter 9 of Division 3 of the Business and Professions Code and any the submission of any bid with Subcontractors not so licensed will be rejected.
- C. All businesses or individuals who construct or alter to construct or alter any building, highway, road parking facility, railroad, excavation, or other structure in California must be licensed by the California Contractors State License Board (CSLB) if the total cost (labor and materials) of one or more contracts on the project is \$500 or more. Contractors, including Subcontractors, Specialty Contractors, and persons engaged in the business of home improvement (with the exception of joint ventures and project involving federal funding) must be licensed before submitting bids. Licenses may be issued to individuals, partnerships, corporations, or joint ventures. The CSLB does not issue licenses to Limited Liability Companies (LLCs).

1.07 REQUIRED LISTING OF PROPOSED SUBCONTRACTORS

- A. Each bid shall have listed therein 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, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent (1/2 of 1%) of the Prime Contractor's total bid. The Bid shall identify which portion of the contract work each listed Subcontractor will perform.
- B. Violations of the foregoing shall subject the Bidder to penalties accordance with the "Subletting and Subcontracting Fair Practices Act," commencing with Section 4100 of the Public Contract Code. The Bidders attention is called to other provisions of said Act relating to the imposition of penalties for failure to observe its provisions by using unauthorized Subcontractors or by making unauthorized substitutions.

- C. Listing of Subcontractors and suppliers shall be on sheets contained in the Bid Forms.
- D. Under California Public Contract Code, Section 6109, "Ineligible and Debarred Subcontractors", the Contractor is prohibited from performing work on a public works project with a Subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the California Labor Code.

1.08 REJECTION OF BIDS

- A. Bids may be rejected if they have been transferred to another Bidder, or if they show any alterations of form, additions not called for, conditional or alternative bids, incomplete bids, erasures, or irregularities of any kind.
- B. Bids in which the unit prices, lump sum prices, or the total prices of the item are grossly "front- end" loaded or unbalanced with respect to costs, may be rejected.
- C. Bids submitted electronically or by facsimile will not be accepted.

1.09 BIDDER'S SECURITY

All bids shall be presented under sealed cover and shall be accompanied by one of the following forms of Bidder's security:

- A. Bidder's Bond executed by a licensed surety insurer to operate in the State of California, with an AM Best rating of "A" made payable to the District; or by a cashier's check, a certified check, or cash.
- B. The bid security shall be in an amount equal to at least ten percent (10%) of the amount bid. A bid will not be considered unless one of the forms of Bidder's security is enclosed therewith. Bids submitted without one of the forms of Bidder's security as listed above will be rejected.

1.10 WITHDRAWAL OF BIDS

Any bid may be withdrawn at any time prior to the time fixed in the public notice for the opening of the bids by filing a written request for the withdrawal of the bid with the Engineer. The Bidder or his/her/their/its duly authorized representative shall execute the request. The withdrawal of a bid does not preclude the right of the Bidder to file a new bid prior to the time fixed for receipt of bids.

1.11 BID OPENING

- A. Whether or not bids are opened exactly at the time fixed in the "Notice to Contractors" for opening bids, a bid will not be received after that time, nor may any bid be withdrawn after the time fixed in the "Notice to Contractors" for the opening of bids.
- B. Bids will be opened and read publicly at the time and place indicated in the "Notice to Contractors." Bidders or their authorized agents are invited to be present.

1.12 RELIEF OF BIDDER

If the Bidder claims a mistake was made in his/her/their/its bid, he/she/they/it shall give the Engineer written notice within five (5) working days, excluding Saturdays, Sundays, and holidays, after the opening of bids of the alleged mistake specifying in the notice in detail how the mistake occurred in accordance with Public Contract Code § 5100 et seq.

1.13 DISQUALIFICATION OF BIDDERS

More than one (1) bid from an individual, firm, or partnership, corporation, or combination thereof under the same or different names will not be considered. Reasonable grounds for believing that any individual, firm partnership, corporation or combination thereof is interested in more the one bid for the work contemplated may cause the rejection of all bids in which that individual, firm partnership, corporation or combination thereof 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 prices are obviously unbalanced may be rejected

1.14 RESPONSIBLE BIDDER

Public Contract Code, Section 1103, defines “Responsible Bidder” as one “who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity, and experience to satisfactorily perform the public works contract.”

1.15 SCHEDULE OF CONTRACT AWARD

- A. **Award of Contract** — If award is made, Contract will be awarded to the lowest responsive, responsible bidder whose bid complies with the specified requirements. Notice of award will be sent to the successful bidder at the mailing address indicated in bidder’s submittal.
- B. Determination of the lowest monetary bid will be determined by the **Total Base Bid as defined in the Bidding Sheet, including additive bid items if any.**
- C. In the event of a tie, the District Board may accept, for award, the bid it chooses by a publicly held coin toss.
- D. The District reserves the express right to waive minor defects in bids that are deemed to be “non-material” by the District.
- E. The District reserves the right to reject all bids.

END OF DOCUMENT 00102

DOCUMENT 00201

BID FORMS

TO THE SOUTH SAN JOAQUIN IRRIGATION DISTRICT:

BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	TOTAL ESTIMATED PRICE
1.	Mobilization & Demobilization, Insurance, Bonding, & Permitting	LS	1		
2.	Clearing, Grubbing, & Misc. Tree Trimming	LS	1		
3.	Tree Removal & Off Haul	EA	176		
4.	SWPPP Preparation, Implementation, & Dust Control	LS	1		
5.	Remove & Off haul of Existing 36-inch Dia. and 42-inch Dia. Cast-In-Place Pipe (CIPP)	LF	2,215		
6.	Pour Over Control Boxes (Concrete Only) (Rails, Canal Gates, Ladders, Steps, to be Furnished and Installed by the District)	EA	3		
7.	48-inch Dia. CLIII RGRCP	LF	4,011		
8.	48-inch Dia. 45 Degree Elbow, Cast-In-Place	EA	4		
9.	42-inch Dia. CLIII RGRCP at Control Box Tie-Ins	LF	48		
10.	42-inch Dia. 45 Degree Elbow, Cast-In-Place	EA	2		
11.	36-inch Dia. CLIII RGRCP at Control Box Tie-Ins	LF	16		
12.	30-inch Dia. Access Vent	EA	7		
13.	12-inch Dia. Standard Vent	EA	5		
14.	48-inch Dia. Cast-In-Place Pipe Plug	EA	1		

15.	42-inch Dia. Cast-In-Place Pipe Plug	EA	2		
16.	48-inch Dia. Concrete Collar at Tie-In	EA	5		
17.	42-inch Dia. Concrete Collar at Tie-In	EA	3		
18.	36-inch Dia. Concrete Collar at Tie-In	EA	1		
19.	24-inch Dia. Irrigation Service Turnout & Hub Valve	EA	1		
20.	8-inch Dia. DIP CL50 Maintenance Pump Piping at Control Box Sta. 36+75	LS	1		
21.	Road Crossing at Sedan Ave. Per SJCO	LS	1		

The undersigned declares he/she has carefully examined the location of the proposed work, that he/she has examined the plans, and read the accompanying instructions to Bidders, and hereby proposes to furnish all labor, materials, tools, equipment, and incidentals, and do all work required to complete the said Work in accordance with the Plans and Specifications for the unit prices set forth in the following schedule:

TOTAL BASE BID AMOUNT (Items #1-#21) \$ _____

TOTAL BASE BID AMOUNT IN WORDS:

 IN THE EVENT OF DISCREPANCY BETWEEN FIGURES AND WORDS, WORDS SHALL PREVAIL

DATED: _____

BID ALTERNATES:

ALT. BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	TOTAL ESTIMATED PRICE
22.	48-inch Dia. 45 Degree Elbow, Pre-Cast (Alternate to Item #8)	EA	4		
23.	42-inch Dia. 45 Degree Elbow, Pre-Cast (Alternate to Item #10)	EA	2		

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____

(Individual's Signature)

Doing business as: _____

Business Address: _____

Phone Number: (____) _____ FAX Number: (____) _____

A Partnership

Partnership Name: _____

By: _____

(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

Business Address: _____

Phone Number: (____) _____ FAX Number: (____) _____

A Corporation

Corporation Name: _____

State of Incorporation: _____

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

By: _____

(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest: _____

(Signature of Corporate Secretary, Acting Secretary or other officer)

Business Address: _____

Phone Number: (____) _____ FAX Number: (____) _____

Date of Qualification to do business is _____

A Joint Venture

Joint Venture Name: _____

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business Address: _____

Phone Number: (____) _____ FAX Number: (____) _____

Joint Venturer Name: _____

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business Address: _____

Phone Number: (____) _____ FAX Number: (____) _____

Phone and FAX Number, and Address for receipt of official communications:

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

AWARD OF PROPOSED WORK

The District reserves the right to reject any and all bids. The award, if made, will be made to the lowest single responsive and responsible Bidder as submitted.

CONTRACTOR'S LICENSE STATEMENT

CALIFORNIA CONTRACTOR'S LICENSE NUMBER: _____

LICENSE EXPIRATION DATE: _____

CONTRACTOR'S DIR REGISTRATION NUMBER STATEMENT

CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS REGISTRATION NUMBER: _____

ACKNOWLEDGMENT OF ADDENDA

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

ADDENDUM NO.: _____ _____ _____ _____

CONTRACTOR'S INITIAL _____ _____ _____ _____

LIST OF PROPOSED SUBCONTRACTORS

Listed hereinafter are the names and addresses of all Subcontractors who will be employed, and the kind of work which each will perform if the contract is awarded to the undersigned. I understand that under Public Contract Code Section 4100 et seq. (4104), I must clearly set forth:

- (c) The name, the location of the place of business, and the California contractor's license number, and DIR Registration Number 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, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the Prime Contractor's total bid.
- (b) The portion of the work which will be done by each Subcontractor under this act. The Prime Contractor shall list only one (1) Subcontractor for each portion as is defined by the Prime Contractor in his/her/their/its bid.
- (c) Violations of this Act, the Prime Contractor shall be subject to penalties set forth in Public Contract Code Sections 4110 and 4111.

Portion of Work	Name, Place of Business	Cal. Const. Lic.#	DIR Regist. #

THE BIDDER MUST COMPLETE THE FOLLOWING QUESTIONNAIRE

QUESTIONNAIRE

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has a proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a Federal, State, or Local government project because of a violation of law or a safety regulation?

YES _____

NO _____

If the answer is "yes", explain the circumstances in the following space:

NOTE: This questionnaire constitutes a part of the Bid Form, and signature on the signature portion of the Bid Form shall constitute execution of this questionnaire.

FAIR EMPLOYMENT PRACTICES CERTIFICATION

The Bidder, in submitting a bid for performing the following work by contract, hereby certifies that he has or will meet the standards of affirmative compliance with the Fair Employment Practices Act relating to the work herein.

This certificate constitutes a part of the Bid Form, and signature on the signature portion of the Bid Form shall constitute execution of this certification

**NONCOLLUSION DECLARATION
TO BE EXECUTED BY BIDDER AND SUBMITTED
WITH BID**

The undersigned declares:

I am the _____(title)
of the party making the foregoing Bid.

The Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation.

The Bid is genuine and not collusive or sham.

The Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding.

The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder.

All statements contained in the Bid are true.

The Bidder has not, directly or indirectly, submitted his/her/their/its bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

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

I declare under perjury under the laws of the State of California the foregoing is true and correct and that this declaration is executed on _____
20____, at City of _____, State of _____

(signature)

(print name of person signing)

END OF DOCUMENT 00201

DOCUMENT 00202

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

that we, the undersigned, _____ as principal and
_____ as Surety, are hereby held and firmly
bound unto the _____ in the penal sum of
_____ for the payment of which, well and truly to be made, we hereby jointly
and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

SIGNED, this ____ day of _____, 20 ____.

The Condition of the above obligation is such that whereas the Principal has submitted to the _____
_____ a certain bid, attached hereto and hereby made a part hereof to enter
into a Contract in writing, for the construction of improvements as set forth in the Contract documents for
the _____.

NOW THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the form of Agreement attached hereto (properly completed in accordance with said Bid) and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extension of time within which the _____ may accept such Bid; and Surety does hereby waive notice of any such extension.

In the event the _____ notifies Surety in writing that the Principal's Bid has been accepted, but that the Principal has failed to execute the form of Agreement and provide the requisite bonds and insurance, within seven (7) days after the Principal was notified of the acceptance of his/her/their/its Bid, and a copy of such notice has been sent to the Principal, then the Surety shall pay the amount of this bond to the _____ within ten (10) days after receipt of such notice.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

*****SIGNATURES APPEAR ON THE FOLLOWING PAGE*****

Principal

By _____

By _____

(seal)

Surety

By _____

By _____

(seal)

END OF DOCUMENT 00202

**CONTRACT
FOR
LATERAL X-W PIPELINE CONNECTION PROJECT
PROJECT (SSJID-24007)**

This Contract is made and entered into this _____ day of _____, 20____, in the County of San Joaquin, California, by and between SOUTH SAN JOAQUIN IRRIGATION DISTRICT, an irrigation district organized under the California Water Code ("District"), with its District Office located at 11011 E. Highway 120, Manteca, California 95336-9750, and _____, with its principal place of business at _____ ("Contractor").

AGREEMENT

1. SCOPE OF WORK

The Project consists of furnishing all traffic control, materials, equipment, labor, tools, and incidentals required to complete the following work:

Clearing and grubbing of trees and removal of private irrigation facilities within Project right of way. Removal and off haul of approximately 2,215 linear feet of 36" diameter and 42" diameter concrete cast-in-place pipe. The installation of approximately 4,011 linear feet of 48" diameter rubber gasketed reinforced concrete pipe (RGRCP) connecting the Lateral X irrigation line to the Lateral W irrigation line. The Work includes the construction of three (3) concrete control boxes, vents, installing a private irrigation service connection, and constructing a road crossing at Sedan Ave. Contractor shall furnish the specified materials, hardware, concrete/grout, other materials, equipment, tools, labor, incidentals, and traffic control as necessary to perform the Work. Contractor is not responsible for furnishing and installation of canal gates, railing, grating, and ladders on the new control boxes or for the steel covers on the top of vents, this work will be fabricated and installed by District crews.

Contractor shall begin the work when issued a Notice to Proceed by District. It is expected that the work will be completed by **February 1st, 2025**. Contractor shall diligently complete the work giving due consideration to safety of persons and property.

2. TERM OF CONTRACT

This Contract shall be effective immediately and shall remain in effect until the Work described in Section 1 is completed.

3. COMPENSATION AND CLAIMS FOR EXTRA WORK

The compensation to be paid by District to Contractor for satisfactory completion of the work shall be _____ Dollars and ____/100 cents (\$_____).

The Contractor shall be responsible for ascertaining the nature and location of the work, and the general and local conditions which can affect the work or the cost thereof. Any failure by the Contractor to do so will not relieve it from responsibility for successfully performing the work without additional expense to the District. Except as expressly provided to the contrary in the Contract, the Contractor assumes all risk with respect to unforeseen difficulties which may be encountered in performance of the work.

If the Contractor claims that any instructions issued by District involve extra cost under this Contract, Contractor shall give District written notice thereof within five (5) calendar days after the receipt of such instructions. No such claim shall be binding on District until accepted by District.

4. INVOICING AND PAYMENT

A. Progress Estimates - From time to time, the Contractor will prepare a progress estimate and request for payment for work performed. Within ten (10) days after receipt, the District will review the progress estimate and respond in writing to the Contractor, the amount approved by District as the value of all work under the Contract, including any amounts due the Contractor for extra work or pursuant to approved claims for extra. In arriving at the value of the work done, the District will give consideration to the value of major items which have been delivered to the job site for incorporation in the work and for which payment in full has been made by the Contractor. Consideration will not be given to preparatory work done or other materials on hand.

B. Progress Payments - The District will pay the Contractor ninety percent (95%) of the amount of each progress estimate approved by District within 10 days after District's approval of the progress estimate. Five percent (5%) of the amount of each estimate shall be retained by the District until final completion and acceptance of all work under the Contract. No partial payment or estimate shall constitute an acceptance of the work or any portion thereof.

C. Acceptance and Final Payment - Whenever the Contractor shall deem all work under this Contract to have been completed in accordance therewith, it shall so notify the District in writing, and the District shall promptly ascertain whether such be the fact and, if not, shall advise the Contractor in detail and in writing of any additional work required. When all the provisions of the Contract have been fully complied with to the satisfaction of the District, the District shall proceed with all reasonable diligence to determine accurately the total value of all work performed by the Contractor at the prices set forth in the accepted Proposal or fixed by Change Orders and the total value of all Extra Work, if any, all in accordance with the Contract. Within fifteen (15) days after completion and acceptance by the District's Board of Directors, the difference between said final estimate and all payments theretofore made to the Contractor shall be due and payable to the Contractor and excepting only such sum or sums as may lawfully be withheld in accordance with the provisions of this Contract. All prior certifications upon which partial payments may have been made, being merely estimates, shall be subject to correction in the final certificate. Acceptance by the Contractor of said payment made in accordance with said final estimate shall operate as and shall be a release to the District, its officers, agents, and employees from all claims and liability to the Contractor for anything done or furnished or withheld, and for anything relating to the work or any act or neglect of the District, its officers, agents, and employees, excepting only claims against the District for any amounts withheld by the District at the time of such payment.

D. Right of District to Withhold Payments - In addition to all other rights and remedies of the District hereunder and by virtue of law, the District may withhold or nullify the whole or any part of any partial or final payment to such extent as may reasonably be necessary to protect the District from loss on account of:

- (1) Defective work not remedied, irrespective of when any such work is found to be defective;
- (2) Claims or liens filed or reasonable evidence indicating probable filing of claims or liens;
- (3) Failure of the Contractor to make payments properly for labor, materials, equipment, or other facilities, or to subcontractors;
- (4) A reasonable doubt that the work can be completed for the balance then unearned;
- (5) Damage to work or property.

Whenever the District shall, in accordance herewith, withhold any monies otherwise due the Contractor, written notice of the amount withheld and the reasons therefor will be given the Contractor. After the Contractor has corrected the enumerated deficiencies the District shall promptly pay to the Contractor the amount so withheld. When monies are withheld to protect the District against claims or liens of mechanics, materialmen, subcontractors, etc., the District may at its discretion permit the Contractor to deliver a surety bond in terms and amount satisfactory to the District, indemnifying the District against any loss or expense, and upon acceptance thereof by the District, the District shall release to the Contractor monies so withheld.

5. NOTICES. Any notices or other communications to be given pursuant to this Contract shall be given by delivering same in writing to the parties at the addresses set forth below:

DISTRICT	CONTRACTOR
<i>If by overnight or hand-delivery, to:</i> South San Joaquin Irrigation District 11011 East Highway 120 Manteca, CA 95336-9570 <i>If by U.S. Mail, to:</i> South San Joaquin Irrigation District P.O. Box 747 Ripon, CA 95336-09750	<i>If by overnight or hand-delivery, to:</i> <i>If by U.S. Mail, to:</i>

Such notice shall be deemed given when deposited into the United States mail, postage prepaid, addressed to the parties at the addresses above. Nothing shall preclude the giving of personal notice or notice by e-mail provided, however, that notice by e-mail shall be followed by notice deposited into the United States mail as discussed above.

6. INDEPENDENT CONTRACTOR

A. It is understood and agreed that Contractor (including Contractor's employees) is an independent contractor and that no relationship of employer-employee exists between the parties hereto. Contractor shall not be entitled to any benefits payable to employees of District. District is not required to make any deductions or withholdings from the compensation payable to Contractor under the provisions of this Contract; and as an independent contractor, Contractor hereby indemnifies and holds District harmless from any and all claims that may be made against District based upon any contention by any third party that an employer-employee relationship exists by reason of this

B. It is further understood and agreed by the parties hereto that Contractor in the performance of its obligation hereunder is subject to the control or direction of District as to the designation of tasks to be performed, and the results to be accomplished but not the means, methods or sequence used by Contractor for accomplishing the results.

C. If, in the performance of this Contract, any third persons are employed by Contractor, such persons shall be entirely and exclusively under the direction, supervision, and control of Contractor. All terms of employment, including hours, wages, working conditions, discipline, hiring, and discharging, or any other terms of employment or requirements of law, shall be in accordance with applicable Federal and State Law, including the provisions of Labor Code section 1771 requiring the payment of prevailing wages on public works projects.

D. It is further understood and agreed that as an independent contractor and not an employee or agent of District, neither Contractor nor Contractor's assigned personnel shall have any right to act on behalf of District in any capacity whatsoever as agent, or to bind District to any obligation whatsoever.

E. It is further understood and agreed that Contractor must issue W-2 Forms or other suitable tax forms for income and employment tax purposes, for all of Contractor's assigned personnel under the terms and conditions of this Contract.

7. INDEMNIFICATION

A. Contractor, by execution of this Contract, specifically agrees to hold harmless, defend and indemnify District, its directors, officers, agents, and employees from and against any and all actions, claims, loss, liability, damage and expense including reasonable attorney's fees caused or alleged to be caused by any negligent or willful act or omission of Contractor, Contractor's employees or subcontractors engaged by Contractor in connection with the work of Contractor.

B. The Contractor shall assume the defense of and indemnify and save harmless the District against any and all liens, actions, claims loss, liability, damage and expense including attorney's fees, for labor and material furnished to the Contractor or any of its subcontractors in connection with the performance of this Contract. In the event that the Contractor or any of its subcontractors shall fail to pay for any material or labor used in the performance of this Contract, or any lien is filed against the said property, or any claim is asserted or action filed on any Bond, by any person claiming to have furnished labor or materials to the Contractor or any of subcontractors in connection with the performance of this Contract, the District shall be entitled, at its option, to pay for said material or labor, or discharge any such lien, or to pay

or settle any such claim or action and to deduct the amount so paid, together with any and all costs and attorney's fees incurred by or on behalf of the District in connection with any such payment, discharge, or settlement, from amounts due or to become due the Contractor hereunder.

C. Contractor shall indemnify and save harmless the District, and its directors, officers, employees and agents from any and all actions, claims, loss, liability, damage, and expense, including all costs and expenses of District, including reasonable attorneys' fees, arising out of any failure of Contractor to comply with federal, state, or local laws or regulations or Contractor's failure to comply with any other obligation of Contractor in this Contract.

8. INSURANCE

During the performance of the work under this Contract, Contractor and each subcontractor retained by Contractor shall maintain the following insurance:

A. General Liability Insurance, with a combined single limit of \$1,000,000 for each occurrence and \$1,000,000 in the aggregate.

B. Automobile Liability Insurance, with a combined single limit of \$1,000,000 for each person and \$1,000,000 for each accident.

C. Worker's compensation insurance in accordance with statutory requirements.

District shall be named as a named insured on the General Liability policies. Contractor shall, furnish District certificates for the liability insurance which shall include a provision that such insurance shall not be canceled without at least thirty (30) days' written notice to District. All subcontractors shall be required to include District and Contractor as additional insureds on their General Liability insurance policies, and shall be required to indemnify District and Contractor to the same extent. Insurance policies required under this contract shall be issued by an insurer with a rating of at least "A" in the latest edition of A.M. Best's Insurance Guide.

9. DOCUMENTATION TO BE FURNISHED BY CONTRACTOR

Prior to the start of construction, Contractor shall furnish District with the following documents:

A. Contractor prior to commencing work shall sign and file with the District a Workers' Compensation Certificate.

B. Written evidence of Contractor's state contractor's license number.

C. Certificate of Liability Insurance naming the District as additional insured meeting the requirements below.

D. For contracts exceeding \$25,000, Labor and Materials Bonds, each in the full amount of the Contract Price.

E. For contracts exceeding \$25,000 proof of Contractor's and all subcontractors' current registration with the Department of Industrial Relations to perform public work pursuant to Labor Code Section 1725.5.

F. Trench safety plan if required.

G. Contractor Safety Agreement

10. SUBCONTRACTS

The attention of the Contractor is directed to the provisions of Public Contract Code, Section 4100 et seq. as amended, and said provisions are by this reference incorporated herein and made a part hereof.

Each subcontract shall contain a suitable provision for the suspension or termination thereof should the work be suspended or terminated or should the subcontractor neglect or fail to conform to every provision of the Contract Documents insofar as such provisions are relevant. The Contractor shall be as fully responsible for the acts or omissions of its subcontractors and of the persons either directly or indirectly employed by them as it is for the acts or omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the District.

11. COMPLIANCE WITH LAWS - PERMITS - TAXES

The Contractor is an independent contractor and shall, at its sole cost and expense, comply with all laws, rules, ordinances and regulations of all governing bodies having jurisdiction over the work, obtain all necessary permits and licenses therefor, pay all manufacturers' taxes, sales taxes, use taxes, processing taxes, and all Federal and State taxes, insurance and contributions for Social Security and Unemployment which are measured by wages, salaries or any remuneration paid to the Contractor's employees, whether levied under existing or subsequently enacted laws, rules, or regulations. The Contractor shall also pay all property tax assessments on materials or equipment used until acceptance by the District. Without limitation, materials furnished and performance by the Contractor hereunder shall comply with Safety Orders of the Division of Industrial Safety, State of California.

The Contractor, upon request, shall furnish evidence satisfactory to the District that any or all of the foregoing obligations have been or are being fulfilled. The Contractor warrants to the District that it is licensed by all applicable governmental bodies to perform this Contract and will remain so licensed throughout the progress of the work, and that it has, and will have, throughout the progress of the work, the necessary experience, skill, and financial resources to enabled it to perform this Contract.

12. SAFETY

A. Trench Safety Plan. Before beginning excavation for any trench or trenches required under this Contract, the Contractor shall furnish to the District working drawings of Contractor's trench safety plan. The trench safety plan working drawings shall be a detailed plan showing the design or shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. Plans varying from the shoring system standards established by the Construction Safety Orders of the California Division of Industrial Safety or the Federal Safety Standards of the Department of Health, Education and Welfare, the plan must be prepared by a registered civil or structural engineer. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders, or less effective than that required by said Federal Safety Standards.

B. General. The Contractor shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to all applicable Federal, State, County and local laws, ordinances, and codes, and to the rules and regulations established by the California Division of Industrial Safety, and to other rules of law applicable to the work.

C. Contractor Safety Agreement. The Contractor shall complete, sign, and submit to the District a Contractor Safety Agreement as provided in the project's documents before project commencement.

13. WORKERS AND WAGES

A. Character of Workers - Only qualified, careful and efficient workers shall be employed. When required in writing by the District, the Contractor or any subcontractor shall remove from the work any person who is, in the opinion of the District, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, and shall not again employ such person on the work except with the consent of the District. Such removal shall not be the basis for any claim for compensation or damages against the District, or any of its officers or agents.

B. Hours of Work - Eight (8) hours of labor shall constitute a legal day's work upon all the work hereunder and the time of service of any worker employed by the Contractor or by any subcontractor under it shall be limited and restricted to eight (8) hours during any one (1) calendar day, except that work performed by employees in excess of eight (8) hours per day and forty (40) hours in any one (1) calendar week will be permitted upon compensation for all hours worked in excess of said limitations at not less than one and one-half times the basic rate of pay or as otherwise may be required by applicable law. The Contractor and all subcontractors under it shall keep record of hours worked as required by Section 1812 of the California Labor Code. As required by Section 1813 of the California Labor Code, the Contractor shall forfeit as a penalty to the District twenty-five dollars (\$25) for each worker employed in the execution of the Contract by it or by any subcontractor under it for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week in violation of the provisions of this subsection.

C. Compliance with State Requirements for Employment of Apprentices - The Contractor's attention is directed to Section 1777.5 of the California Labor Code; provisions of said section pertaining to employment of registered apprentices are hereby incorporated by reference into these Specifications. As applicable, the Contractor or any subcontractor employed by it in the performance of Contract work shall take such actions as necessary to comply with provisions of said Section 1777.5.

D. Wage Rates and Certified Payroll - Pursuant to Article 2 (commencing at Section 1770), of the California Labor Code, the Director of the State of California, Department of Industrial Relations has ascertained the generally prevailing rate of per diem wages and the generally prevailing rates for legal holiday and overtime work in the locality in which the work is to be performed, for each craft or type of worker needed to execute the Contract. The Contractor and all subcontractors under it shall pay not less than said specified rates to all workers employed in the execution of the Contract. As required by Section 1775 of the California Labor Code, the Contractor shall, as a penalty to the District, forfeit an amount determined by the Labor Commissioner, not more than two hundred dollars (\$200), for each calendar day, or portion thereof, for each worker paid less than the specified prevailing rates for work done under the Contract by it or by any subcontractor under him. The Contractor and all subcontractors under it shall keep certified payroll records of wages paid as required by Section 1776 of the California Labor Code. Contractor and all subcontractors must furnish electronic certified payroll records directly to the Division of Labor Standards Enforcement, if required. The Contractor and each sub-contractor shall pay travel and subsistence payments to each worker needed to execute the work required by the Contract, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8 of the California Labor Code. The labor rates determined by the Department of Industrial Relations are set forth in a schedule located at the District office, which is available to any interested party upon request.

E. Job Site Posting – Contractor shall comply with the job site posting requirements in California Labor Code Section 1771.4.

F. Registration With the Department of Industrial Relations – Contractor shall comply with the registration requirements and certified payroll filing requirements of the Department of Industrial Relations (“DIR”), if the Contract Price exceeds: 1) \$25,000.00 for new construction, alteration, installation, demolition, or repair; or \$15,000.00 for maintenance. For Construction projects exceeding \$25,000.00 and maintenance projects exceeding \$15,000.00, no contractor or subcontractor may be listed on a bid proposal for public works unless registered with the DIR, pursuant to California Labor Code Section 1725.5. No contractor or subcontractor may be awarded a public works contract unless registered with the DIR pursuant to California Labor Code Section 1725.5.

G. Compliance and Monitoring – Contractor’s performance of work under this Agreement is subject to compliance monitoring and enforcement by the California Department of Industrial Relations.

H. Labor Management Agreements - The Contractor agrees to comply with the provisions of all Master Labor Agreements and similar agreements between labor and management to which Contractor is a party with respect to labor employed by Contractor in the performance hereof, including the making of all payments to health, welfare and pension funds and trusts, payments for vacations and apprentice contributions, and other fringe benefits, and prohibitions against payment for piece work, bonus system, quota setting, lumping of work, and set cost basis; and agrees to hold the District harmless from liability or expense on account of all the foregoing. In the event of a jurisdictional dispute, or threatened dispute, involving Contractor’s employees, Contractor shall follow the direction of the District in the settlement or elimination thereof and take all steps necessary to continue with the work without interruption. If so directed by the District, Contractor further agrees to immediately submit any such dispute to the National Joint Board for Settlement of Jurisdictional Disputes, Building and Construction Industry, and to be bound by the final decision of said Joint Board. A jurisdictional dispute shall not entitle the Contractor to an extension of time for performance or to extra compensation or damages; and the Contractor assumes all risks with regard to such disputes.

I. Worker’s Compensation Insurance - In accordance with the provisions of Section 3700 of the California Labor Code, Contractor shall secure the payment of compensation to its employees. Contractor prior to commencing work shall sign and file with the District a certification in the form attached as Exhibit B.

J. Labor Discrimination - Contractor agrees to comply with provisions of Labor Code section 1735 that reads as follows:

A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter.

Contractor agrees to ensure compliance with the provisions of California Labor Code section 1777.6, which provide as follows:

An employer or a labor union shall not refuse to accept otherwise qualified employees as registered apprentices on any public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as provided in Section 3077 of this code and Section 12940 of the Government Code.

14. NOTICE OF LATENT OR HAZARDOUS CONDITIONS

In accordance with Section 7104 of the Public Contract Code, where the contract specifications require digging trenches or excavating deeper than four (4) feet below the surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

(a) Material that the Contractor may believe is hazardous waste as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;

(b) Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids;

(c) Unknown physical conditions of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract specifications.

Upon receipt of written notice by the Contractor of such conditions, the District shall promptly investigate. If the District finds such conditions to exist and determine that an increase or decrease in the Contractor's cost of, or time required for, performance of the work will result from the change in conditions, the District will issue a change order.

In the event a dispute arises between the District and the Contractor as to whether the conditions materially differ, or involve hazardous waste, or cause decrease or increase in the cost of or time required for performance of any part of the work, the Contractor shall not be excused from the scheduled completion of the work, and shall retain any and all rights which he may have pertaining to the resolution of disputes between the District and the Contractor.

15. PROTECTION OF DISTRICT FACILITIES; UTILITIES

Contractor shall repair any damage to District's facilities caused by Contractor at its own expense.

The Contractor shall be responsible for the removal, relocation and protection of all public and private utilities, including irrigation facilities, bridges and embankments located on the site of the construction project if and to the extent that the same are identified in the plans, specifications or other contract documents, and the Contractor shall not be entitled to any extension of time or claim for damages or extra compensation in connection therewith. If and to the extent that such utilities or facilities are not identified in such Contract documents, as between the Contractor and the District, the District will be responsible for the cost of their removal, relocation or protection, as the case may be.

16. GOOD AND WORKMANLIKE SERVICES

Contractor shall perform the work in a good and workmanlike manner. District shall have access to the work for purposes of inspecting the work to determine that it is being performed in accordance with this Contract.

17. CLAIMS

Claims must be filed with the District within the time frame set forth in this Agreement, but in any event on or before the date of final payment. Contractor shall observe the following procedure taken from Chapter 9 of Part 1 of Division 2 of the Public Contract Code.

- A. "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
- 1) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by the District.
 - 2) Payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant this contract and payment for which is not otherwise expressly provided or to which the Contractor is not otherwise entitled.
 - 3) Payment of an amount that is disputed by the District.
 - 4) Upon receipt of a claim pursuant to this section, the District shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the District and the Contractor may, by mutual agreement, extend the time period provided in this section.
- B.
- 1) The Contractor shall furnish reasonable documentation to support the claim.
 - 2) If the District needs approval from its Board of Directors to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board of Directors does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the District shall have up to three days following the next duly publicly noticed meeting of the Board of Directors after the 45-day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.
 - 3) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the District issues its written statement. If the District fails to issue a written statement, paragraph (D) shall apply.
- C.
- 1) If the Contractor disputes the District's written response, or if the District fails to respond to a claim issued pursuant to this section within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute.
 - 2) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the District shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the District issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the District and the Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.
 - 3) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party

or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

- 4) Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.
- D. Failure by the District to respond to a claim from the Contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the District's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the Contractor.
- E. Amounts not paid in a timely manner as required by this section shall bear interest at seven percent (7%) per annum.
- F. If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against the District because privity of contract does not exist, the Contractor may present to the District a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his/her/their own behalf or on behalf of a lower tier subcontractor, that the Contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the District shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor presented the claim to the District and, if the Contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

18. NOTICE OF THIRD PARTY CLAIMS. District shall notify Contractor as soon as is practical, but in any event no more than five (5) days within receipt of any third party claim related to this Contract.

19. SUSPENSION OF WORK; TERMINATION

A. District may at any time, by notice in writing to the Contractor, suspend any part of the work for such period of time as may be necessary to prevent improper execution of the work on the project, and the Contractor shall have no claim for damages or additional compensation on account of any such suspension.

B. District shall have the right to terminate this Contract at any time by serving upon Contractor five (5) days advance written notice of termination. The notice shall be deemed served and effective for all purposes on the date it is deposited in the United States mail, postage prepaid and addressed to Contractor at the address indicated in Section 5. In the event District issues such notice of termination:

- 1) Contractor shall immediately cease rendering services pursuant to this Contract.
- 2) District shall pay Contractor for work performed up to the effective date of termination.

20. AMENDMENTS. Modifications or amendments to the terms of this Contract shall be in writing and executed by both parties.

21. ASSIGNMENT. Contractor shall not assign or transfer its duties, responsibilities or interests pursuant to this Contract without the express written consent of District.

22. **SURVIVAL**. The indemnity provisions of Section 7 shall survive the expiration or other termination of this Contract.

23. **GOVERNING LAW**. This Agreement shall be governed by the laws of the State of California.

24. **ENTIRE AGREEMENT**. This instrument and any attachments hereto constitute the entire contract between the District and Contractor concerning the subject matter hereof.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be duly executed as of the day and year first written above.

“DISTRICT”

“CONTRACTOR”

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

BY _____
Peter M. Rietkerk, General Manager

BY _____

(name,
title) _____

BY _____
Michael Weststeyn, President
Board of Directors

END OF DOCUMENT 00301

DOCUMENT 00302
FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

THAT, WHEREAS, the SOUTH SAN JOAQUIN IRRIGATION DISTRICT, State of California, entered into a Contract dated _____, 20____, with _____

hereinafter designated as the "Contractor," for LATERAL X-W PIPELINE CONNECTION PROJECT (SSJID-24007) and,

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

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 SOUTH SAN JOAQUIN IRRIGATION DISTRICT in the penal sum of _____ Dollars (\$_____), lawful money of the United States, said sum being equal in amount to one-hundred percent (100%) of the total Contract amount payable by the said SOUTH SAN JOAQUIN IRRIGATION DISTRICT under the terms of the Contract, 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 bonded Contractor, his/her/their/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 alteration thereof made as therein provided, on his/her/their/its 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 SOUTH SAN JOAQUIN IRRIGATION DISTRICT, 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 effect.

And the said 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 to the Specifications.

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

Contractor: _____

Surety: _____

By: _____

By: _____

Title: _____

Title: _____

By: _____

Address: _____

Title: _____

Phone: _____

Attorney-in-Fact: _____

Address: _____

Phone: _____

Seal: _____

NOTE: This bond must be acknowledged before a notary public, and a legally sufficient power of attorney must be attached to the bond to verify the authority of any party signing on behalf of a surety.

END OF DOCUMENT 00302

**DOCUMENT 00303
PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS

THAT, WHEREAS, the SOUTH SAN JOAQUIN IRRIGATION DISTRICT has awarded to _____ hereinafter designated as the "Contractor," a Contract for THE LATERAL X-W PIPELINE CONNECTION PROJECT (SSJID-24007); and,

WHEREAS, said Contractor is required by the provisions of Division 4, Part 6, Title 3, Chapter 5 of the Civil Code of the State of California, including Section 9550, to furnish a bond in connection with said 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 _____, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the SOUTH SAN JOAQUIN IRRIGATION DISTRICT in the sum of _____ Dollars (\$ _____), lawful money of the United States, said sum being equal in amount to one-hundred percent (100%) of the total Contract amount payable by the said SOUTH SAN JOAQUIN IRRIGATION DISTRICT 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 said Contractor, his/her/their/its heirs, executors, administrators, successors or assigns, or subcontractors, shall fail to pay for any materials, provisions, implements or machinery used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code with respect to such work or labor, as required by the provisions of Section 9554 of the Civil Code or amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the contractor and subcontractors under Section 13020 of the Unemployment Insurance Code with respect to the work and labor; and provided that the claimant shall have complied with the provisions of said Codes, the surety or sureties hereon will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the said Surety will pay a reasonable attorney's fee 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 9100 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond. And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contractor 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 to the Specifications.

IN WITNESS WHEREOF, WE have hereunto set our hands and seals this _____ day of _____,

20__.

Contractor: _____

By: _____

Title: _____

Surety: _____

By: _____

Title: _____

Home/Office

Address: _____

Phone: _____

Attorney-in-Fact: _____

Address: _____

Phone: _____

Seal: _____

NOTE: This bond must be acknowledged before notary publics, and a legally sufficient power of attorney must be attached to the bond to verify the authority of any party signing on behalf of a surety.

END OF DOCUMENT 00303

**DOCUMENT 00304
WORKER'S COMPENSATION INSURANCE CERTIFICATE**

In accordance with California Labor Code Section 1861, prior to commencement of work on the Contract, the Contractor shall sign and file with South San Joaquin Irrigation District the following certification:

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

Signature

Name of Contractor

Title

Date

Contractor's License Number

Telephone Number

END OF DOCUMENT 00304

DOCUMENT 00305

Contractor Safety Agreement

South San Joaquin Irrigation District (SSJID) wishes to ensure that all work done on our site(s) will be performed in accordance with all applicable environmental health and safety laws, codes, and regulations. The Contractor is required to provide all documentation indicated in the appropriate box(es). Failure to provide information as required may result in disqualification.

Contractor Safety Requirement Acknowledgement

1. Contractor will provide a written Injury and Illness Prevention Plan compliant with 8 CCR 3203 (please check one). Or	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Contractor is an individual contractor. All work will be performed in compliance with all laws, codes, regulations, and best practices to protect personnel, property, and the environment.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Initial each item for acknowledgement of Safety Requirement. If the item is not applicable, write "N/A".

Item Description	Initials or N/A
3. Contractor will provide SSJID with a copy of their Hazard Communication program if their employees will be using any chemicals on the job.	_____
4. Contractor will provide SSJID with a copy of the SDS for each chemical brought onto the site.	_____
5. Contractor will provide SSJID with a copy of the Hazardous Waste Disposal Plan and Manifest for any hazardous waste generated during the job including asbestos and lead. Also will provide training certifications for asbestos and lead work, PFT and fit test documents for employees involved at the worksite.	_____
6. Contractor will provide SSJID with a copy of their Lockout/Tagout program if any work is to be performed on any sources of hazardous energy.	_____
7. Contractor will provide SSJID with a copy of their Electrical Safety program if any electrical work is being performed.	_____
8. Contractor will provide SSJID with a copy of their Fall Protection program if any work is to be performed that would require it.	_____
9. Contractor will provide SSJID with a copy of the Confined Space program if any confined spaces are to be entered, including a list of employees that are certified for confined space entry.	_____
10. Contractor will provide SSJID with a copy of their accident investigation report for each accident that occurs during the performance of the contract.	_____
11. Contractor will provide SSJID with documentation of required training as per 8 CCR 1541, Excavation and Trenching Standard, for all employees involved in excavation and trenching operations, including certification of the competent person in charge of excavation and trenching operations.	_____
12. Contractor will provide SSJID with documentation of required training as per the latest edition of the U.S. Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways and MUTCD 2014 California Supplement for all employees involved in traffic control and flagging operations.	_____

Contractor Company Name

Representative Signature

Date

END OF DOCUMENT 00305

DOCUMENT 00401

GENERAL CONDITIONS

SECTION 1 - GENERAL

1.01 GENERAL

- A. Unless the context otherwise requires, whenever in the specifications and other contract documents the following terms are used, the intent and meaning shall be interpreted as provided herein.
- B. Working titles having a masculine gender, and the pronoun "he" are utilized in the specifications for sake of brevity, and are intended to refer to persons of any gender.

1.02 DEFINITIONS

- A. Acceptance - The formal written acceptance by the District of an entire contract, which has been completed in all respects in accordance with the plans and specifications and any modifications thereof, see Notice of Completion.
- B. Bid - The offer of the bidder setting forth the prices for the work, when filled out and submitted on the prescribed Bid Form, properly signed and guaranteed.
- C. Bid Forms - The forms upon which the District requires formal bids to be prepared and submitted for the Work.
- D. Bid Bond or Guarantee - The cash, cashier's check, certified check, or bidder's bond accompanying the Bid documents submitted by the Bidder, as a guaranty that the Bidder will enter into a contract with the District for the performance of the Work awarded to him.
- E. Bidder - An individual, firm, partnership, corporation or combination thereof submitting a Bid for the work contemplated, acting directly or through a duly authorized representative.
- F. Bond - A Bidder's bond, faithful performance bond, payment bond, or other instrument of security.
- G. Change Order – A document recommended by Engineer, which is signed by Contractor and District and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
- H. Claim – A demand or assertion by District or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third (3rd) party is not a Claim.
- I. Contract - The written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. The contract shall include the notice to contractors, Bid, plans, specifications, special provisions, addenda, and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.
- J. Contract Documents - The contract documents shall include the Notice Inviting Bids, Instructions to Bidders, Addenda, Bid (including documentation accompanying the Bid and any post-bid documents submitted prior to award), the Bonds, the General Conditions, the

Special Provisions, permits from other agencies, the Plans, Specifications, reference specifications, and all modifications issued after execution of the Contract.

- K. Contract Price – The moneys payable by District to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement.
- L. Contract Times – The number of days or the dates stated in the Agreement to: (i) achieve Final Completion; and (ii) complete the Work so that it is ready for final payment after acceptance by District.
- M. Contractor - The person or persons, firm, partnership, corporation, or combination thereof, private or municipal who have entered into a contract with the District as party or parties of the second part, or his/her/their/its legal representatives.
- N. District - Whenever the word "District" is used it shall be understood to mean and refer to the South San Joaquin Irrigation District, acting by or through its duly elected or appointed officers or officials or their authorized agents.
- O. Days - Unless otherwise designated, days as used in the Contract Documents shall mean consecutive calendar days.
- P. Engineer - South San Joaquin Irrigation District Engineering Department Manager or his/her/their/its appointed designee who shall also be a licensed engineer.
- Q. Notice of Completion - A written Notice of Completion signed and verified by the District or representative shall be recorded with the County Recorder of the County in which the work was performed. The date of completion and acceptance of the work by the District or representative recited in the Notice of Completion shall be deemed to be the date of Completion.
- R. Notice to Proceed - A written notice given by the Engineer to the Contractor fixing the date on which the Contract time will start.
- S. Plans - The official project plans, profiles, typical cross-sections, general cross-sections, working plans, or reproductions thereof, approved by the Engineer, which show the locations, character, dimensions, and details of the work to be performed. All such documents are to be considered as part of the plans.
- T. Project – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.
- U. Shop Drawings – All drawings, diagrams, illustrations, schedules, and other data or information, which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- V. Special Provisions - The special provisions are specific clauses setting forth conditions or requirements peculiar to the work and supplementary to the Specifications.
- W. Specifications - The directions, provisions and requirements contained in these specifications, special provisions, technical specifications, and addenda.
- X. State - Whenever the word "State" is used it shall be understood to mean and refer to the State of California.
- Y. State Specifications - The Standard Specifications of the State of California, which shall be more particularly identified, if necessary, in the Plans and Specifications.

- Z. Work - All the Work specified, indicated, shown or contemplated in the contract to construct the improvements, including all alterations, amendments or extensions thereto made by contract change order or written orders of the Engineer.

SECTION 2 - AWARD AND EXECUTION OF CONTRACT

2.01 AWARD OF CONTRACT

- A. The right is reserved to reject any and all Bids.
- B. The award of the Contract, if awarded, will be to the lowest responsive and responsible Bidder whose Bid complies with all the requirements prescribed. Such award, if made, will be made within sixty (60) days after the opening of the Bids. If the lowest responsive Bidder refuses or fails to execute the contract, the District may award the contract to the second lowest responsive and responsible Bidder. Such award, if made, will be made within seventy-five (75) days after the opening of the Bids. If the second lowest responsive and responsible refuses to execute the contract, the District may award the contract to the third lowest responsive and responsible Bidder. **Bidder's Bid shall remain valid for at least ninety (90) days.** The periods of time specified above within which the award of contract may be made shall be subject to extension for such further period as may be agreed upon in writing between the District, the Bidder and the Bidder's surety concerned.
- C. All bids will be compared on the basis of the Engineer's estimate of quantities of work to be done.
- D. The procedure for selection of low Bidder, if identical bids are received: Upon opening and reviewing the bids received, if the District determines that two or more bidders have submitted identical monetary bids, and that said bidders are deemed to be responsive, responsible bidders, and that there is no other factor that can be used to determine which bidder is the lowest responsive, responsible bidder to whom the contract should be awarded, then and in that event the lowest responsive, responsible bidder shall be determined by a publicly held "flip-of-the coin." The District shall notify each such Bidder submitting identical bids of the date, time and place at which the coin flip shall take place. One bidder shall flip the coin and the second bidder shall call "heads or tails" while the coin is in the air. The Bidder calling the correct side shall be deemed to be the lowest, responsive, responsible bidder. In the event that there are more than two bids of the same amount, then there shall be a succession of coin flips to place the bids in consecutive order for purposes of determining the order of the lowest monetary bidders. If a Bidder fails to attend the coin flip, then District representatives shall represent the Bidder not in attendance.
- E. Additive and Deductive Items (§20103.8):

District may require a bid for a public works contract to include prices for items that may be added to, or deducted from, the Scope of Work in the contract for which the bid is being submitted. Whenever additive or deductive items are included in a bid, the bid solicitation shall specify which one of the following methods will be used to determine the lowest bid. In the absence of a specification, only the method provided by subdivision a) will be used.

 - a) The lowest bid shall be the lowest bid price on the base contract without consideration of the prices on the additive or deductive items.

- b) The lowest bid shall be the lowest total of the bid prices on the base contract and those additive or deductive items that were specifically identified in the bid solicitation as being used for the purpose of determining the lowest bid price.
- c) The lowest bid shall be the lowest total of the bid prices on the base contract and those additive or deductive items that when taken in order from a specifically identified list of those items in the solicitation, and added to, or subtracted from, the base contract, are less than, or equal to, a funding amount publicly disclosed by the District before the first bid is opened,
- d) The lowest bid shall be determined in a manner that prevents any information that would identify any of the bidders or proposed subcontractors or suppliers from being revealed to the public entity before the ranking of all bidders from lowest to highest has been determined.

2.02 CONTRACT BONDS

- A. Prior to commencement of work under the Contract, the Bidder shall furnish the District with surety bonds in the amounts and for the purposes listed herein. The successful Bidder shall furnish two (2) good and sufficient surety bonds:
 - 1. "Payment" bond shall secure the payment of claims of laborers, mechanics, or material suppliers employed on the work under the contract.
 - 2. "Performance" bond shall guarantee faithful performance of all work, within the time prescribed, in a manner satisfactory to the District, and that all materials and workmanship will be free from original or developed defects. The performance bond shall remain in effect until the end of all warranty periods set forth in the Contract documents.
- B. The form of bonds shall be surety forms conforming to California standards or as stipulated in the Special Provisions. Each contract bond shall be in the amount of one hundred percent (100%) of the Contract amount.
- C. All alternates, extensions of time, extra and additional work, and other changes authorized by these specifications or any part of the contract may be made without securing the consent of the surety or sureties on the contract bonds. Changes, alterations, or extensions in the terms of the Contract shall not release the Contractor or their surety from its obligations.
- D. Special forms of bond required may be examined at the office of the Engineer, or copies will be furnished, if desired, to prospective bidders.
- E. Whenever any surety or sureties on any such bonds, or on any bonds required by law for the protection of the claims of laborers and material suppliers, become insufficient, or the District has cause to believe that such surety or sureties have become insufficient, a demand in writing may be made of the Contractor for such further bond or bonds or additional surety, not exceeding that originally required, as is considered necessary, considering the extent of the work remaining to be done. Thereafter no payment shall be made upon such contract to the Contractor or any assignee of the Contractor until such further bond or bonds or additional surety has been furnished.
- F. Companies supplying sureties or bonds shall be admitted to supply such instruments within the State of California, shall be listed by the Office of the Insurance Commissioner, and shall have a minimum A.M. Best rating of "A" and have a demonstrated ability to meet their ongoing obligations to policyholders.
- G. Each bond shall incorporate, by reference, the Contract and shall be signed by both the Bidder and the Surety, and the signature of the authorized agent of the Surety shall be notarized. The Bidder shall pay all bond premiums, costs, and incidentals.

2.03 EXECUTION OF CONTRACT

- A. The Contract shall be signed by the successful Bidder and returned, together with the contract bonds within fifteen (15) days after the bidder has received notice that the contract has been awarded unless stipulated otherwise in the Special Provisions. No Bid shall be considered binding upon the District until the execution of the Contract.

2.04 FAILURE TO EXECUTE CONTRACT

- A. Failure of the lowest responsive and responsible Bidder, or the second lowest responsive and responsible Bidder or the third lowest Bidder to execute the contract and file acceptable bonds as provided herein within fifteen (15) days after such Bidder has received the Contract for execution shall be just cause for the annulment of the award and a claim against the Bid guaranty.

2.05 RETURN OF BID GUARANTEE

- A. The Bid guarantee accompanying the Bids of the first, second, and third lowest responsive and responsible Bidders will be retained until the Contract has been awarded and executed by both parties to the Contract, after which all such Bid guarantees, except Bidders' bonds and any guarantees which are subject to claims, will be returned to the respective Bidders whose Bids they accompany. The Bid guarantees submitted by all other unsuccessful Bidders will be returned upon determination, by the Engineer, of the first, second, and third lowest responsible Bidders.

SECTION 3 - SCOPE OF WORK

3.01 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the plans and specifications is to prescribe the details for the construction and completion of the work, which the Contractor undertakes to perform in accordance with the terms of the contract. Where the plans or specifications describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail, and that only materials and workmanship of the first quality are to be used.

3.02 WORK TO BE DONE

- A. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, implements, equipment, machinery, methods, processes, and incidentals, and do all the work involved in executing the work in a satisfactory and workmanlike manner.

3.03 CHANGES

- A. The District reserves the right to make such alterations, deviations, additions to or deletions from the plans and specifications including the right to increase or decrease the quantity of any item or portion of the work, or to delete any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable and to require such extra work as deemed by the Engineer to be required for the proper completion or construction of the whole work contemplated.
- B. Any such changes will be set forth in a contract change order which will specify, in addition to the work to be done in connection with the change made, adjustment of contract time, if any, and the basis for compensation for such work. A contract Change Order will not become effective until approved by the District.

3.04 INCREASED OR DECREASED QUANTITIES

- A. Increases or decreases in the quantity of a contract item of work will be determined by comparing the total pay quantity of such item of work with the Engineer's Estimate thereof. If the total pay quantity of any item of work required under the contract varies from the quantities indicated in the Bid by twenty-five percent (25%) or less, payment will be at contract unit prices.

- B. If the total pay quantity of any item of work required under the Contract varies from the quantities indicated in the Bid by more than twenty-five percent (25%), in the absence of an executed contract Change Order specifying the compensation to be paid, payment will be at contract prices. Written requests by the Contractor shall be accompanied by adequate data to support the costs of the item.

3.05 FINAL CLEANING UP

- A. Before final inspection of the Work, and as a condition of the acceptance and final payment, the Contractor shall clean the project site, and all ground occupied or used by Contractor in connection with the work, of all rubbish, excess materials, temporary structures, and equipment. All parts of the work shall be left in a neat and presentable condition.

SECTION 4 - CONTROL OF WORK

4.01 AUTHORITY OF ENGINEER

- A. The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work; all questions which may arise as to the interpretation of the plans and specifications; all questions as to the acceptable fulfillment of the contract on the part of the Contractor; and all questions as to claims and compensation. The Engineer's decision shall be final and he shall have executive authority to enforce and make effective such decisions and orders which the Contractor fails to carry out promptly.

4.02 PLANS

- A. The Contract Plans furnished consist of general plans and show such details as are necessary to give a comprehensive idea of the construction contemplated. All authorized alterations affecting the requirements and information given on the approved plans shall be in writing.
- B. The Contract Plans shall be supplemented by such working drawings/shop drawings prepared by the Contractor as are necessary to adequately control the work. The Contractor shall make no change to any working drawings/shop drawings after the Engineer has approved it, except by direction of the Engineer.
- C. The Contractor's working drawings/shop drawings for any part of the permanent work shall include, but not be limited to, stress sheets, anchor bolt layouts, shop details, erection plans, equipment lists and any other information specifically required elsewhere in the specifications.
- D. Working drawings/shop drawings for any structures and for other temporary work and methods of construction the Contractor proposes to use shall be submitted when required by the specification or ordered by the Engineer. Such drawings shall be subject to approval insofar as the details affecting the character of the finished work and for compliance with design requirements applicable to the construction when specified or called for, but details of design will be left to the Contractor who shall be responsible for the successful construction of the Work.
- E. The Engineer shall approve working drawings/shop drawings before any work involving such drawings is performed. It is expressly understood that approval of the Contractor's working drawings/shop drawings shall not relieve the Contractor from his/her/their/its responsibility under the Contract for the successful completion of the Work in conformity with the requirements of the plans and specifications. Such approval shall not waive any of the requirements of the plans and specifications or relieve the Contractor of any obligation there under, and defective work, materials, and equipment may be rejected notwithstanding such approval.

4.03 CONFORMITY WITH PLANS AND ALLOWABLE DEVIATION

- A. Work and materials shall conform to the lines, grades, typical cross sections, dimensions and material requirements, including tolerances, shown on the plans or indicated in the specifications. Although measurement, sampling and testing may be considered evidence as to such conformity, the Engineer shall be the sole judge as to whether the materials or work deviate from the plans and specifications, and

his/her/their/its decision as to any allowable deviations there from shall be final.

- B. Deviations from the approved plans, as may be required by the exigencies of construction, will be determined in all cases by the Engineer and authorized in writing.

4.04 COORDINATION AND INTERPRETATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

- A. The specifications, special provisions, addenda, Contract Change Orders, the plans, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary, to describe, and to provide for a complete work.
- B. In the event of conflicts between the contract documents the order or precedence shall be as follows:
 - 1. Modifications or changes last in time are first in precedence.
 - 2. Addenda.
 - 3. General Conditions except for specific modifications thereto stated in the Special Provisions or Division 01 Specifications.
 - 4. Special Provisions.
 - 5. Specifications.
 - 6. Should there be a conflict among the General Conditions, Special Provisions, and the Plans and Specifications the more restrictive will apply.
 - 7. Plans; as between figures given on plans and the scaled measurements, the figures shall govern; as between large-scale plans and small-scale plans, the larger scale shall govern.
 - 8. As between detailed plans and standard plates bound within the specifications, the detailed plans govern.
 - 9. In the event where provisions of codes, safety orders, contract documents, manufacturer's specifications, or industry standards are in conflict, the more restrictive shall govern.

4.05 REQUESTS FOR INFORMATION

- A. Should it appear that the work to be done, or any matter relative thereto, is not sufficiently detailed or explained in the plans, specifications, or the special provisions, the Contractor shall submit a request for information to the Engineer for such further explanations as may be necessary, on forms provided by the Engineer. The Contractor shall comply with the Engineer's response as part of the Contract. In the event of any doubt or question arising respecting the true meaning of the plans, specifications, or the special provisions, reference shall be made to the Engineer, whose decision thereon shall be final.

4.06 DIFFERING SITE CONDITIONS

- A. The Contractor shall promptly, no more than one (1) day, and before conditions are disturbed, give written notice to the Engineer as to subsurface or latent physical conditions at the site which differ materially from those indicated in the contract documents, or unknown physical conditions at the site of an unusual nature which differ materially from those normally encountered and generally recognized as inherent in the work of the character provided for in the contract.
- B. No request by the Contractor for additional compensation shall be allowed unless the Contractor has given the written notice as required herein.

4.07 SUPERINTENDENCE

- A. The Contractor shall designate in writing before starting work an authorized representative who shall have the authority to represent and act for the Contractor. Said authorized representative shall be present at the site of the work at all times while work is actually in progress on the Contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work that may be required.
- B. Whenever the Contractor, or his/her/their/its authorized representative, is not present on any particular part of the work where it may be desired to give direction, Contractor shall assign one (1) and have on the work site a competent superintendent who is satisfactory to the Engineer and has authority to act for the Contractor.

4.08 LINES AND GRADES

- A. Lines and grades are established as those areas existing or adjacent to the work.
- B. The Contractor shall furnish the Engineer such facilities and labor necessary for marking and maintaining points and lines as he may require.

4.09 INSPECTION

- A. The District and Engineer shall at all times have safe access to the Work during construction, and shall be furnished with every reasonable facility for ascertaining that the materials and workmanship are in accordance with the requirements and intentions of the specifications, special provisions, and the plans. All work done and all materials furnished shall be subject to inspection.
- B. Whenever the Contractor varies the period which work is carried out on each day, notice shall be given the Engineer, so that inspection may be provided. Any work done in the absence of the Engineer, may be subject to rejection.
- C. The inspection of the work or material shall not relieve the Contractor of any of his/her/their/its obligation to fulfill the contract as prescribed. Work or materials not meeting such requirements shall be made good, and unsuitable materials may be rejected, notwithstanding the fact that such work or materials have been previously inspected by the District or Engineer or the payment therefore has been included in a progress estimate.
- D. Projects financed in whole or in part with City, County, State and/or Federal funds shall be subject to inspection at all times by the agencies involved.

4.10 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

- A. All work which has been rejected, shall be remedied, or removed and replaced by the Contractor in an acceptable manner, and no compensation, will be allowed for such removal, replacement, or remedial work.
 - B. Any work done beyond the lines and grades shown on the plans or established by the Engineer, or any extra work done without written authority, will be considered as unauthorized and will not be paid for. Upon order of the Engineer unauthorized work shall be remedied, removed, or replaced at the Contractor's expense.
- C. Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under provisions of this section, the Engineer shall have authority to cause defective work to be remedied, or removed and replaced, and unauthorized work to be removed, and to deduct the costs thereof from any moneys due or to become due the Contractor.

4.11 CHARACTER OF WORKERS

If any Subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent or to

act in a disorderly or improper manner, such Subcontractor or person shall be discharged immediately on request of the Engineer, and such person shall not again be employed on the Work.

4.12 FINAL INSPECTION

Whenever the work covered by the Contract has been satisfactorily completed in accordance with the Contract Documents, and the final cleanup performed, the Engineer will make the final inspection.

4.13 CONTRACTOR'S GUARANTY

- A. The complete Project, including all work, materials, devices and equipment, shall be guaranteed by the Contractor against faulty workmanship and materials for a period of three (3) years from the date of recording of the Notice of Completion. The Contractor shall be responsible for all repair and/or replacements including all labor, materials, equipment, devices, plant and other items of work necessary.
- B. To secure the Contractor's Guarantee, the Performance bond specified in Section 2.02 of the General Conditions shall continue in full force and effect for a period of three (3) years from the date of recording of the Notice of Completion.
- C. The Contractor may be required to furnish a written guaranty covering certain items of work for periods of time longer than three (3) years as stipulated above. Such item shall be stipulated in the Special Provisions or as designated by the Engineer. The performance bond shall be extended or other suitable guaranty shall be provided prior to acceptance of the work. Where covered by the Special Provisions, the extended guaranty shall be included in the contract price, where designated by the Engineer, the Contractor will be reimbursed for bond premium in conjunction with the extended guaranty.

SECTION 5 - CONTROL OF MATERIALS

5.01 GENERAL

- A. The Contractor shall furnish all materials or equipment required to complete the work, except materials that are designated in the specifications to be furnished by the District. Only materials and equipment conforming to the requirements of the specifications shall be incorporated into the work.
- B. All materials and equipment furnished by the Contractor shall be new and, free from defects. Where the quality of materials or equipment is not specifically called out they shall be of the highest quality normally used.

5.02 CONTRACTOR'S SUBMITTALS

The Contractor shall submit to the Engineer for his/her/their approval, catalog and descriptive literature on materials or equipment that will be used in the Work, if required in the Specifications.

5.03 SAMPLES AND TESTS

- A. At the option of the Engineer, the Engineer shall approve the source of supply of each of the materials or equipment before delivery is started and before such materials or equipment is used in the work. Samples of such materials or equipment shall be furnished to the Engineer as requested and without charge. No material or equipment shall be used until the Engineer has approved it. Samples will be secured and tested whenever necessary to determine the quality of material or equipment.
- B. All tests of materials or equipment furnished by the Contractor shall be made in accordance with commonly recognized standards of national testing organizations, and such special methods and tests as are prescribed in these specifications.

5.04 STORAGE OF MATERIALS

Articles or materials to be incorporated in the work shall be stored in such a manner as to insure the preservation of their quality and fitness for the work, and to facilitate their inspection.

5.05 DEFECTIVE MATERIALS

- A. All material or equipment which does not conform to the requirements of the Plans and Specifications shall be considered as defective and all such materials or equipment, whether in place or not, shall be rejected. They shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer. No rejected material or equipment, the defects of which have been subsequently corrected, shall be used unless approved in writing by the Engineer.
- B. Upon failure on the part of the Contractor to comply promptly with any order of the Engineer made under the provisions of this section, the Engineer shall have authority to cause the removal and replacement of defective material or equipment and to deduct the cost thereof from any moneys due, or to become due to the Contractor.

5.06 MANUFACTURED EQUIPMENT

Manufactured equipment shall be all new, first line, current production models of manufacturers regularly engaged in production of such equipment for at least five (5) years.

5.07 TRADE NAMES AND ALTERNATIVES

- A. For convenience in designation on the plans or in the specifications, certain articles, materials or equipment to be incorporated in the work may be designated under a trade name or the name of a manufacturer and its catalog information. The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:
 - 1. The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and he shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality and suitability of alternative articles or materials and his/her/their decision shall be final.
 - 2. Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request shall be made in ample time to permit approval without delaying the work.
- B. Any additional costs incurred to allow the use of alternate material or equipment shall be borne by the Contractor, and shall not be the basis for any claim or claims for extra compensation. Any savings resulting from the use of alternate material or equipment shall be deducted from any moneys due, or that may become due the Contractor under the Contract.

5.08 PLANT INSPECTION

The Engineer shall have the right to inspect the production of material, or manufacture of products at the source of supply.

SECTION 6 - LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

6.01 LAWS TO BE OBSERVED

The Contractor shall keep himself fully informed of all existing and future State and Federal laws and all County, Municipal, Local and Special District laws, ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The

Contractor shall at all times observe and comply with, and shall cause all his/her/their/its agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees of bodies or tribunals having any jurisdiction or authority over the work; and shall protect and indemnify the District, and all officers and employees thereof connected with the work, including the Engineer, against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his/her/their/its employees. If any discrepancy or inconsistency is discovered in the plans, specifications, or contract for the work in relation to any such law, ordinance, regulation, order, or decree the Contractor shall forthwith report the same to the Engineer in writing.

6.02 CONTRACTORS LICENSING LAWS

All Bidders, Contractors, and Subcontractors performing work under this contract must be licensed by the California Contractors State License Board in accordance with the provisions of Chapter 9 of Division 3 of the Business and Professions Code and any Bidder, Contractor, or Subcontractor not so licensed shall be subject to the penalties imposed by such laws.

6.03 ASSIGNMENT OF ANTITRUST ACTIONS

Sections 4551 through 4554 of the Government Code pertaining to the assignment of antitrust claims are incorporated herein in full by this reference.

6.04 PAYMENT OF TAXES

The contract prices paid for the work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State, County, or local government, including, without being limited to, Federal excise tax. The District will furnish no tax exemption certificate or any document designed to exempt the Contractor from payment of any tax to the Contractor.

6.05 PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

6.06 PATENTS

The Contractor shall assume all responsibilities arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work and agrees to indemnify and save harmless the District, Engineer, and their duly authorized representatives, from all suits at law, or actions of every nature for or on account of the use of any patented materials, equipment, or processes.

6.07 LABOR CODE REQUIREMENTS

A. HOURS OF LABOR

1. Eight (8) hours labor constitutes a legal day's work. The Contractor shall forfeit, as penalty to the District, twenty-five dollars (\$25) for each worker employed in the execution of the Contract by the Contractor or by any Subcontractor under him for each calendar day during which such worker is required or permitted to labor more than eight (8) hours in any one (1) calendar day and forty (40) hours in one (1) calendar week in violation of the provisions of the Labor Code, and in particular, Section 1810 to Section 1815 thereof, inclusive, except that work performed by employees of Contractor in excess of eight (8) hours per day, and forty (40) hours during any one week, shall be permitted upon compensation for all hours in excess of eight (8) hours per day at not less than one and one half (1½) times the basic rate of pay, as provided in said Section 1815.

B. PREVAILING WAGE

1. The Contractor shall comply with Labor Code Sections 1774 to 1775. Pursuant to said

Section 1775 the Contractor shall forfeit to the District a penalty of not more than two hundred dollars (\$200) for each calendar day or portion thereof, for each worker paid less than the general prevailing rate of wages as determined by the Department of Industrial Relations of the State of California for any work done under the Contract, by him or her, or by any Subcontractor under him or her, in violation of the provisions of the Labor Code, and in particular, Sections 1770 to 1780 thereof, inclusive.

2. The scale of prevailing wages is available at the principal office of the State's Department of Industrial Relations, Division of Labor Standards Enforcement, Bureau of Field Enforcement Office or the State's nearest local office for the County where the work is being performed. The Contractor is required to post a copy of said wage scale at the job site prior to commencement of work.

C. PAYROLL RECORDS

1. The Contractor's attention is directed to the provisions of Labor Code Section 1776. The Contractor shall be responsible compliance by his/her/their/its Subcontractors with said provisions.
2. The Contractor and Subcontractors shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each worker, or other employee employed by him in connection with the execution of the work.
3. The payroll records shall be certified and shall be made available for inspection at all reasonable hours at the principal office of the Contractor or Subcontractor or shall be furnished to any employee, or his/her/their/its authorized representative on request, according to. Labor Code Section 1776. The District, State Department of Industrial Relations, and any State or Federal agency involved in the financing of the work, or any of their authorized representatives shall have access to such books, records, documents, and other evidence for the purpose of inspection, audit and copying. The Contractor will provide facilities for such access and inspection.
4. Each Contractor and Subcontractor and its Subcontractor shall submit its certified payroll record to the District (or its designated agent) on a weekly basis. If there was no work performed during the week, the certified payroll may be annotated "no work" for that week, and all contractors and subcontractors must furnish electronic certified payroll records directly to the Department of Industrial Relations.)
5. The Contractor shall maintain books, records, documents and other evidence directly pertinent to performance on work under this contract in accordance with generally accepted accounting principles and the financial information and data used by the Contractor in preparation or support of the cost submission for any negotiated contract or change order and a copy of the cost summary submitted to the District.
6. Records shall be maintained and made available during the performance of work under this contract and until ten (10) years from the date of final payment for the project. In addition, those records which relate to any dispute appeal under this contract, to litigation, to the settlement of claims arising out of such performance, or costs or items to which an audit exception has been taken shall be maintained and made available until three (3) years after the date of resolution of such appeal, litigation, claim, or exception.

D. LABOR DISCRIMINATION

1. Attention is directed to Section 1735 of the California Labor Code.
2. No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every Contractor for public works violating this section is subject to all the penalties imposed for a violation of Chapter 1 of Part VII, in accordance with the provisions of Section 1735 of the Labor Code.

E. APPRENTICES

1. Attention is directed to the provisions in Sections 1777.5, 1777.6, and 1777.7 of the California Labor Code and Title 8, California Code of Regulations Section 200 et seq. concerning the employment of apprentices by the Contractor or any Subcontractor under him.
2. The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if he employs registered apprentices or journeymen in any apprentice able trade on such contracts and if other contractors on the public works site are making such contributions.

F. WORKERS COMPENSATION

1. Pursuant to the requirements of Section 1860 of the Labor Code, the Contractor will be required to secure the payment of worker's compensation to his/her/their/its employees in accordance with the provisions of Section 3700 of the Labor Code.
2. Prior to the commencement of work, the Contractor shall sign and file with the Engineer the Certificate of Worker's Compensation contained in the Bid.

6.08 TRAFFIC CONTROL

- A. Contractor is responsible and shall comply with all applicable Federal, State, County and Local requirements as required for traffic control and public safety during project construction. Coordination with the proper agencies and the placement and maintenance of warning signs, lights and other traffic control devices, as may be required, shall be the responsibility of the Contractor.

6.09 TRENCH EXCAVATION AND DISCOVERY OF HAZARDOUS WASTE

- A. Public Contract Code §7104 Contracts for digging trenches or excavations; notice of discovery of hazard waste or other unusual conditions; investigations; change orders; effect on contract.
- B. Any public works contract of a local public entity, which involves digging trenches or other excavations that extend deeper than four (4) feet below the surface, shall contain a clause, which provides the following:
1. Contractor shall promptly, and before the following conditions are disturbed, notify the Engineer, in writing, of any:
 - a. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 - b. Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.
 - c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.
 2. The District shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order under the procedures described in the contract.

3. In the event that a dispute arises between the District and Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all work to be performed under the contract. The Contractor shall retain any and all rights provided either by contract or by law, which pertain to the resolution of disputes and protests between the contracting parties.

- C. Attention is also directed to the provisions of Section 6705 of the Labor Code concerning trench excavation safety plans.
- D. Prior to excavation for trenches four (4) feet or more in depth, the Contractor shall prepare detailed plans, showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground. If the plans vary from shoring system standards established by the California Division of Industrial Safety, a civil or structural engineer currently registered in California shall prepare the plans. Nothing herein shall be deemed to allow use of shoring, sloping, or protective systems less than those required by the State standards.

6.10 AIR POLLUTION CONTROL

- A. The Contractor shall comply with all pollution control rules, regulations, ordinances, and statutes which apply to the work performed under the contract including any air pollution rules, regulation and ordinances and statutes, specified in Section 11017 of the Government Code.
- B. Unless otherwise provided in the special provisions, material to be disposed of shall not be burned.

6.11 WATER POLLUTION CONTROL

- A. The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, bays, waterways, coastal waters, and other bodies of water from pollution with fuels, oils, bitumen's, calcium chloride, and other harmful materials and shall conduct and schedule his/her/their/its operations so as to avoid or minimize muddying and silting of said streams, lakes, reservoirs, bays, waterways, and coastal waters. Care shall be exercised to preserve vegetation beyond the limits of construction.
- B. Water pollution control work is intended to provide prevention, control and abatement of water pollution to streams, waterways, and other bodies of water.
- C. Nothing in the terms of the Contract shall relieve the Contractor of the responsibility for compliance with Sections 5650 and 12015 of the Fish and Game Code, or other applicable statutes relating to prevention or abatement of water pollution.

6.12 ASBESTOS RELATED WORK

All work involving asbestos containing material shall be performed in accordance with Sections 6501.5 through 6511, inclusive, of the California Labor Code and Section 5208 of Title 8 of the California Administrative Code and all other pertinent regulations.

6.13 SAFETY AND HEALTH PROVISIONS

- A. The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations, and orders established by the California Division of Industrial Safety.

6.14 PUBLIC CONVENIENCE AND SAFETY

- A. The Contractor shall so conduct his/her/their/its operations as to offer the least possible obstruction and inconvenience to the public and he shall have under construction no greater amount of work than he can prosecute properly with due regard to the rights of the public.

- B. Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners.
- C. Whenever the Contractor's operations create a condition hazardous to traffic or the public, he shall furnish, erect, and maintain at his/her/their/its expense and without cost to the District, such fences, barricades, lights, signs and other devices as are necessary to prevent accidents or damage or injury to the public.
- D. Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as above provided, the Engineer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor at his/her/their/its expense. Should the Engineer point out the inadequacy of warning and protective measures, such action on the part of the Engineer shall not relieve the Contractor from responsibility for public safety or abrogate his/her/their/its obligation to furnish and pay for these devices.

6.15 PRESERVATION OF PROPERTY

- A. Trees, shrubs, and other plants that are not to be removed, and pole lines, fences, signs, markers and monuments, buildings and structures, conduits, pipe lines under or above ground, sewer and water lines, all street and highway facilities, and any other improvements or facilities within or adjacent to the site of work shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards, approved by the Engineer, to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense. The facilities shall be replaced and restored to a condition as good as when the Contractor entered upon the work.
- B. The fact that any underground facility is not shown upon the plans shall not relieve the Contractor of his/her/their/its responsibility under this Section. It shall be the Contractor's responsibility to ascertain the existence of any underground improvements or facilities, which may be subject to damage by reason of his/her/their/its operations.
- C. Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in protecting or repairing property as specified in the Section shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefore.

6.16 RESPONSIBILITY FOR DAMAGE

- A. To the extent allowable by law the District or the Engineer shall not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof; or for any material or equipment used in performing the work; or for injury or death of any person or persons, either workers or the public; or for damage to property from any cause whatsoever.
- B. To the extent allowable by law the Contractor shall be responsible for any liability imposed by law and injuries to or death of any person including but not limited to workers and the public, or damage to property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before final acceptance.
- C. The Contractor shall indemnify and save harmless the District and other indemnified parties and the Engineer from any suits, claims, or actions of every name, kind, and description, brought forth, or on account of any injuries to or death or any person including but not limited to workers and the public, or damage to property resulting from the performance of the contract except to the extent caused by the sole negligence or willful misconduct of the indemnified party.
- D. The District may retain so much of the money due the Contractor as shall be considered necessary, until disposition has been made of such suits or claims for damages as aforesaid.

6.17 CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the formal acceptance by the District, the Contractor shall have the charge and care of the work and materials to be used therein, including work and materials for which he has received partial payment and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any cause before its completion and acceptance and shall bear the expense thereof.

6.18 PERSONAL LIABILITY

The District, the Engineer, or any other officer or authorized agent shall not be personally responsible for any liability arising under or by virtue of the Contract.

6.20 ENGINEER'S RESPONSIBILITIES FOR SAFETY

It is understood and agreed that the Engineer has no constructive use of the work; has no control or authority over the means, methods and sequences of construction; and therefore has no ongoing responsibility whatsoever for construction site safety, a responsibility that has been wholly vested in the Contractor. Notwithstanding the above, the Engineer has a duty to preserve and protect public health, safety, and welfare. It is the Engineer's professional responsibility to take what the Engineer believes is prudent measures should the Engineer encounter situations that the Engineer believes create danger to the public health, safety or welfare. The Contractor understands this situation and agrees to defend and hold the Engineer harmless from claims arising from the Engineer's exercise of professional responsibility in this regard.

6.21 RESPONSIBILITY OF DISTRICT

The District shall not be held responsible for the care or protection of any materials or parts of the work prior to final acceptance, except as expressly provided in these specifications.

SECTION 7 - PROSECUTION AND PROGRESS

7.01 SUBLETTING AND ASSIGNMENT

- A. The Contractor shall give his/her/their/its personal attention to the fulfillment of the Contract and shall keep the work under his/her/their/its control.
- B. No Subcontractors will be recognized as such, and all persons engaged in the work of construction will be considered as employees of the Contractor, and he will be responsible for their work, which shall be subject to the provisions of the Contract and Specifications.
- C. The Contractor shall perform with his/her/their/its own organization contract work amounting to not less than twenty percent (20%) of the original total contract price.
- D. Subcontracts shall include provisions that the contract between the District and the Contractor is part of the subcontract, and that the terms and provisions of said contract are incorporated into the subcontract. Subcontracts shall also contain certification by the subcontractor that said subcontractor is experienced in and qualified to do, and knowledgeable about, the subcontract work. Copies of subcontracts shall be available for review by the Engineer
- E. When any portion of the work, which has been subcontracted by the Contractor, is not being prosecuted in a manner satisfactory to the Engineer, the subcontractor shall be removed immediately on the request of the Engineer and shall not again be employed on the work.

7.02 ASSIGNMENT

The performance of the contract may not be assigned, except upon written consent of the Engineer. Consent will not be given to any proposed assignment, which would relieve the original, Contractor or his/her/their/its

surety of their responsibilities under the contract.

7.03 PROGRESS OF THE WORK

- A. The Contractor shall commence work within thirty (30) days after the date of the written Notice to Proceed from the Engineer, unless otherwise set forth in the Special Provisions. The Contractor shall diligently prosecute the work to completion within the time limit set forth in the Special Provisions.
- B. The Contractor shall provide the Engineer with a work plan and schedule in accordance with the Specifications. The Contractor shall promptly notify the Engineer of any changes or delays in the prosecution and progress of the work.

7.04 TEMPORARY SUSPENSION OF WORK

The Engineer shall have the authority to suspend the work wholly or in part, for such period as he may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary, due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the contract. The Contractor shall immediately comply with the written order of the Engineer to suspend the work wholly or in part. The suspended work shall be resumed when conditions are favorable and methods are corrected, as ordered in writing by the Engineer.

7.05 TIME OF COMPLETION

- A. The Contractor shall complete all or any designated portion of the work called for under the contract in all parts and requirements within the time set forth in the Special Provisions.
- B. Should the Contractor prepare to begin work at the regular starting time of any day on which "abnormally severe" inclement weather, or conditions resulting there from, or the conditions of the work, prevents the work from beginning at the usual starting time and the crew is dismissed as a result thereof and the Contractor does not proceed with at least seventy-five percent (75%) of the normal labor and equipment force in the current controlling operation(s) for at least sixty percent (60%) of the total daily time being spent on the controlling operation(s), the Contractor will not be charged for a working day whether or not the conditions should change thereafter during said day.
- C. The current controlling operation(s) is to be construed to include any feature of the work, operation, or activity considered at the time by the Engineer and the Contractor, which, if delayed or prolonged, will delay the time of completion of the contract.
- D. Determination that a day is a non-working day by reason of inclement weather or conditions resulting there from, shall be made by the Engineer, provided that the Contractor shall notify the Engineer in writing of the causes of delay within seven (7) days from the beginning of any such delay.

7.06 LIQUIDATED DAMAGES

- A. It is agreed by the parties to the Contract that in the event that all the work called for under the Contract in all parts and requirements is not finished or completed within the number of days set forth in the Special Provisions, or as may be adjusted by the Engineer, damage will be sustained by the District, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the District will sustain in the event of and by reason of such delay. It is therefore agreed that the Contractor will pay to the District the sum set forth in the **Special Provisions** per day for each and every calendar day's delay in finishing the work in excess of the number of days prescribed; and the Contractor agrees to pay said liquidated damages as herein provided for, and further agrees that the District may deduct the amount thereof from any moneys due or that may become due the Contractor under the Contract.
- B. It is further agreed that in case the work called for under the Contract is not finished and completed in all parts and requirements within the number of days specified, the Engineer shall have the right to increase the number of days, or not, as he may deem best to serve the interest of the District, and if he decides to increase the number of days, he shall further have the right to charge the Contractor, his/her/their/its heirs, assigns, or sureties, and to deduct from the final payment for the work all or part, as it may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the Contract, and which accrue during the period of such extension, except that the cost of final surveys and preparation of final estimate shall not be included in such charges.
- C. The Contractor will be granted an extension of the time and will not be assessed with liquidated damages or the cost of engineering and inspection for any portion of delay in the completion of the work beyond the time named in the special provisions for the completion of the work caused by acts of God, or of the public enemy, acts of the District, fire, floods, tidal waves, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials, freight embargoes, provided that the Contractor shall notify the Engineer in writing of the causes of delay within ten (10) days from the beginning of any such delay. The Engineer shall ascertain the facts and the extent of delay, and his/her/their findings thereon shall be final and conclusive.

7.07 SUSPENSION OF CONTRACT

- A. If at any time in the opinion of the District, the Contractor has failed to supply an adequate working force, or material of proper quality, or has failed in any other respect to prosecute the work with the diligence and force specified and intended in and by the terms of the contract, notice thereof in writing will be served upon him and should he neglect or refuse to provide means for a satisfactory compliance with the contract, as directed by the Engineer, within the time specified in such notice, the District in any such case shall have the right to suspend the operation of the contract. Upon receiving notice of such suspension, the Contractor shall discontinue said work, or such parts of it as the District may designate. Upon such suspension, the Contractor's control shall terminate, and thereupon the District or his/her/their/its duly authorized representative may take possession of all or any part of the Contractor's materials, tools, equipment, and appliances upon the premises, and use the same for the purpose of completing said contract, and hire such force and buy or rent such additional machinery, tools, appliances and equipment, and buy such additional materials and supplies at the Contractor's expense as may be necessary for the proper conduct of the work and for the completion thereof; or may employ other parties to carry the contract to completion, employ the necessary workers, substitute other machinery or materials, and purchase the materials contracted for, in such manner as the District may deem proper; or the District may annul and cancel the contract and re-let the work or any part thereof. Any excess of cost arising there from over and above the contract price will be charged against the Contractor and his/her/their/its sureties, who will be liable therefore. In the event of such suspension, all monies due the Contractor or retained under the terms of this contract shall be withheld and available to the District but such withholding will not release the

Contractor or his/her/their/its sureties from liability or failure to fulfill the contract. The Contractor and his/her/their/its sureties will be credited with the amount of money so withheld toward suspension of the operations of the Contract and the completion of the work by the District as above provided, and the Contractor will be so credited with any surplus remaining after all just claims for such completion have been paid.

- B. In the determination of the question whether there has been any such non-compliance with the contract as to warrant the suspension or annulment thereof, the decision of the District shall be binding on all parties to the Contract.

SECTION 8 - MEASUREMENT AND PAYMENT

8.01 MEASUREMENT OF QUANTITIES

Items for which quantities are indicated "Lump Sum" shall be paid for at the price indicated in the Bid. Such payment shall be full compensation for the items of work and all work appurtenant thereto. The quantities given in the plan sheets and or contract are being given as a basis for the comparison of bids.

8.02 EXTRA WORK

- A. New and unforeseen work will be classified as extra work when determined by the Engineer that such work is not covered by any of the various items for which there is a bid price or by combinations of such items.
- B. The Contractor shall do such extra work and furnish labor, materials, and equipment therefore upon receipt of an approved Contract Change Order or other written order of the Engineer and in the absence of such approved Contract Change Order or other written order of the Engineer, the Contractor shall not be entitled to payment for such extra work.
- C. When extra work is to be paid for on a lump sum basis, the amount of said payment shall be agreed upon in writing prior to execution of the work. Lump sum payments shall be considered full compensation for the items of work and all appurtenances thereto.
- D. When extra work is to be paid for on a cost and percentage basis, the labor, materials, and equipment used in the performance of such work shall be subject to the approval of the Engineer and compensation will be determined as follows:
 - 1. Labor - The Contractor shall receive the cost of all labor of any class, including foremen, engaged in the extra work, plus an amount equal to twenty-five percent (25%) of the sum thereof.
 - 2. The costs of labor shall be based on the State of California Department of Industrial Relations Prevailing Wage Determination in effect at the date the contract was executed. Said costs shall include the basic hourly rate, health and welfare, pension, vacation and holiday, and training funds. Employer payments of payroll taxes, social security, Medicare, federal unemployment, state unemployment, state training taxes, workers compensation insurance, liability insurance, and other direct costs, resulting from Federal, State, or local laws are considered part of the percentage amount.
 - 3. The use of a labor classification, which would increase the extra work cost, will not be permitted unless the Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental. The labor cost for foremen shall be proportioned to all of their assigned work and only that applicable to extra work will be paid.
 - 4. Materials - The Contractor will receive the cost of all materials which he purchase and uses in the extra work, plus an amount equal to fifteen percent (15%) of the sum thereof. The cost of all materials shall include freight charges and taxes as shown by original invoiced bills for said materials.
 - 5. The District reserves the right to furnish such materials required as it deems expedient, and the

Contractor shall have no claim for profit on the cost of such materials.

6. If the extra work requires the use of equipment not originally contemplated by the Contractor when submitting its Bid, the Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the State Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates, which was in effect on the date the contract for the work was executed.
7. The rental rates paid shall include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs, and maintenance of any kind, depreciation, storage, insurance, loading and transportation to the site of work, and all incidentals.
8. All cost and percentage work shall be adjusted daily upon work sheets, prepared by the Engineer, furnished to the Contractor and signed by both parties, which daily reports shall thereafter be considered the true record of extra work done.
9. Vendors' invoices for materials, equipment rental, and other expenditures, and certified payrolls shall be submitted with the request for payment. If the request for payment is not substantiated by the documentation enumerated above, the request will not be honored.

8.03 CHANGE ORDERS

- A. The plans, specifications, special provisions, and the contract documents contain the requirements for the construction of the project. No information obtained from any officer, agent, or employee of the District on any such matters shall in any way affect the risk or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the contract.
- B. The Engineer may order changes, including revisions, to plans and specifications, performance of extra work, increases or decreases in contracted items of work, and the elimination of work. Such orders will be in writing. Changes shall not affect the obligations of the sureties on the contract bonds nor require their consent. The Contractor shall promptly notify the Engineer whenever it appears that a change is necessary, and when so directed, shall stop work in the areas that may be affected. Contract time and compensation will be adjusted for changes, which materially increase or decrease the time for performance or cost.
- C. When so directed, the Contractor shall proceed with changes before agreement is reached on contract adjustments to compensation or time of performance, and shall furnish to the Engineer at the end of each day, signed detailed hourly records for that day of labor, construction equipment and itemized records of materials, equipment and services used in performance of the changes. If the Contractor fails to provide such records, the Engineer's records will be used for the purpose of adjusting compensation or time of performance.
- D. When applicable, changes in contract price resulting from extra work may be determined by a mutually agreed upon lump sum price. The Contractor's Bid for such changes shall include a detailed breakdown of labor and materials to be performed by his/her/their/its forces or the forces of his/her/their/its subcontractor or material supplier. The breakdown shall include labor surcharge and sales tax cost. Whenever the District requests that the Contractor prepare a lump sum price in connection with the change order, the Contractor shall be entitled to the costs incurred in the preparation of that price. Such costs will be incorporated into the lump sum amount regardless of whether or not the lump sum amount is finally accepted by the District.
- E. The Engineer shall receive the Contractor's Bid for lump sum change orders within ten (10) days following the issuance of the change order price request.

8.04 OMITTED WORK

The District may, by written order to the Contractor, omit work, equipment, and material to be provided under the Contract, and the value of the omitted work, equipment, and material will be deducted from the contract price. The deducted value will be a lump sum or unit price agreed upon in writing by the Contractor and the District based on breakdown and cost information submitted by the Contractor.

8.05 STOP PAYMENT NOTICES

The District, through the Engineer or other appropriate District representative, may at its option and at any time, retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Section 3179 et seq. of the Civil Code. Stop Notices shall comply with the provisions of Sections 3098, 3103 and 3183 of the Civil Code of the State of California.

8.06 BID ITEMS

- A. Bid items shall be for the complete work as indicated on the plans and described in the specifications, and shall include all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, taxes, profit, and anything else necessary or required, unless specifically excepted, for the construction and adjustments of appurtenant facilities in a workmanlike manner.
- B. Payments will be made on the basis of the items listed on the Bid and no additional claims for compensation will be allowed therefore.

8.07 PARTIAL PAYMENTS

- A. Once each month the Contractor may submit to Engineer a payment request showing the total amount of work done and the amount requested. The related delivery or weight tags shall accompany such payment request, payroll certificates, lien releases and any other documentation required to substantiate completion of the work.
- B. The Engineer for partial payment purposes shall determine the value of the work completed. The Engineer may require the Contractor to submit a monthly statement indicating the status of completion of each item of work and accompanied by such documentation as be required to substantiate the completion of work.
- C. The District will retain five percent (5%) from such estimated value of work done and materials furnished as retention earnings and the remainder, less the amount of all previous payments, will be paid to the Contractor. After final completion and acceptance of the work done under this Contract, if unencumbered, the District shall release and pay the amount retained under the provisions of the Section entitled "Final Payment". The District has the option and may release fifty percent (50%) of the retention withheld, if unencumbered, on the last Progress Payment Estimate of the work satisfactorily completed and accepted.
- D. No progress payment made to the Contractor or its sureties will constitute a waiver of liquidated damages.
- E. As provided for in Section 22300 of the California Public Contract Code, the Contractor may substitute securities for any monies withheld by the District to ensure performance under the contract.
- F. Public Contract Code Section §20104.50 is applicable to this contract and provides as follows:
 - 1. §20104.50 timely progress payments, legislative intent; interest; payment requests a. It is the intent of the Legislature in enacting this section to require all local governments to pay their contractors on time so that these Contractors can meet their own obligations. In requiring prompt payment by all local governments, the Legislature hereby finds and declares that the prompt payment of outstanding receipts is not merely a municipal affair, but is instead, a matter of statewide concern.
 - b. It is the intent of the legislature in enacting this article to fully occupy the field of public policy relating to the prompt payment of local governments' outstanding receipts. The Legislature finds and declares that all government officials, including those in local government, must set a standard of prompt payment that any business in the private sector, which may contract for services, should look towards for guidance.

2. Any local agency which fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted payment request from a Contractor on a construction contract shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.
3. Upon receipt of a payment request, each local agency shall act in accordance with both of the following:
 - a. Each payment request shall be reviewed by the local agency as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.
 - b. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.
4. The number of days available to a local agency to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which a local agency exceeds the seven (7) day return requirement set forth in paragraph (2) of subdivision (c).
5. For purposes of this article:
 - a. A "local agency" includes, but is not limited to, a city, including a charter city, a county, and a city and county, and is any public entity subject to this part.
 - b. A "progress payment" includes all payments due Contractors, except that portion of the final payment designated by the contract as retention earnings.
 - c. A payment request shall be considered properly executed if funds are available for payment of the payment request, and the financial officer of the local agency does not delay payment due to an audit inquiry.

8.08 FINAL PAYMENT

- A. After the completion and acceptance of the work by the District, the Engineer will make a final estimate of the amount of work done there under, and the value of such work, and the District shall pay the entire sum so found to be due after deducting there from all previous payments and all amounts to be kept and all amounts to be retained under the provisions of the Contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.
- B. Within sixty (60) days after the date of completion of the work of improvement, the retention withheld by the public entity shall be released. In the event of a dispute between the public entities may withhold from the final payment an amount not to exceed one hundred fifty percent (150%) of the disputed amount. For purposes of this subdivision, "completion" means any of the following:
 1. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or commissioning, by the public agency, or its agent, accompanied by cessation of labor on the work of improvement.
 2. The acceptance by the public agency, or its agent, of the work of improvement.
 3. After the commencement of work of improvement, a cessation of labor on the work of improvement of continuous period of one hundred (100) days or more, due to factors beyond the control of the Contractor.
 4. After the commencement of work of improvement, a cessation of labor on the work of improvement for a continuous period of thirty (30) days or more, if the public agency files for record a notice of cessation or a Notice of Completion.

- C. Work will not be considered complete in areas where a certificate of approval from the County, State or other regulatory agency is required until said certificate is received by the District.
- D. It is mutually agreed between the parties to the Contract that no certificates given or payments made under the Contract, except the final certificate or final payment, shall be conclusive evidence of the performance of the Contract, either wholly or in part, against any claim of the party of the first part, and no payment shall be construed to be an acceptance of any defective work or improper materials
- E. The Contractor further agrees that the payment of the final amount due under the contract, and the adjustment and payment for any work done in accordance with any alterations of the same, shall release the District and the Engineer from any and all claims or liability on account of work performed under the contract or any alteration thereof.

8.09 RESOLUTION OF CONTRACT CLAIMS

- A. Provisions of Section 20104 (b) (2) State that a “claim” means a separate demand by the Contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.
- B. Public Contract Code Section 20104 and other sections in Article 1.5 apply to all public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a Contractor and a local agency.
- C. For any claim subject to this article, the following requirements apply:
 - 1. The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.
 - a. For claims of less than fifty thousand dollars (\$50,000), the District shall respond in writing to any written claim within forty-five (45) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the District may have against the claimant.
 - 1. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the District and the claimant.
 - 2. The Districts written response to the claim, as further documented, shall be submitted to the claimant within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.
 - b. For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the District shall respond in writing to all written claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the District may have against the claimant.
 - 1. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the District and the claimant.
 - 2. The District's written response to the claim, as further documented, shall be submitted to the claimant within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

8.10 ADJUSTMENT OF DISPUTE

- A. All questions or controversies which may arise between the Contractor and the District, under or in reference to this contract, shall be subject to the decision of some competent person to be agreed upon by the District and the Contractor, and his/her/their/its decisions shall be final and conclusive upon both parties.

- B. Should the District and Contractor be unable to agree upon such person, a board of three (3) arbitrators shall be chosen, one (1) by the District, one (1) by the Contractor, and the third (3rd) by the two (2) so chosen, and the decision of any two (2) of said arbitrators shall be final and binding upon the parties. If either party to the Contract neglects or fails for a period of ten (10) days after notice from the other party to designate an arbitrator hereunder, the arbitrator designated by the other party shall have full power to decide the dispute in the same manner as though a board of three (3) arbitrators had been selected. The referee or arbitrators shall decide which party shall pay the cost of arbitration, and final payment to the Contractor shall not be made until the full decision of the referee or arbitrators has been rendered.

END OF DOCUMENT 00401

**DOCUMENT 00402
SPECIAL PROVISIONS**

1.01 DESCRIPTION OF WORK

The work to be performed shall consist of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, and incidentals, and for doing all the work necessary or required for the construction and adjustments of appurtenant facilities on the project site as shown or noted on the plans.

1.02 QUANTITIES

- A. The Engineer's preliminary estimate of the quantities of work to be done and the materials to be furnished are indicated on the form of proposal and are approximate only, being given as a basis for comparison of bids. The District does not expressly or by implication agree that the actual amount of work will correspond therewith. The District reserves the right to increase or decrease the quantities of work or materials to be furnished in accordance with the provisions of the General Conditions.
- B. The District also reserves the right to increase or decrease the total amount and quantity of work required under the Contract from the total amount indicated in the accepted bid proposal by twenty-five percent (25%) in the absence of an executed change order at the contract unit prices.

1.03 PROGRESS OF WORK AND TIME FOR COMPLETION

After the District has approved and signed the contract, the Engineer will issue the Notice to Proceed. The Contractor shall commence work within seven (7) days after the date of the written Notice to Proceed and shall diligently prosecute the work to completion within sixty (60) days of commencement of work. **See also 1.12 below.**

1.04 LIQUIDATED DAMAGES

- A. In accordance with Section 7.06 of the General Conditions, an amount of **\$1,000.00** per day for each and every calendar day (including Saturdays and Sundays) of delay beyond **February 1st, 2025** prescribed to complete the work will be deducted from any moneys due or which may become due the Contractor. **See also 1.12 below.**
- B. **Interruption of water service.** If the water supply to the District is interrupted as a consequence of the Contractor's activities, the Contractor shall be liable for all costs of restoring service and, in addition, will be liable for payment to the District for liquidated damages in the amount of ten thousand dollars (\$10,000.00) per day.

1.05 CONTRACTOR'S GUARANTY

The Contractor shall and hereby does guarantee the Work for a period of three (3) years after the date of acceptance of the work by the District. The Contractor shall repair or remove and replace any and all such work, together with any other work which may be displaced in so doing, that is found to be defective in workmanship and/or materials within said three (3) year period, without expense whatsoever to the District, ordinary wear and tear and unusual abuse or neglect excepted. In the event of a failure to comply with the above-mentioned conditions within seven (7) days after being notified in writing, the District is hereby authorized to proceed to have the defects remedied and made good at the expense of the Contractor who hereby agrees to pay the cost and charges therefore immediately on demand. Such action by the District will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

Prior to final payment under the contract, the Contractor shall furnish a maintenance warranty bond in the penal sum of ten percent (10%) of the total original contract price, to assure performance of the Contractor's obligations under this paragraph after the expiration of the obligation under the Performance Bond, for the remainder of the maintenance warranty period.

If, in the opinion of the District, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the District or to prevent interruption of operations of the District, the District will attempt to give the notice required by this article. If the Contractor cannot be contacted or does not comply with the District's request for correction within a reasonable time as determined by the District, the District may, notwithstanding the provisions of this article, proceed to make such correction or provide such attention; the costs of such correction or attention shall be charged against the Contractor. Such action by the District will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

This article does not in any way limit the guarantee on any items for which a longer guarantee is specified or on any items for which a manufacturer or supplier gives a guarantee for a longer period. The Contractor agrees to act as a co-guarantor with such manufacturer or supplier and shall furnish the District all appropriate guarantee or warranty certificates upon completion of the project. No guarantee period, whether provided for in this article or elsewhere, shall in any way limit the liability of Contractor or his/her/their/its sureties or insurers under the indemnity or insurance provisions of these General Provisions.

1.06 PRE-CONSTRUCTION CONFERENCE

The Engineer will schedule a pre-construction conference with the CONTRACTOR after the Notice of Contract Award. Contractor and Subcontractor representatives shall attend.

1.07 PROJECT MEETINGS

- A. Meetings may be held if and as often as deemed necessary by the Engineer or requested by the Contractor. Representatives of the Engineer and CONTRACTOR shall attend.
- B. The purpose of the meetings will be to discuss compliance with the contract plans, progress, coordination, submittals, and project-related problems and changes.

1.08 PRE-CONSTRUCTION INSPECTION

- A. Prior to the commencement of work, a joint inspection between the Engineer or his/her/their/its representative, and the Contractor or his/her/their/its representative may be conducted to review the pre-construction conditions of the existing facilities in the vicinity of the project site, (e.g. roads, pumps, discharge pipes, siphons, ramps, gates, signs, etc.).
- B. If such existing facilities are damaged by the Contractor's operations, the Contractor, at his/her/their/its expense, shall replace or restore them to the condition that existed prior to the commencement of work.
- C. The Contractor shall notify the District at (209) 249-4617 a minimum of 48 hours prior to the commencement of any work.

1.10 RESPONSIBILITY FOR WORK

Contractor agrees that he/she/they/it shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property: that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify, and hold the District and the Engineer harmless from any and all liability, real or alleged in connection with the performance of Work on this project, excepting for liability arising from the sole negligence of the District or the Engineer.

1.11 LEGAL RELATIONS AND SECURITY

- A. The Contractor shall comply with all applicable Federal, State, County and local requirements, as required for traffic control and public safety during project construction.
- B. The Contractor shall be responsible for providing security measures to prevent unauthorized entrance, vandalism, and theft of equipment, and materials from the work site. Any loss suffered shall be the Contractor's sole responsibility. The District shall not have any responsibility whatsoever for missing or

damaged equipment, tools, or personal belongings.

1.12 SCHEDULE

Contractor shall submit preliminary work schedule within seven (7) days following signed contract. Schedule shall provide sufficient detail to show timing of construction of the individual bid items and be in the form of simple Gantt chart sufficiently scheduling items to show completion of project within timeframes stipulated in these Special Provisions

1.13 DUST AND MUD CONTROL

During the course of construction, the Contractor is responsible for dust control and shall keep all areas generating dust, well watered along the access roads used. During wet conditions, those areas also used by the public and local traffic, free and clear from mud.

1.14 SITE DATA

The approximate locations of any known utilities shown on the plans are for the information only. Neither the District nor Engineer assumes any responsibility for the accuracy, reliability of location of this information. It is the responsibility of the Contractor to determine the actual location of all underground, surface, overhead, and submerged improvements, or facilities, which may be subject to damage by reason of his/her/their/its operations.

- A. The Contractor shall be responsible for the location and preservation of all existing and such facilities in the area of construction. The Contractor shall call Underground Service Alert (USA) at (800) 642-2444, or 811 in advance of any construction.
- B. Extreme care shall be used while working around or near any structures: e.g., buildings, existing sanitary sewer lines, etc.

1.15 FIELD ENGINEERING

- A. The Plans identify locations of the various designated work requirements, within the immediate vicinity of the project site. The Contractor is responsible to perform the work to the satisfaction of the District and to perform his/her/their/its own field engineering required to Perform the Work.
- B. The Contractor is responsible for setting all construction control, as required for construction activities in performing the Work.
- C. Actual field conditions may vary in type of work required for each location. The Contractor is responsible for verifying actual conditions, grades and elevations.

1.16 FINAL INSPECTION

Any deficiencies noted during interim and final inspections by the Engineer and/or District shall be corrected by the Contractor prior to final acceptance by the District. Any additional costs and expenses for mobilization and/or demobilization, labor, equipment and other associated costs required to correct the deficiencies noted, except specified material(s), shall be borne by the Contractor.

1.18 SITE ENVIRONMENT

- A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site conditions clean and free from rubbish and debris.
- B. Materials and equipment shall be removed from the site as soon as they are no longer necessary, and upon completion of the work and before final inspection, the entire work site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactorily clean and neat appearance. All cleanup costs shall be included in the Contractor's prices for the various Contract items and no additional or separate compensation will be made.

- C. Failure by the Contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the condition is corrected. No additional compensation will be allowed as a result of such suspension.

1.19 PROTECTION OF PLANTS, TREES, CROPS, AND LANDSCAPING

The Contractor shall provide adequate protection of existing trees and plants to protect against damage from construction operations and employ protective measures at the District's discretion. No permanent crop or landscaping shall be disturbed or removed without prior approval of the Engineer.

1.20 EXTRA WORK BY SUBCONTRACTORS

- A. When a Subcontractor performs all or any part of the extra work, the markup of such work is considered a part of the percentages allowed the Prime Contractor, in Section 8.02, Extra Work, of the General Conditions.
- B. No extra markup compensation shall be allowed to the Contractor thereof.
- C. When extra work is to be performed by the Subcontractor, all such work shall be approved in writing by the Engineer and compensation based upon actual invoiced costs incurred by the Contractor.

1.21 INELIGIBLE AND DISBARRED SUBCONTRACTORS

Under California Public Contract Code, Section 6109, "Ineligible and Debarred Subcontractors", the Contractor is prohibited from performing work on a public works project with a Subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the California Labor Code

1.22 SOUND CONTROL REQUIREMENTS

- A. The Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances, which apply to any work performed pursuant to the contract.
- B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

1.23 CONTROL OF SITE

The Contractor shall ensure that no alcohol, firearm, or controlled substance enters or is used at the Project site. The Contractor shall immediately remove from the site and terminate the employment of any employee found in violation of this provision.

1.24 AS-BUILT / RECORD DRAWINGS

During the progress of the work, the Contractor shall keep on the site one (1) set of prints of the drawings on which he shall mark in red all changes made necessary by structural or other interferences or changes in location of planned work. "As Built" drawings must be submitted to District in electronic format prior to District's acceptance of Work.

1.25 DOCUMENTATION AND ACCESS TO RECORDS

- A. The Contractor shall maintain books, records, documents, and other evidence directly pertinent to performance on State grant work under this contract in accordance with generally accepted accounting principles and the financial information and data used by the Contractor in preparation or support of the cost submission for any negotiated contract or change order and a copy of the cost summary submitted to the District. The, the District, or any of their authorized representatives shall have access to such books, records, documents, and other evidence for the purpose of inspection, audit, and copying. The Contractor

will provide facilities for such access and inspection.

- B. Records shall be maintained and made available during performance on work under this contract and until ten (10) years from the date of final payment for the project. In addition, those records which relate to any Dispute appeal under this contract, to litigation, to the settlement of claims arising out of such performance, or costs or items to which an audit exception has been taken shall be maintained and made available until three (3) years after the date of resolution of such appeal, litigation, claim, or exception.

1.26 SUBMITTAL OF MONTHLY AND FINAL PROGRESS PAYMENT STATEMENTS

- A. The Contractor shall submit a written invoice statement to the Engineer monthly; covering the work completed and accompanied by such supporting documentation as is required for payment purposes. The statement will be based on work performed and agreed to by the established monthly closure date.
- B. The invoiced statement shall be addressed to:

**South San Joaquin Irrigation District
P.O. Box 747
Ripon, California 95366-0747
Attn: Accounts Payable**

END OF DOCUMENT 00402

**DOCUMENT 00501
GENERAL CONSTRUCTION NOTES**

The following apply to all work within South San Joaquin Irrigation District right-of-way or easements and all work on South San Joaquin Irrigation District irrigation pipelines and canals:

1. Used materials, rejects, misfits, or seconds, etc. are not acceptable for use on District facilities.
2. South San Joaquin Irrigation District shall inspect all work phases on irrigation facilities for conformance to District specifications. Reinforcing shall not be encased in concrete without prior District inspection. Likewise, concrete shall not be covered with earth prior to District inspection.
3. District shall be provided with name, address, and phone number of contractors, subcontractors, etc. responsible for work being performed on District facilities. Contractor shall provide District with the name and cell phone number of contact person responsible for overseeing all phases of construction.
4. The Contractor hereby agrees to make at his/her/their/its own expense, all repairs or replacements necessitated by defects in materials or workmanship, supplied for District facilities, and pay for any damage to other works resulting from such defects which become evident within three (3) years the date of final acceptance of work. The contractor further agrees to hold the District harmless from liability of any kind arising from damage due to said defects. The contractor shall make all repairs and replacements promptly upon written order from the District.
5. The contractor will be responsible for the repairs of all concrete cracks which develop during construction of improvements affecting the Work.
6. Contractor shall pump District pipelines or boxes dry prior to work.
7. No heavy equipment shall travel over District pipeline(s) without approved bridging, said bridging to be approved between District and Contractor.
8. Contractor shall adhere to all applicable standards specified within the latest revision of the District's standard plans and specifications, which can be obtained from the Engineering Department at SSJID located at 11011 E. Hwy. 120, Manteca, CA 95336. Contractor shall immediately contact the District's Engineering Department to verify any perceived discrepancies between these Plans and District Specifications.
9. The District has survey monuments on many of its existing structures. Prior to demolition of any box or structure, Contractor shall obtain existing survey monument coordinate data (if available) for possible transfer to new structures. Upon installation of any new pipeline, new monuments shall be set at each new manhole or structure. Horizontal data shall be based upon the North American Datum of 1983 (NAD83), California Coordinate System, Zone 3, US feet. Vertical datum shall be the National Geodetic Vertical Datum of 1929 (NGVD29). New coordinate data shall then be provided to District with the as-built drawings.
10. As-Built (record drawings) must be submitted to District in electronic format prior to acceptance of work shown on plans.

END OF DOCUMENT 00501

DOCUMENT 00502

SUMMARY OF WORK AND SPECIAL CONSIDERATIONS

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work covered by these Contract Documents consists generally of providing the following:

1. In general, the project will consist of the removal of approximately 2,215 linear feet of 36-inch and 42-inch cast-in-place concrete pipe (CIPP) and the installation of approximately 4,011 linear feet of 48-inch Class III Rubber Gasketed Reinforced Concrete Pipe (RGRCP) including the construction of three Pour-Over Control Boxes.

B. Each item in the Bid Schedule is described below and shall be installed per standard SSJID specifications.
Note: Items showing a strike through are not part of this project.

1. **Mobilization & Demobilization, Insurance, Bonding, & Permitting (LS):** Payment for this item shall include full compensation for all labor materials, tools, equipment, and incidentals making up the cost of mobilization, move-in, move-out, all necessary bonds, insurance permits, licenses, and fees required during the performance of the work as specified. This item also includes demobilization, including the removal of all equipment, supplies, and personnel and incidentals from the project at the end of construction. Payment for mobilization shall be made with the first progress payment and shall not exceed 80% of bid item amount. Payment for demobilization shall be made with the last progress payment and shall not be less than 20 percent of the bid item amount
2. **Clearing, Grubbing & Misc. Tree Trimming (LS):** Item includes all labor, material, equipment, and trucking to clear right of way to prepare for pipeline removal and installation. Including private irrigation relocation, removal, and capping. Includes any tree trimming of canopy of trees within the easement not slated for full removal.
3. **Tree Removal & Off Haul (LS):** Item includes all labor, material, equipment, and trucking to remove and off haul trees within right of way as shown in the contract plans. Includes roots, stump, trunk, and slash removal and off haul as well as backfill and miscellaneous grading to original grade.
4. **SWPPP Preparation, Implementation, & Dust Control (LS):** Items include all labor, materials, tools, equipment and incidentals required to implement a Storm Water Pollution Prevention Plan (SWPPP) as specified and all necessary inspection, monitoring, testing and reporting services of the QSP if required under the Stat of California Construction General Permit and as set forth in the SWPPP. This item also includes all labor, materials, tools, equipment and incidentals required to perform dust control measures for the project limits.
5. **Remove & Off haul of Existing 36-inch Dia. & 42-inch Dia. CIPP (LF):** Item includes all labor, material, equipment, and trucking to remove and off haul existing 36-inch and 42-inch diameter cast-in-place pipe.
6. **Pour Over Control Boxes Concrete Only (Rails, Canal Gates, Ladders, Steps, to be Furnished and Installed by the District) (EA):** Furnish & install pour over concrete control boxes. Item includes excavation, reinforcement, water stop, and concrete. Item also includes Christy G5 access boxes for tracer wire at each pipe connection to box. Canal gates, ladders, grating, and steps are not included in the item and will be furnished and installed by the Owner.

7. **48-inch Dia. CLIII RGRCP (LF):** Furnish & install 48-inch diameter CLIII RGRCP as per District Standards. Item includes excavation, placement, tracer wire, backfill, and compaction.
8. **48-inch Dia. 45 Degree Elbow, Cast-in-Place (EA):** Furnish & install 48-inch diameter cast-in-place 45-degree elbow per District Standards. Item includes excavation, form work, reinforcement, concrete, grouting, tracer wire, backfill, and compaction.
9. **42-inch Dia. CLIII RGRCP at Control Box Tie-ins (LF):** Furnish & install 42-inch diameter CLIII RGRCP as per District Standards. Item includes excavation, placement, tracer wire, backfill, and compaction.
10. **42-inch Dia. 45 Degree Elbow, Cast-in-Place (EA):** Furnish & install 42-inch diameter cast-in-place 45-degree elbow per District Standards. Item includes excavation, form work, reinforcement, concrete, grouting, tracer wire, backfill, and compaction.
11. **36-inch Dia. CLIII RGRCP at Control Box Tie-ins (LF):** Furnish & install 36-inch diameter CLIII RGRCP as per District Standards. Item includes excavation, placement, tracer wire, backfill, and compaction.
12. **30-inch Dia. Access Vent (EA):** Furnish & install 30-inch diameter access vents per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction. Item also includes furnishing and installation of Christy G5 access boxes for tracer wire access at each vent. Vent cover is not included in the item and will be furnished and installed by the Owner.
13. **12-inch Dia. Standard Vent (EA):** Furnish & install 12-inch diameter access vents per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction. Item also includes furnishing and installation of Christy G5 access boxes for tracer wire access at each vent. Vent cover is not included in the item and will be furnished and installed by the Owner.
14. **48-inch Dia. Cast-In-Place Pipe Plug (EA):** Furnish & install 48-inch diameter cast-in-place pipe plug per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction.
15. **42-inch Dia. Cast-In-Place Pipe Plug (EA):** Furnish & install 42-inch diameter cast-in-place pipe plug per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction.
16. **48-inch Dia. Concrete Collar at Tie-In (EA):** Furnish & install 48-inch diameter cast-in-place concrete collar per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction.

- 17. 42-inch Dia. Concrete Collar at Tie-In (EA):** Furnish & install 42-inch diameter cast-in-place concrete collar per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction.
- 18. 36-inch Dia. Concrete Collar at Tie-In (EA):** Furnish & install 36-inch diameter cast-in-place concrete collar per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, grouting, backfill, and compaction.
- 19. 24-inch Dia. Pipe Irrigation Service Turnout & Hub Valve (EA):** Furnish & install 24-inch diameter steel pipe service per District Standards. Item includes excavation, form work, reinforcement, water-stop, concrete, pipe material, 24" Waterman H30 or equivalent hub valve, mechanical joints to Flange adapters, grouting, backfill, compaction, and appurtenances as necessary. Pipe material to be quarter inch steel pipe with Type B flanges.
- 20. 8-inch Dia. DIP CL50 Maintenance Pump Piping at Control Box Sta. 36+75 (LS):** Furnish & install 8-inch diameter ductile iron piping, valves, and appurtenances as necessary to accommodate maintenance pumping.
- 21. Road Crossing at Sedan Ave Per SJCO (EA):** Furnish labor, equipment, and materials to implement traffic control, sawcut and excavate, backfill, AC pavement, and striping within San Joaquin County Right of Way as per the requirements of the encroachment permit. Contractor is responsible to obtain encroachment permit with SJCO.
- 22. 48-inch Dia. RGRCP CLIII -45 Deg. Elbow, Pre-Cast (Alternate to Item #8) (EA):** Furnish & install 48-inch diameter precast RGRCP CLIII 45-degree elbow per District Standards. Item includes excavation, installation, and backfill.
- 23. 42-inch Dia. RGRCP CLIII -45 Deg. Elbow, Pre-Cast (Alternate to Item #10) (EA):** Furnish & install 42-inch diameter precast RGRCP CLIII 45-degree elbow per District Standards. Item includes excavation, installation, and backfill.

1.02 SPECIAL CONSIDERATIONS

- A. The Contractor shall obtain and maintain an active and valid USA ticket in excavation areas at all times.
- B. Compaction testing is to be performed by an independent laboratory and shall be provided by the Owner at the Owner's discretion per the District's specifications. Contractor is to provide test pits and coordinate with the District Inspector on testing locations.
- C. Construction staking and surveying is to be provided by a licensed surveyor at the expense and responsibility of the Contractor. This work also includes permanent survey marker preservation in accordance with Section 8771(a-f) of the California Business and Professions Code. The Contractor shall install District survey monuments on newly constructed boxes (survey markers shall be furnished by the District) and documented by the surveyor. Horizontal data shall be based upon the North American Datum of 1983 (NAD83), California Coordinate System, Zone 3, US feet. Vertical datum shall be the National Geodetic Vertical Datum of 1929 (NGVD29). New monument and coordinate data shall then be provided to District with the as-built drawings.
- D. The Contractor is responsible for obtaining an encroachment permit from San Joaquin County, including any necessary documentation, traffic control plans, and fees. The Contractor is responsible to abide by the terms of the encroachment permit and San Joaquin County's Standards & Specifications.
- E. Construction water can be made available by the District at no cost to the Contractor at nearby deep wells

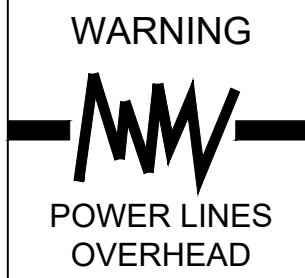
owned by the District ranging in flow rates from 2.5 cfs to 5 cfs. The Contractor is responsible for any piping modifications necessary to obtain water from the wells with approval by the District. The Contractor shall replace any piping to its original condition after use as the District deems necessary.

- F. Contractor is to abide by the District's lockout and tagout procedures and shall lock two control boxes upstream from any potential hazard. Small incidental storm water may be expected during construction. The Contractor shall pump and manage any incidental storm water.
- G. Contractor is to coordinate with the District Inspector and landowners as necessary to perform clearing, grubbing, and construction.
- H. The Contractor shall protect the private ag well at Van Laar property adjacent to construction. All private landowner piping should be protected or replaced and maintain a working order.
- I. Spoils generated by the pipe installation may be spread throughout the District's easement area at depth not exceeding one foot from the adjacent finish grade.
- J. The Contractor is responsible to secure an area for a laydown yard and staging area if outside of the District's easements. The Contractor may be allowed to utilize adjacent District easements as necessary for staging at the approval of the District. Contractor shall be responsible for securing staging area and facilities necessary to support construction personnel such as portable bathrooms and garbage dumpsters.
- K. If pre-cast pipe bends are to be utilized, the Contractor shall coordinate with the District's Engineer to verify pipeline alignment offset changes as necessary to accommodate full 8-foot pipe joints between bends to limit the use of cast-in-place collars.
- L. The 24-inch diameter service is to be ¼" wall steel pipe with Type B flanges. Pipe coating is not required but shall be wrapped with min. 10 mil. poly wrap prior to backfill.
- M. The contractor is responsible for all implementation and monitoring of storm water pollution prevention and dust control measures. Including any BMP's, track-out devices, concrete wash out, and street sweeper cleaning as necessary.

APPENDIX A
CONTRACT PLAN SET

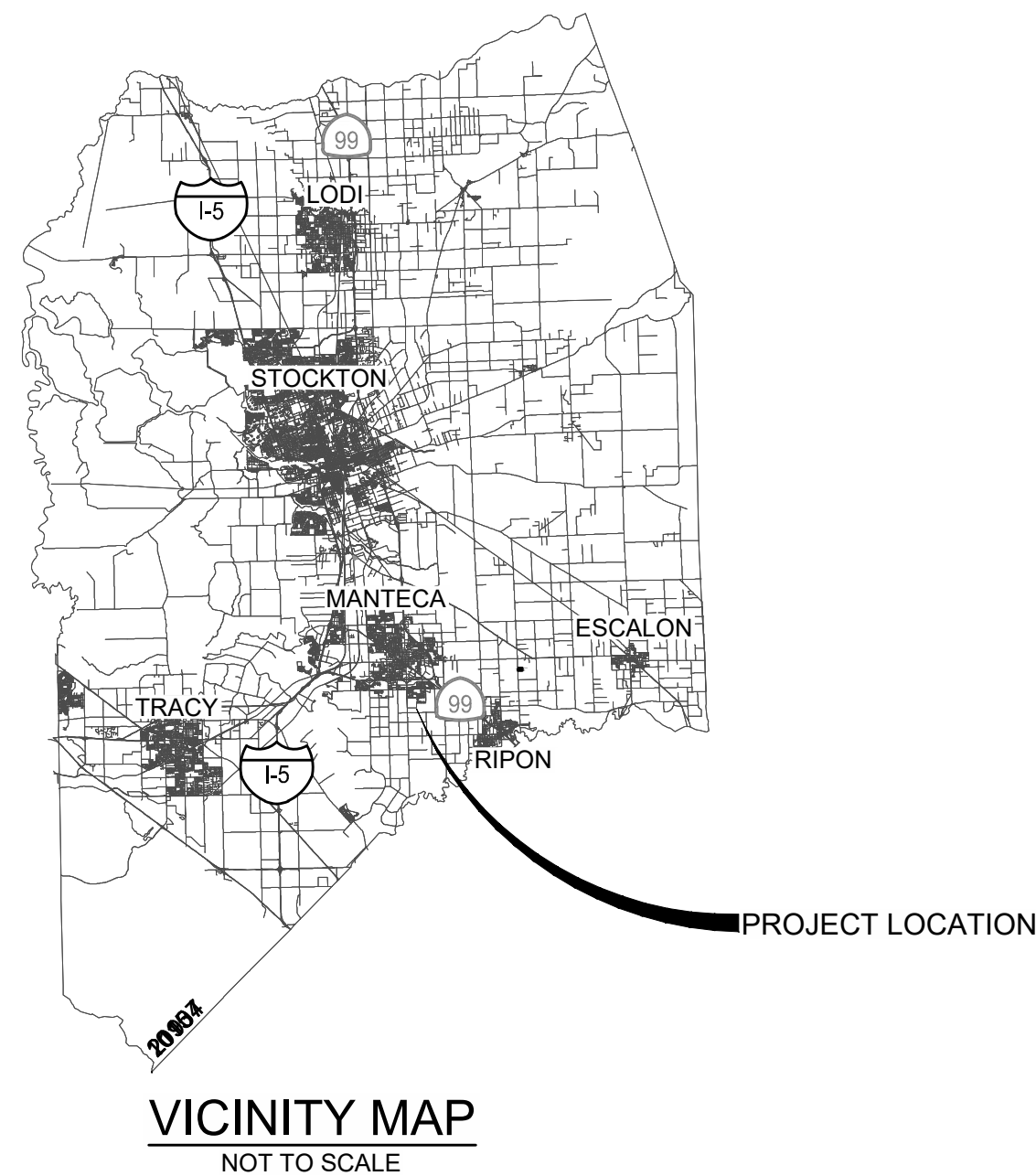


Know what's below. Call before you dig.



SOUTH SAN JOAQUIN IRRIGATION DISTRICT SAN JOAQUIN COUNTY

LATERAL X-W CONNECTION



SITE MAP
NOT TO SCALE

TOPOGRAPHY NOTE
TOPOGRAPHY SHOWN WAS COLLECTED BY PROVOST & PRITCHARD CONSULTING GROUP DURING A FIELD SURVEY CONDUCTED IN AUGUST OF 2022.

BOUNDARY NOTE
THE BOUNDARY/EASEMENT INFORMATION SHOWN ON THESE PLANS IS BASED UPON RECORD INFORMATION TIED TO PHYSICAL MONUMENTS, AND WAS PREPARED UNDER THE DIRECTION OF BRYAN W. BOWERS, PLS 8469.

CONTROL TABLE CCS Z3(NAD83) STPL(USFT) NGVD29				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2099091.29	6357441.82	36.37	FD RBR
2	2099071.37	6357441.85	37.59	FD RBR
3	2099046.32	6357442.82	36.40	FD RBR
4	2100397.46	6357439.88	37.75	FD IP
5	2097745.68	6357443.78	37.26	FD RBR
6	2097730.31	6360096.52	40.60	FD RBR
7	2099052.95	6360090.71	38.67	FD RBR
8	2100375.72	6360084.30	39.15	FD RBR
9	2100394.31	6357436.84	40.21	FD TAG MARKED LS

GENERAL NOTES

- SOUTH SAN JOAQUIN IRRIGATION DISTRICT (SSJID) (209-249-4600) SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK ON OR NEAR EXISTING DISTRICT FACILITIES.
- USED MATERIAL, REJECTS, MISFITS, OR SECONDS, ETC. ARE NOT ACCEPTABLE FOR USE ON DISTRICT FACILITIES.
- ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THESE PLANS, PROJECT SPECIFICATIONS AND DISTRICT SPECIFICATIONS.
- CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING FACILITIES PRIOR TO COMMENCING WORK. CALL UNDERGROUND SERVICE ALERT (USA) AT 8-1-1. CONTRACTOR SHALL MAKE ENGINEER AWARE OF ANY DISCREPANCIES.
- ALL CAST-IN-PLACE CONCRETE STRUCTURES SHALL BE FORMED INSIDE AND OUT AND CONCRETE VIBRATED SUFFICIENTLY TO PROVIDE FOR SMOOTH SURFACED WALLS/FLOORS WITHOUT VOIDS AND HONEYCOMBS.
- SSJID SHALL INSPECT ALL WORK PHASES ON CONCRETE FACILITIES FOR CONFORMANCE TO SSJID SPECIFICATIONS. REINFORCING SHALL NOT BE ENCASED IN CONCRETE WITHOUT PRIOR SSJID INSPECTIONS. LIKEWISE, CONCRETE SHALL NOT BE COVERED WITH EARTH PRIOR TO SSJID INSPECTION.
- CONCRETE DESIGN MIX SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. ALL CONCRETE SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE SPECIFIED.
- ALL STEEL PIPE AND FITTINGS SHALL BE FURNISHED WITH A SHOP APPLIED HIGH SOLIDS EPOXY COATING ON THE INTERIOR AND EXTERIOR, UNLESS OTHERWISE INDICATED. ALL OTHER EXPOSED STEEL SHALL BE PAINTED WITH A PRE-TREATMENT PRIMER, AN UNDERCOAT AND A FINAL COAT OF PAINT IN ACCORDANCE WITH SSJID SPECIFICATIONS.
- ALL NUTS, BOLTS, AND WASHERS USED TO SECURE UNDERGROUND FITTINGS SHALL BE STAINLESS STEEL. AFTER INSTALLATION, ALL STEEL HARDWARE SHALL BE COATED WITH A RUST PREVENTATIVE, WRAPPED WITH 4 MIL POLYETHYLENE SHEETING, AND SECURE WITH PVC TAPE.
- THRUST RESTRAINTS TO BE PROVIDED AT ALL PIPELINE BENDS, WHETHER OR NOT SHOWN ON THE PLANS.
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY LAWS OF THE STATE OF CALIFORNIA AND CAL/OSHA STANDARDS.
- TRENCH BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ALL PIPELINE CRACKS, WHICH DEVELOP DURING CONSTRUCTION OF IMPROVEMENTS AFFECTING EXISTING FACILITIES.
- ALL EXCESS MATERIAL AND/OR DEBRIS SHALL BE REMOVED UPON COMPLETION OF INSTALLATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE DUST CONTROL AT ALL TIMES.
- CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE STORM WATER POLLUTION PREVENTION PLAN CONTAINED IN THE PROJECT SPECIFICATIONS.

SPECIAL NOTE
WHERE UNDERGROUND AND SURFACE STRUCTURES ARE SHOWN ON THE PLANS, THE LOCATIONS, DEPTH AND DIMENSIONS OF STRUCTURES ARE BELIEVED TO BE REASONABLY CORRECT, BUT ARE NOT GUARANTEED. SUCH STRUCTURES ARE SHOWN FOR THE INFORMATION OF THE CONTRACTOR, BUT INFORMATION SO GIVEN IS NOT TO BE CONSTRUED AS A REPRESENTATION THAT SUCH STRUCTURES WILL, IN ALL CASES, BE FOUND WHERE SHOWN, OR THAT THEY REPRESENT ALL OF THE STRUCTURES WHICH MAY BE ENCOUNTERED.

SITE SAFETY AND PROTECTION NOTES
THE DUTY OF THE ENGINEER, OWNER OR ITS AGENTS TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE AND THE UNDERTAKING OF INSPECTIONS OR THE GIVING OF INSTRUCTIONS AS AUTHORIZED HEREIN IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF THE ACTUAL CONSTRUCTION NOR MAKE THE ENGINEER, OWNER OR ITS AGENTS RESPONSIBLE FOR PROVIDING A SAFE PLACE FOR THE PERFORMANCE OF WORK BY THE CONTRACTOR, SUBCONTRACTORS, OR SUPPLIERS, OR FOR ACCESS, VISITS, USE, WORK, TRAVEL OR OCCUPANCY BY ANY PERSON.

THE CONTRACTOR SHALL HAVE AT THE WORK SITE, COPIES OR SUITABLE EXTRACTS OF CONSTRUCTION SAFETY ORDERS, ISSUED BY CAL-OSHA. CONTRACTOR SHALL COMPLY WITH PROVISIONS OF THESE AND ALL OTHER APPLICABLE LAWS, ORDINANCES AND REGULATIONS. THE CONTRACTOR MUST COMPLY WITH PROVISIONS OF THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, PROMULGATED BY THE SECRETARY OF LABOR UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, AS SET FORTH IN TITLE 29 C.F.R.

TO PROTECT THE LIVES AND HEALTH OF CONTRACTOR'S EMPLOYEES UNDER THE CONTRACT, THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC., AND SHALL MAINTAIN AN ACCURATE RECORD OF ALL CASES OF DEATH, OCCUPATIONAL DISEASE, AND INJURY REQUIRING MEDICAL ATTENTION OR CAUSING LOSS OF TIME FROM WORK, ARISING OUT OF AND IN THE COURSE OF EMPLOYMENT OR WORK UNDER THE CONTRACT.

THE CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR THE SAFETY, EFFICIENCY, AND ADEQUACY OF CONTRACTOR'S FACILITIES, APPLIANCES, AND METHODS AND FOR ANY DAMAGE, WHICH MAY RESULT FROM THEIR FAILURE OR THEIR IMPROPER CONSTRUCTION, MAINTENANCE OR OPERATION.

THE CONTRACTOR AGREES THAT IT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, PROVOST & PRITCHARD CONSULTING GROUP, AND THEIR RESPECTIVE AGENTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF OWNER, ENGINEER, OR THEIR RESPECTIVE AGENTS.

THE OWNER AND ITS AGENTS' SITE RESPONSIBILITIES ARE LIMITED SOLELY TO THE ACTIVITIES OF THEIR EMPLOYEES ON SITE. THESE RESPONSIBILITIES SHALL NOT BE INFERRED BY ANY PARTY TO MEAN THAT THE OWNER OR ITS AGENTS HAVE RESPONSIBILITY FOR SITE SAFETY, SAFETY IN, ON, OR ABOUT THE SITE IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR ALONE. THE CONTRACTOR'S METHODS OF WORK PERFORMANCE, SUPERINTENDENCE AND THE CONTRACTOR'S EMPLOYEES, AND SEQUENCING OF CONSTRUCTION ARE ALSO THE SOLE AND EXCLUSIVE RESPONSIBILITIES OF THE CONTRACTOR ALONE.

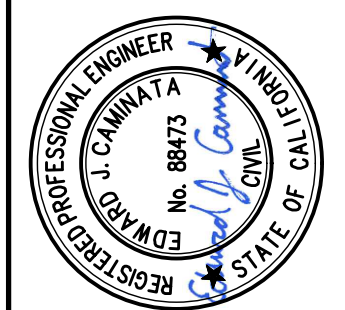
APPROVALS

SSJID ITS EMPLOYEES AND AGENTS ARE NOT RESPONSIBLE FOR VERIFICATION OF THE ELEVATIONS AND DIMENSIONS INDICATED ON PLANS NOR ANY ERRORS OR OMISSIONS THAT MAY BE PRESENT. APPROVAL IS SUBJECT TO THE DATA SHOWN WHICH APPEARS TO BE IN CONFORMITY WITH SSJID REQUIREMENTS FOR PROTECTION OF DISTRICT FACILITIES.
SO CONDITIONALLY APPROVED

FORREST KILLINGSWORTH, P.E. DATE
ENGINEERING DEPARTMENT MANAGER

SHEET INDEX	
SHEET	DESCRIPTION
GENERAL	
G1	COVER
G2	LEGEND AND ABBREVIATIONS
G3	CONSTRUCTION NOTES
G4	CONSTRUCTION NOTES
DEMOLITION PLANS	
D1	DEMOLITION SHEET INDEX
D2	DEMOLITION SITE PLANS
CIVIL - PLAN & PROFILE	
C1	SHEET INDEX
C2	STA 10+00-20+00
C3	STA 20+00-30+00
C4	STA 30+00-40+00
C5	STA 40+00-END
SITE PLANS	
SP1	SITE PLANS
DETAILS	
CD1	DETAILS
CD2	DISTRICT DETAILS
CD3	DISTRICT DETAILS
CD4	DETAILS

100% DESIGN
FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
GENERAL
COVER

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2900
FAX: (209) 898-2900
www.provostandpritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO.:
88473

DRAFTED BY: LAJ, JMG
CHECKED BY: ACC

DATE: 08/02/2024

JOB NO: 105522007

PROJECT NO: 105522007

PHASE: PRE

0" = 1"
ORIGINAL SCALE SHOWN IS ONE
INCH. ADJUST SCALE FOR
REDUCED OR ENLARGED PLANS.

SHEET
G1
1 OF 16

ABBREVIATIONS

AB	AGGREGATE BASE	HDW	HEADWALL	(T)	THREADED
AC	ASPHALT CONCRETE	HGL	HYDRAULIC GRADE LINE	T	THREAD
ACP	ASBESTOS-CEMENT PIPE	HORIZ	HORIZONTAL	T&B	TOP & BOTTOM
AD	ALUMINUM DISK	HP	HINGE POINT, HORSEPOWER	TB	TOP OF BANK
AGG	AGGREGATE	HP GAS	HIGH PRESSURE GAS	TBM	TEMPORARY BENCHMARK
AH	AHEAD	HPS	HIGH PRESSURE SWITCH	TC	TOP OF CURB
ALT	ALTERNATE	HR	HANDRAIL	TDI	TENSILE DUCTILE IRON
AP	ANGLE POINT	HSS	HOLLOW STEEL SECTION	TELE	TELEPHONE
APPROX	APPROXIMATE	HT	HUB & TACK	TF	TOP OF FOOTING
APN	ASSESSOR'S PARCEL NUMBER	HWL	HIGH WATER LEVEL	TFC	TOP FACE OF CURB
ARV	AIR RELIEF VALVE	HYDRO	HYDRO-PNEUMATIC	TG	TOP OF GRATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	ID	INSIDE DIAMETER	TH	THREAD
AV	AIR VENT	IN	INCH	TL	TOP OF LINING
AVE	AVENUE	INV	INVERT	TOE	TOE OF SLOPE
AWWA	AMERICAN WATER WORKS ASSOCIATION	IP	IRON PIPE	TOP	TOP OF SLOPE
BAR	BARRIER	IRR	IRRIGATION	TP	TELEPHONE POLE
BC	BEGIN CURVE	JP	JUNCTION POLE	TR	TELEPHONE RISER
BD	BRASS DISK	LB, LBS	POUNDS	TRANS	TRANSFORMER
BFP	BACKFLOW PREVENTER	LC	LENGTH OF CURVE	TRFC	TRAFFIC
BK	BACK	LCW	LONG CRESTED WEIR	TS	TOP OF STRUCTURE
BLDG	BUILDING	LF	LINEAR FEET	TSB	TELEPHONE SPLICE BOX
BM	BENCHMARK	LG	LONG	TYP	TYPICAL
BO	BOLLARD	LT	LEFT	TWL	TOP OF WALL
BTM	BOTTOM	LPG	LIQUEFIED PETROLEUM GAS	UG	UNDERGROUND
BVC	BEGIN VERTICAL CURVATURE	MAX	MAXIMUM	UNO	UNLESS NOTED OTHERWISE
BW	BACK OF WALK	MB	MAILBOX	UP	UTILITY POLE
BWL	BACK OF WALL	MCC	MOTOR CONTROL CENTER	UT	UTILITY
BWR	BARB WIRE	MFR	MANUFACTURER	US	UPSTREAM
C, CONC	CONCRETE	MH	MANHOLE	VCP	VERIFIED CLAY PIPE
CA	CALIFORNIA	MIN	MINIMUM	VERT	VERTICAL
CAB	CABINET	MISC	MISCELLANEOUS	VG	VALLEY GUTTER
CBL	CABLE	MJ	MECHANICAL JOINT	VL	VAULT
CFS	CUBIC FEET PER SECOND	MN	MAG NAIL	VLV	VALVE
C&G	CURB & GUTTER	MP	MEDIUM PRESSURE GAS LINE	(W)	WEST
CHK	CHECK	MPT	MALE PIPE THREAD	W	WATER
CHLK	CHAIN LINK	MRKR	MARKER	WL	WATER LINE
CI	CAST IRON	MS	MILD STEEL	WM	WATER METER
CIP	CAST IRON PIPE	(N)	NORTH	WS	WATER SERVICE
CIPCP	CAST-IN-PLACE CONCRETE PIPE	NAVD	NORTH AMERICAN VERTICAL DATUM	WV	WATER VALVE
CIPP	CAST-IN-PLACE PIPE	NC	NORMALLY CONSOLIDATED	WW	WASTE WATER
CL	CLASS	NGVD	NATIONAL GEODETIC VERTICAL DATUM	W	WITH
CLVT	CULVERT	NO., #	NUMBER	W/O	WITHOUT
¢	CENTERLINE	NIC	NOT IN CONTRACT		
CLF	CHAIN LINK FENCE	NPT	NATIONAL PIPE THREAD		
CLR	CLEAR, CLEARANCE	NTS	NOT TO SCALE		
CMLC	CEMENT MORTAR LINED & COATED	OC	ON CENTER		
CMP	CORRUGATED METAL PIPE	OD	OUTSIDE DIAMETER		
CN	CONCRETE NAIL	OH	OVERHEAD		
CNS	COMPACTED NATIVE SOIL	OP	OPERATING		
CO	SEWER CLEAN OUT	OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION		
CONT	CONTINUOUS	O&M	OPERATIONS & MAINTENANCE		
CONST	CONSTRUCT/CONSTRUCTION	(P)	PROPOSED		
COR	CORNER	PB	PULL BOX		
CORP	CORPORATION	PC	POINT OF CURVATURE		
COL	COLUMN	PCC	POINT OF COMPOUND CURVATURE		
COUP	COUPLING	PCC	PORTLAND CEMENT CONCRETE		
CP	CONTROL POINT	PE	PERMANENT EASEMENT		
CR	CROWN	PER	PERIMETER		
CU	CUBIC	PI	POINT OF INTERSECTION		
CY	CUBIC YARDS	PIP	PLASTIC IRRIGATION PIPE		
DA	DRIVE APPROACH	PLC	PROGRAMMABLE LOGIC CONTROLLER		
DEC	DECIDUOUS	¢	PROPERTY LINE		
DEMO	DEMOLISH/DEMOLITION	PNL	PANEL		
DI	DROP INLET	POC	POINT ON CURVE		
DIA, D, Ø	DIAMETER	POL	POINT ON LINE		
DIM	DIMENSION	POT	POINT ON TANGENT		
DIP	DUCTILE IRON PIPE	PP	POWER POLE		
D/S	DOWNSTREAM	PRC	POINT OF REVERSE CURVATURE		
DW	DRIVEWAY	PRV	PRESSURE REDUCING VALVE		
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT		
(E)	EXISTING, EAST	PSI	POUNDS PER SQUARE INCH		
EA	EACH	PT	POINT OF TANGENCY		
EC	END CURVE	PVC	POLYVINYL CHLORIDE		
ECC	ECCENTRIC	PVCC	POINT OF VERTICAL COMPOUND CURVATURE		
EF	EACH FACE	PVMT	PAVEMENT		
EG	EXISTING GRADE	PVRC	POINT OF VERTICAL REVERSE CURVATURE		
EL, ELEV	ELEVATION	PVI	POINT OF VERTICAL INTERSECTION		
ELC	EPOXY LINED & COATED	R	RADIUS		
ELEC	ELECTRIC	RBR	REBAR		
ELL, ELB	ELBOW	RC	RADIUS OF CURVE		
EM	ELECTRIC METER	RCP	REINFORCED CONCRETE PIPE		
EOL	END OF LINE	RD	RELATIVE DENSITY		
EP	EDGE OF PAVEMENT	RD	ROAD		
EQUIV	EQUIVALENT	RE	REFERENCE		
ESMT	EASEMENT	REQD	REQUIRED		
EUC	EUCALYPTUS	RET	RETURN		
EVC	END VERTICAL CURVE	REV	REVISION		
EW	EACH WAY	RGRCP	RUBBER GASKETED REINFORCED CONCRETE PIPE		
EXP	EXPOSED	RGS	RIGID GALVANIZED STEEL		
(F)	FUTURE	RP	RADIUS POINT		
F&I	FURNISH & INSTALL	RR	RAILROAD		
FD	FOUND	RT	RIGHT		
FDC	FIRE DEPARTMENT CONNECTION	RTU	REMOTE TERMINAL UNIT		
FF	FINISHED FLOOR	RW	RIGHT OF WAY		
FG	FINISHED GRADE	(S)	SOUTH, SOLVENT WELD		
FH	FIRE HYDRANT	S	SLIP		
FL, FL	FLOW LINE	S=	SLOPE		
FLG	FLANGE	SCH	SCHEDULE		
FLGD	FLANGED	SCP	STANDARD CONCRETE PIPE		
FM	FORCE MAIN	SD	STORM DRAIN		
FNC	FENCE	SDMH	STORM DRAIN MANHOLE		
FRP	FIBER REINFORCED POLYESTER PIPE	SEC	SECTION		
FT	FOOT/FEET	SERV	SERVICE		
FW	FRONT OF WALK	SP	SQUARE FEET		
FWL	FACE OF WALL	SP	SERVICE POLE		
GA	GAGE	SPEC	SPECIFICATION		
GAL	GALLON	SPNDL	SPINDLE		
GALV	GALVANIZED	SQ	SQUARE		
GB	GRADE BREAK	SS	SANITARY SEWER		
GM	GAS METER	SS OR STS	STAINLESS STEEL		
GPM	GALLONS PER MINUTE	SSMH	SANITARY SEWER MANHOLE		
GRVL	GRAVEL	STA	STATION		
GS	GAS	STD	STANDARD		
GSV	GAS VALVE	STL	STEEL		
GUY	GUY WIRE	STP	STAND PIPE		
GV	GATE VALVE	STR	STRUCTURE		
HD	HEAD	STRP	STRIPING		
HDPE	HIGH DENSITY POLYETHYLENE	SWL	SWALE		
HDR	HEADER	STWL	STILLING WELL		

LINETYPES

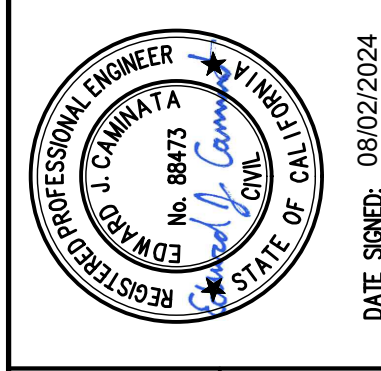
EXISTING	NEW	DESCRIPTION
		FENCE (BLOCK WALL)
		FENCE (CHAIN LINK)
		FENCE (WIRE)
		GRADE BREAK
		IRRIGATION
		ELECTRIC (AERIAL)
		TELEPHONE (AERIAL)
		TELEPHONE (BURIED)
		CENTERLINE
		EASEMENT
		PROPERTY LINE
		RIGHT-OF-WAY
		SECTION LINE
		REVISION CLOUD
		UNDERGROUND
		SAWCUT LINE
		DEMO LINE
		WORK LIMITS

SYMBOLS

EXISTING	NEW	DESCRIPTION
		UTILITY POLE
		UTILITY POLE (SERVICE)
		UTILITY POLE ANCHOR
		SIGN
		GUARD POST
		CONTROL POINT
		BENCHMARK
		IRON PIPE
		MONUMENT
		MONUMENT (OPTIONAL)
		WELL
		BLOW-OFF
		VENT PIPE, RISER PIPE
		STAND PIPE
		GATE VALVE HANDLE
		FENCE POST
		TREE
		REVISION
		CONSTRUCTION CALLOUT
		DETAIL CALLOUT
		LINE BREAK
		PIPE END (SCHEMATIC)
		PIPE END
		HIGH WATER LINE
		SPOT ELEVATION
		SECTION VIEW

COPYRIGHT © 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS DOCUMENT IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. THE USER OF THIS DOCUMENT SHALL HOLD THE FIRM OF PROVOST & PRITCHARD ENGINEERING, INC. AND ITS EMPLOYEES HARMLESS FROM AND AGAINST ALL SUCH LEGAL FEES ASSOCIATED WITH OBTAINING AND DEFENDING SUCH RIGHTS.

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
GENERAL
LEGEND AND ABBREVIATIONS

PROVOST & PRITCHARD 4701 BISK ROAD, SUITE 102 MODESTO, CALIFORNIA 95356 TEL: (209) 528-2200 FAX: (209) 528-2200 www.provostandritchard.com	
DESIGN ENGINEER:	ED CAMINATA
LICENSE NO.:	88473
DRAFTED BY:	LAJ, JMG
CHECKED BY:	ACC
DATE:	08/02/2024
JOB NO.:	105522007
PROJECT NO.:	105522007
PHASE:	PRE
SCALE:	0" = 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.	
SHEET:	G2
2	OF 16

8/2/2024 12:23 PM G:\South San Joaquin ID-1055105522007-WX-Inletto300 CAD\340 Sheet Sheet01_L_General\G2 LEGEND AND ABBREVIATIONS.dwg - Jessica Louie

EARTHWORK NOTES

- DISTRICT FACILITIES ON THE ATTACHED PLANS REPRESENT IRRIGATION STRUCTURES, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO CONFIRM LOCATION, SIZE AND DEPTH OF ALL FACILITIES. THE ENGINEER IS TO BE NOTIFIED OF ANY CONFLICTS OF DISCREPANCIES.
- FOUNDATION SOILS FOR ALL STRUCTURES SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. ALL OTHER FILL SHALL BE COMPACTED TO A MINIMUM OF 90% RELATIVE COMPACTION.
- ALL DISTURBED SOIL SHALL BE COMPACTED TO A MINIMUM 90% COMPACTION. COMPACTION TESTS SHALL BE MADE AVAILABLE TO THE ENGINEER.
- PROTECT EXCAVATIONS BY SHORING, BRACING SHEET PILING UNDERPINNING, OR OTHER METHODS REQUIRED TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO EXCAVATION.
- NOTIFY ENGINEER OF UNEXPECTED SUBSURFACE CONDITIONS.
- UNDERGROUND UTILITIES MAY EXIST AT THIS SITE. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT SAID UTILITIES. NOTIFY ENGINEER OF ANY DEVIATION IN UTILITY LOCATION FROM THAT WHICH IS SHOWN ON THE DRAWINGS.
- ARRANGE CONSTRUCTION SEQUENCES TO PROVIDE THE SHORTEST PRACTICAL TIME THAT TRENCHES WILL BE OPEN TO AVOID HAZARD TO THE PUBLIC, AND TO MINIMIZE THE POSSIBILITY OF TRENCH COLLAPSE.
- ALL BACKFILL MATERIAL SHALL BE APPROVED BEFORE USE AND BE FREE OF CINDERS, ASHES, ICE, FROZEN SOIL, LARGE HARD CLODS, ORGANIC DEBRIS, OR OTHER DELETERIOUS ITEMS.
- BACKFILL: SOILS THAT CONTAIN NO ROCKS LARGER THAN 6-INCHES AT GREATEST DIMENSION, IF EXPANSIVE CLAYS ARE PRESENT, SUCH CONTENT SHALL NOT EXCEED ONE-THIRD OF THE MATERIAL BY VOLUME, AND SHALL BE WELL MIXED WITH NON-COHESIVE SOILS.
- OVER EXCAVATION SHALL BE REQUIRED A MINIMUM OF 1.5 FEET BELOW TOP OF GRADE UNDER ALL STRUCTURES.
- ALL MATERIAL SHALL BE NEW AND NO SALVAGED MATERIAL OR PREVIOUSLY USED MATERIAL MAY BE USED UNLESS APPROVED BY SOUTH SAN JOAQUIN IRRIGATION DISTRICT'S ENGINEER.
- FILL VOLUMES AROUND STRUCTURES ARE NOT INCLUDED.

CONSTRUCTION NOTES

- ALL BAR SPLICES TO BE LAPPED A MINIMUM OF 24 INCHES. VERTICAL BARS SHALL EXTEND ABOVE FLOOR FOR WALL TIE-IN AND AROUND CORNERS A MINIMUM OF 30 INCHES. REINFORCEMENT SHALL BE PLACED IN THE CENTER OF WALLS AND FLOOR.
- REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF THE CURRENT ASTM A-615 GRADE 40 OR 60 AND SHALL CONFORM TO THE SIZES IN TABLE "A" AND SHAPES SHOWN ON THE DRAWINGS. ALL REINFORCEMENT AT THE TIME OF PLACEMENT SHALL BE FREE FROM RUST, OIL, GREASE, PAINT OR OTHER DELETERIOUS MATTER.
- CONSTRUCTION JOINTS: CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN ON THE PLANS OR AS PRE-APPROVED BY THE ENGINEER ONLY. ENTIRE SURFACE TO BE ROUGHENED WHILE WET. JOINTS SHALL BE THOROUGHLY CLEANED AND LAITANCE REMOVED BEFORE A NEW POUR IS MADE. EACH JOINT SHALL BE WETTED IMMEDIATELY BEFORE THE PLACING OF NEW CONCRETE.
- MANHOLE FRAME AND COVER SHALL BE STANDARD 30" HEAVY DUTY PRESSURE TYPE MANHOLE FRAM & COVER-CALIFORNIA CONCRETE PIPE CORP. STOCKTON, CA NO. A-1366 ASSEMBLY, BOLT DOWN, W/O OPTIONAL VENT OR APPROVED EQUAL.

WATERING NOTES

- KEEP WATER FREE OF DEBRIS, ORGANIC MATTER, AND OTHER OBJECTIONABLE SUBSTANCES.
- KEEP AT LEAST ONE WATER TRUCK ON SITE AT ALL TIMES UNLESS ENGINEER APPROVES REMOVAL OF THE TRUCK FROM THE SITE BEFORE FINAL COMPLETION.
- ENSURE A UNIFORM APPLICATION OF WATER FOR OPTIMUM MOISTURE CONTENT. AVOID EXCESSIVE RUNOFF AND MINIMIZE WATER WASTE.
- IF OVER WATERING OCCURS, DE-WATER THE SITE
- THE CONTRACTOR SHALL TAKE ALL REASONABLE MEANS TO MINIMIZE INCONVENIENCE AND INJURY TO THE PUBLIC BY DUST, NOISE, DIVERSION OF STORM WATER, OR OTHER AGENCIES UNDER HIS CONTROL
- FOLLOW ALL WATER REQUIREMENTS SET FORTH IN THE DUST CONTROL PERMIT
- THE CONTRACTOR SHALL PAY FOR AND SHALL CONSTRUCT ALL FACILITIES NECESSARY TO FURNISH WATER FOR HIS USE DURING CONSTRUCTION. WATER USED FOR HUMAN CONSUMPTION SHALL BE KEPT FREE FROM CONTAMINATION AND SHALL CONFORM TO THE REQUIREMENTS OF THE STATE AND LOCAL AUTHORITIES FOR POTABLE WATER. THE CONTRACTOR MAY MAKE ARRANGEMENTS WITH THE OWNER TO USE NON-POTABLE WATER WHERE APPROPRIATE DURING CONSTRUCTION.

TRENCHING AND BACKFILLING NOTES

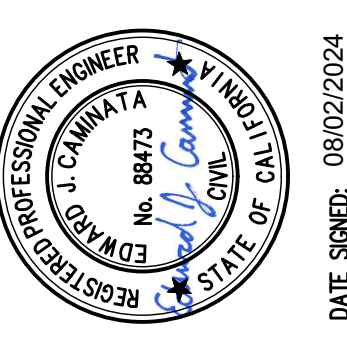
- PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING, OR OTHER METHODS REQUIRED TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO EXCAVATION.
- TRENCHES SHALL HAVE SLOPING, SHEETING, SHORING, AND BRACING CONFORMING WITH 29CFR1926, SUBPART P-EXCAVATIONS, CAL/OSHA REQUIREMENTS, AND THE CONTRACT DOCUMENTS.
- NOTIFY ENGINEER OF UNEXPECTED SUBSURFACE CONDITIONS
- WHEN PIPELAYING IS NOT IN PROGRESS, INCLUDING THE NOON HOURS, CLOSE THE OPEN ENDS OF PIPE. DO NOT ALLOW TRENCH WATER, ANIMALS OR FOREIGN MATERIAL TO ENTER THE PIPE.
- COMPACTION TESTS WILL BE PERFORMED FOR EACH LIFT OR LAYER.
- SAMPLE BACKFILL MATERIALS PER ASTM D75.
- COMPACTION TESTING WILL BE PERFORMED IN ACCORDANCE WITH SECTION 19-5.03, STATE STANDARD SPECIFICATIONS.
- NATIVE EARTH BACKFILL USED ABOVE THE PIPE ZONE SHALL BE FINE-GRAINED MATERIALS FREE FROM ROOTS DEBRIS, AND ROCKS LARGER THAN 3 INCHES.
- WATER FOR COMPACTION SHALL BE FREE OF ORGANIC MATERIALS INJURIOUS TO THE PIPE COATINGS, HAVE A PH OF 7.0 TO 9.0, MAXIMUM CHLORIDE CONCENTRATION OF 500 MGL, AND A MAXIMUM SULFATE CONCENTRATION OF 500 MG/L
- EXCAVATION, GRADING AND COMPACTION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 19 OF THE STATE STANDARD SPECIFICATIONS.
- VERIFY STOCKPILED MATERIAL HAS BEEN APPROVED FOR REUSE
- VERIFY AREAS TO BE BACKFILLED ARE FREE OF DEBRIS, SNOW, ICE, OR WATER, AND SURFACES ARE NOT FROZEN.
- TRENCHING GUIDELINES: EXCAVATE THE TRENCH TO THE APPROXIMATE LEVEL OF THE GRADE OF THE UTILITY LINE TO BE INSTALLED, USING ADEQUATE TRENCH WIDTH AND SIDE SLOPES TO SAFELY ACCOMMODATE WORKER ACCESS.
- REMOVE AREAS OF SUB-GRADE NOT READILY CAPABLE OF IN-SITU COMPACTION
- BACKFILL WITH BEDDING OR SELECT BACKFILL MATERIAL AND COMPACT TO DENSITY EQUAL TO REQUIREMENTS FOR SUBSEQUENT BACKFILL
- TRENCH WIDTHS IN THE PIPE ZONE SHALL BE AS SHOWN IN THE DRAWINGS. IF NO DETAILS ARE SHOWN, MAXIMUM WIDTH SHALL BE 24 INCHES GREATER THAN THE PIPE OUTSIDE DIAMETER.
- TRENCH WIDTH AT THE TOP OF THE TRENCH WILL NOT BE LIMITED EXCEPT WHERE WIDTH OF EXCAVATION WOULD UNDERCUT ADJACENT STRUCTURES AND FOOTINGS. IN SUCH CASE, WIDTH OF TRENCH SHALL BE SUCH THAT THERE IS AT LEAST 2 FEET BETWEEN THE TOP EDGE OF THE TRENCH AND THE STRUCTURE OR FOOTING.
- HAND TRIM FOR BELL AND SPIGOT PIPE JOINTS.
- REMOVE LUMPED SOIL, BOULDERS AND ROCK.
- BACKFILLING:
 - SUPPORT PIPE DURING PLACEMENT AND COMPACTION OF BEDDING FILL.
 - COMPACTION: USE VIBRATORY COMPACTORS FOR SANDS AND GRAVELS (NON-COHESIVE SOILS). USE MECHANICAL TAMPERS FOR SAND AND GRAVEL CONTAINING A SIGNIFICANT PORTION OF FINE-GRAINED MATERIALS, SUCH AS SILT AND CLAY (COHESIVE SOILS). HAND TAMP AROUND PIPE OR CABLE TO PROTECT THE LINES UNTIL ADEQUATE CUSHION IS ATTAINED. PUDDLING OR WATER FLOODING FOR CONSOLIDATION OF BACKFILL OR COMPACTION BY WHEEL ROLLING WILL NOT BE PERMITTED.
 - EMPLOY A PLACEMENT METHOD THAT WILL NOT DISTURB OR DAMAGE PIPE OR UTILITIES.
 - MAINTAIN OPTIMUM MOISTURE CONTENT OF BACKFILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
 - COMPACT TRENCH BACKFILL TO THE SPECIFIED RELATIVE COMPACTION. COMPACT BY USING MECHANICAL COMPACTION OR HAND TAMPING. DO NOT USE HIGH IMPACT HAMMER TYPE EQUIPMENT EXCEPT WHERE THE PIPE MANUFACTURER WARRANTS IN WRITING THAT SUCH USE WILL NOT DAMAGE THE PIPE.
 - COMPACT MATERIAL PLACED WITHIN 12 INCHES OF THE OUTER SURFACE OF THE PIPE BY HAND TAMPING ONLY.
 - CAREFULLY PLACE THE MATERIAL AROUND THE PIPE SO THAT THE PIPE BARREL IS COMPLETELY SUPPORTED AND THAT NO VOIDS OR UNCOMPACTED AREAS ARE LEFT BENEATH THE PIPE.
 - USE PARTICULAR CARE IN PLACING MATERIAL ON THE UNDERSIDE OF THE PIPE TO PREVENT LATERAL MOVEMENT DURING SUBSEQUENT BACKFILLING.
 - AFTER PIPE HAS BEEN BEDDED, PLACE PIPE ZONE MATERIAL SIMULTANEOUSLY ON BOTH SIDES OF THE PIPE, IN MAXIMUM 8-INCH LIFTS, KEEPING THE LEVEL OF BACKFILL THE SAME ON EACH SIDE.
 - DO NOT PERMIT FREE FALL OF THE MATERIAL UNTIL AT LEAST 2 FEET OF COVER IS PROVIDED OVER THE TOP OF THE PIPE. DO NOT DROP SHARP, HEAVY PIECES OF MATERIAL DIRECTLY ONTO THE PIPE OR THE TAMPED MATERIAL AROUND THE PIPE. DO NOT OPERATE HEAVY EQUIPMENT OVER THE PIPE UNTIL AT LEAST 3 FEET OF BACKFILL HAS BEEN PLACED AND COMPACTED OVER THE PIPE.
- ALL EXCESS MATERIAL AND/OR DEBRIS SHALL BE REMOVED FROM DISTRICT EASEMENT UPON COMPLETION OF CONSTRUCTION.
- ALL CONSTRUCTION STAKING SHALL INCLUDE A STATION IDENTIFICATION (THAT CORRESPONDS WITH THE CONSTRUCTION PLANS), A HUB, HUB ELEVATION, AND HUB OFFSET DISTANCE. STAKING SHALL BE PROVIDED FOR ALL CRITICAL INSTALLATION LOCATIONS (PIPELINE BENDS, STRUCTURES, VENTS, ETC.).
- ALL IRRIGATION PIPE INSTALLED FOR USE BY THE DISTRICT SHALL BE INSPECTED AND APPROVED BY SSJID FIELD INSPECTOR BEFORE ANY BACKFILLING MAY OCCUR.
- NATIVE MATERIAL MAY BE USED AS ENGINEERED FILL AS LONG AS IT MEETS THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.

PIPE & FITTINGS NOTES

- RUBBER GASKETED REINFORCED CONCRETE PIPE (RGRCP)
 - RGRCP SHALL CONFORM TO THE SPECIFICATION FOR REINFORCED CONCRETE LOW PRESSURE PIPE, ASTM DESIGNATION C-76. CIRCULAR REINFORCEMENT SHALL BE USED, USE OF ELLIPTICAL REINFORCEMENT IN THE PIPE IS NOT ALLOWED. CEMENT USED IN THE MANUFACTURE OF RGRCP SHALL BE TYPE II. THE JOINTS SHALL SHOW NO SIGNS OF LEAKAGE AT HYDROSTATIC PRESSURES UP TO TWENTY-FIVE (25) FEET. PIPE CLASS SHALL BE AS FOLLOWS:
 - DEPTH OVER THE TOP OF PIPE FROM TWO AND ONE-HALF (2.5) FEET UP TO FIVE (5) FEET - CL III
 - PIPE SHALL BE TESTED IN THE FACTORY AS SPECIFIED IN ASTM C-76. THE DISTRICT RESERVES THE RIGHT TO OBSERVE FACTORY TESTS.
 - JOINTS: RUBBER GASKETED JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION C443 CAPABLE OF WITHSTANDING A CONSTANT PRESSURE OF UP TO THE HEAD CLASS RATING OF THE PIPE. RUBBER GASKETS SHALL BE LUBRICATED WITH THE LUBRICANT RECOMMENDED AND SUPPLIED BY THE MANUFACTURER OF THE PIPE.
 - SHALLOW DEPTHS, LOADS, OR OTHER CONDITIONS THAT WOULD REQUIRE RGRCP STRONGER THAN CL V SHALL REQUIRE A PIPE DESIGN SUBMITTAL BY THE MANUFACTURER AND APPROVAL BY THE ENGINEER
- EXECUTION
 - HANDLING AND DISTRIBUTION OF MATERIALS:
 - DELIVERY: HANDLE PIPE CAREFULLY TO ENSURE DELIVERY AT THE PROJECT SITE IN SOUND, UNDAMAGED CONDITION. CONTRACTOR SHALL REPLACE DAMAGED PIPE AT NO ADDITIONAL EXPENSE TO THE OWNER.
 - STORAGE: DO NOT STORE MATERIALS DIRECTLY ON THE GROUND. ADEQUATELY SUPPORT PIPING TO PREVENT WARPING. USE PROTECTIVE COVERS WHERE PIPE MAY BE DAMAGED BY DIRECT SUNLIGHT.
 - BEFORE LAYING, PIPE SHALL BE INSPECTED FOR CRACKED, BROKEN, OR DEFECTIVE PIECES. SUCH PIECES SHALL BE REJECTED. PIPE SHALL BE CAREFULLY LOWERED INTO THE TRENCH TO PREVENT DAMAGE. ALL DIRT OR OTHER FOREIGN MATTER SHALL BE REMOVED FROM INSIDE THE PIPE BEFORE LOWERING INTO THE TRENCH.
 - DEFLECTION PIPE JOINTS MAY BE DEFLECTED BUT SHALL NOT BE DEFLECTED MORE THAN 75% OF THE MAXIMUM ALLOWABLE AS RECOMMENDED BY THE PIPE MANUFACTURER.
 - WHERE HORIZONTAL OR VERTICAL CURVES ARE SHOWN IN THE ALIGNMENT THAT CANNOT BE INSTALLED BY JOINT DEFLECTION OF STANDARD PIPE LENGTHS, THE CONTRACTOR MAY SELECT FROM THE FOLLOWING OPTIONS WITH PRIOR APPROVAL BY THE ENGINEER (NOTE: WITH ALL OF THE OPTIONS BELOW, THRUST BLOCKING OR THRUST RESTRAIN MAY BE REQUIRED):
 - USE SHORTER PIPE LENGTHS AND ALLOWABLE JOINT DEFLECTION AS SPECIFIED.
 - USE SPECIAL MITERED JOINTS.
 - USE STANDARD SPECIAL FABRICATED BENDS.
 - PLACING OF PIPE: ALL SURFACES AGAINST WHICH PIPE IS TO BE PLACED SHALL BE FREE FROM STANDING WATER, LOOSE EARTH, MUD, AND DEBRIS. WHERE THE BOTTOM OF THE TRENCH IS SOFT, WET, OR OTHERWISE UNSTABLE, IT SHALL BE EXCAVATED A MINIMUM OF ONE FOOT BELOW GRADE FOR THE FULL WIDTH OF THE TRENCH. WHEN THE BOTTOM OF THE TRENCH IS EXCAVATED BELOW GRADE, THE EXCAVATION BELOW GRADE SHALL BE REFILLED WITH SELECT MATERIAL APPROVED BY THE ENGINEER AND COMPACTED TO THE IN-PLACE DENSITY SHOWN ON THE PLANS. IMMEDIATELY BEFORE PLACING EACH SECTION OF THE PIPE, THE BOTTOM OF THE TRENCH OR PIPE BEDDING, OR BOTH, SHALL BE PREPARED TO PROVIDE UNIFORM BEARING ALONG THE FULL LENGTH OF THE PIPE EXCEPT AT BELL HOLES.
 - WHERE NECESSARY, A BELL HOLE SHALL BE EXCAVATED UNDER AND IMMEDIATELY IN FRONT OF THE LAST SECTION OF PIPE THAT HAS BEEN LAID. THE BELL HOLE SHALL PROVIDE A MINIMUM CLEARANCE BETWEEN THE PIPE BARREL OR COUPLING AND BOTTOM OF THE BELL HOLE OF THREE INCHES (3") BUT IN NO CASE SHALL THE BELL HOLES BE SMALLER THAN REQUIRED TO FACILITATE JOINING OR LAYING THE PIPE.
 - PIPE SHALL BE KEPT CLEAN AND FREE OF FOREIGN MATERIAL DURING LAYING OPERATIONS. THE PIPE JOINTS SHALL BE ASSEMBLED ACCORDING TO THE PIPE MANUFACTURER'S RECOMMENDATIONS. THESE DRAWINGS, AND AS DIRECTED BY THE ENGINEER, BUT REGARDLESS OF THE METHOD USED THE JOINTS SHALL BE WATERTIGHT.
 - THE CONTRACTOR SHALL COMPLY WITH CURRENT OSHA GUIDELINES FOR EXCAVATIONS AND CONSTRUCTION SAFETY ORDERS
 - EXCAVATED MATERIAL THAT IS UNSUITABLE, AS DETERMINED BY THE ENGINEER, SHALL BE SEGREGATED AND NOT USED FOR BACKFILLING.
 - THE CONTRACTOR SHALL PROVIDE TEMPORARY BRIDGING OVER PIPE TRENCHES WHERE IT IS NECESSARY TO PROVIDE CROSSINGS FOR WORKMAN AND EQUIPMENT OR ACCESS ROADS. WHERE THE SIDE WALLS OF THE TRENCH ARE UNSTABLE OR WHERE THE DEPTH OF THE TRENCH WILL PRESENT A SAFETY HAZARD TO WORKMEN, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING THAT HAS BEEN SUITABLE BRACED. THE SHEETING SHALL BE WITHDRAWN AS THE BACKFILL IS PLACED ABOVE THE PIPE. ANY VOIDS THAT RESULT FROM THE WITHDRAWN SHEETING SHALL BE BACKFILLED AND COMPACTED TO THE SAME DENSITY AS THE REMAINDER OF THE TRENCH.
 - BACKFILL: BACKFILL AND COMPACTION SHALL BE IN CONFORMANCE WITH THE EARTHWORK NOTES
 - RELATIVE COMPACTION SHALL CONFORM TO THE TRENCH SECTIONS FOR THE VARIOUS PIPE TYPES AS SHOWN ON THE PLANS.
 - JOINTS
 - PIPE SHALL BE ASSEMBLED AND JOINED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS FOR THE TYPE OF PIPE AND JOINT USED. WHERE MECHANICAL JOINTS ARE USED, THE PIPE SHALL BE MARKED IN SUCH A MANNER THAT IT CAN BE DETERMINED AFTER INSTALLATION THAT THE PIPE IS PROPERLY SEATED.
 - WHERE FLEXIBLE COUPLINGS ARE USED AS EXPANSION JOINTS, THE ENDS OF THE PIPES SHALL BE SEPARATED TO ALLOW FOR EXPANSION. COUPLINGS SHALL BE CENTERED ON PIPE ENDS. RUNS OF PIPE CONTAINING FLEXIBLE COUPLINGS SHALL BE PROPERLY BLOCKED, ANCHORED OR TIED TO THE STRUCTURE TO PREVENT JOINTS FROM PULLING APART.
 - MECHANICAL RESTRAINED JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH JOINT MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.

COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING...
Provost & Pritchard Engineering Group, Inc. expressly reserves the copyright and other applicable property rights in this drawing and all other documents prepared or created in its form or under its supervision for the use of the client. No part of this drawing may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Provost & Pritchard Engineering Group, Inc. The client shall hold the title of this drawing and all other documents prepared or created in its form or under its supervision for the use of the client. Provost & Pritchard Engineering Group, Inc. shall retain all other rights including the right to use any information contained herein for marketing and other purposes.

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
GENERAL
CONSTRUCTION NOTES

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2300
FAX: (209) 898-2300
www.provostandritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473

DRAFTED BY: LAJ, JMG
CHECKED BY: ACC

DATE: 08/02/2024
JOB NO: 105522007

PROJECT NO: 105522007
PHASE: PRE

0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET **G3**
3 OF 16

CAST-IN-PLACE CONCRETE NOTES

- 1. DEFECTIVE WORK
1.1. WORK CONSIDERED TO BE DEFECTIVE MAY BE ORDERED, BY THE ENGINEER, TO BE REPLACED IN WHICH CASE THE CONTRACTOR SHALL REMOVE AND REPLACE THE DEFECTIVE WORK AT HIS EXPENSE.
1.1.1. CONCRETE INCORRECTLY FORMED, OR NOT CONFORMING TO DETAILS AND DIMENSIONS ON THE PLANS OR WITH THE INTENT OF THESE DOCUMENTS, OR CONCRETE THE SURFACES OF WHICH ARE OUT OF PLUMB OR LEVEL.
1.1.2. CONCRETE IN WHICH DEFECTIVE OR INADEQUATE REINFORCING STEEL HAS BEEN PLACED
1.1.3. CONCRETE CONTAINING WOOD, CLOTH, OR OTHER FOREIGN MATTER, ROCK POCKETS, VOIDS, HONEYCOMBS, CRACKS OR COLD JOINTS NOT SCHEDULED OR INDICATED ON THE PLANS
1.1.4. CONCRETE BELOW SPECIFIED STRENGTH.
2. PRODUCTS
2.1. CONCRETE
2.1.1. CONCRETE SHALL CONFORM TO SECTION 90 OF THE STATE STANDARD SPECIFICATIONS. UNLESS OTHERWISE SHOWN OR SPECIFIED, ALL CONCRETE SHALL CONTAIN NOT LESS THAN 658 POUNDS OF PORTLAND CEMENT PER CUBIC YARD OF CONCRETE (6 SACK) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI
2.1.1.1. PORTLAND CEMENT SHALL BE TYPE II OR TYPE II, MODIFIED.
2.1.1.2. CONCRETE SHALL CONTAIN 4% ±1% ENTRAINED AIR.
2.1.1.3. WATER/CEMENT RATION SHALL NOT EXCEED 0.45 (BY WEIGHT)
2.1.1.4. SLUMP AT PLACEMENT SHALL BE 4 INCHES.
2.1.2. CONCRETE USED FOR THRUST BLOCKS SHALL CONTAIN NOT LESS THAN 517 POUNDS OF TYPE II PORTLAND CEMENT PER CUBIC YARD OF CONCRETE (5-1/2 SACK)
2.1.3. CONCRETE USED FOR PIPE ENCASEMENT SHALL CONTAIN NOT LESS THAN 517 POUNDS OF TYPE II PORTLAND CEMENT PER CUBIC YARD OF CONCRETE (5-1/2 SACK).
2.1.4. SLURRY CEMENT BACKFILL USED IN-LIEU OF COMPACTED SOIL SHALL CONTAIN NOT LESS THAN 282-POUNDS OF TYPE II PORTLAND CEMENT PER CUBIC YARD OF CONCRETE (3 SACK) AND SHALL COMPLY WITH SECTION 19 OF THE STATE STANDARD SPECIFICATIONS
2.2. AGGREGATE
2.2.1. AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. AGGREGATES SHALL BE FREE OF DIRT, CLAY BALLS, ROOTS, BARK AND OTHER DELETERIOUS SUBSTANCES AND SHALL BE THOROUGHLY WASHED BEFORE USE.
2.3. WATER
2.3.1. WATER SHALL BE CLEAN AND FREE FROM INJURIOUS AMOUNTS OF ACIDS, ALKALIS, SALTS, OILS, ORGANIC MATERIALS OR OTHER DELETERIOUS SUBSTANCES.
2.4. ADMIXTURES
2.4.1. AIR ENTRAINING: ASTM C260
2.4.2. WATER REDUCING: ASTM C494, TYPE A OR D
2.4.3. ACCELERATING: ASTM C494, TYPE C OR E
2.4.3.1. NO ADMIXTURE CONTAINING ANY CHLORIDE IONS IS ACCEPTABLE.
2.4.4. RETARDING: ASTM C494, TYPE B OR D
2.4.4.1. NO ADMIXTURE CONTAINING ANY CHLORIDE IONS IS ACCEPTABLE.
2.5. REINFORCING STEEL
2.5.1. REBAR SHALL BE ASTM DESIGNATION A615, GRADE 60.
2.5.2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185.
2.6. FORM MATERIALS
2.6.1. EXPOSED CONCRETE: PLYWOOD COMPLYING WITH U.S. PLYWOOD STANDARD PS-1 "BB (CONCRETE FORM) PLYWOOD" CLASS I, OR BETTER.
2.6.2. TEXTURED FINISH CONCRETE: UNITS OF FACE DESIGN, SIZE ARRANGEMENT AND CONFIGURATION TO MATCH CONTROL SAMPLE.
2.6.3. CYLINDRICAL COLUMNS AND SUPPORTS: METAL, FIBERGLASS OR WAXED PAPER TUBES OF SUFFICIENT WALL THICKNESS TO RESIST IMPOSED LOADS WITHOUT DEFORMATION.
2.6.4. FORM RELEASE AGENT SHALL LEAVE BEHIND A PAINTABLE CONCRETE SURFACE
2.6.4.1. RELEASE #1, THE BURKE CO., OR APPROVED EQUAL.
2.7. CURING MATERIALS
2.7.1. REINFORCED WATERPROOF PAPER
2.7.1.1. SISAL KRAFT, ORANGE LABEL, OR APPROVED EQUAL
2.7.2. LIQUID-MEMBRANE CURING COMPOUND
2.7.2.1. CURING COMPOUND SHALL COMPLY WITH ASTM C309, TYPE 2.
2.7.2.1.1. WHITE PIGMENTED MATERIAL
3. EXECUTION
3.1. REINFORCING STEEL
3.1.1. COMPLY WITH CRSI, "PLACING REINFORCING BARS" AND AS SPECIFIED HEREIN.
3.1.2. PLACE REINFORCING STEEL AND EMBEDDED ITEMS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS.
3.1.3. SPACING OF BARS SHALL BE BY LAPPING. LAPPED SPLICES SHALL BE 45 BAR DIAMETERS FOR BAR SIZE THROUGH #8 AND 60 BAR DIAMETERS FOR LARGER BARS, UNLESS OTHERWISE SHOWN ON THE PLANS.
3.1.4. SPLINGING OF THE WIRE FABRIC SHALL BE BY LAPPING. LAPPED SPLICES SHALL BE TWO FULL MESH, MINIMUM
3.1.5. ALL REBAR IN VERTICAL WALLS SHALL BE SUPPORTED BY CONCRETE BLOCK SPACERS OR METAL CHAIRS.
3.1.6. PRIOR TO PLACEMENT OF THE CONCRETE, REINFORCING STEEL SHALL BE CLEANED AND FREE OF ALL CONCRETE, DIRT, OIL, MILL SCALE, RUST OR OTHER COATINGS THAT WOULD REDUCE OR DESTROY THE BOND.
3.1.7. ALL REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO CONCRETE PLACEMENT.
3.2. FORMS
3.2.1. ALL FORMS SHALL BE BE CLEANED AND AN APPROVED AGENT APPLIED EACH TIME THEY ARE USED AND SHALL BE SO CONSTRUCTED AND SET AS TO RESIST, WITHOUT SPRINGING OR SETTLEMENT, THE PRESSURE OF THE CONCRETE AND THE PLACING OPERATIONS.
3.2.2. IN DESIGNING FORMS AND FALSEWORK, THE CONCRETE SHALL BE TREATED AS A LIQUID WEIGHING AT LEAST 150LBS. PER CUBIC FOOT FOR VERTICAL LOADS AND NOT LESS THAN 85 LBS. PER CUBIC FOOT FOR HORIZONTAL PRESSURE. THE DESIGN OF THE FORMS AND FALSEWORK SYSTEM SHALL INCLUDE ALLOWANCES FOR TEMPORARY CONSTRUCTION LOADS. THE RATE OF PLACEMENT OF CONCRETE SHALL BE SO REGULATED THAT THE PRESSURES CAUSED BY THE WET CONCRETE WILL NOT EXCEED THE DESIGNED FORM PRESSURE. THE UNSUPPORTED LENGTH OF WOODEN COLUMNS AND COMPRESSION MEMBERS SHALL NOT EXCEED 30 TIMES THE WIDTH OF THE LEAST SIDE.
3.2.3. ALL FORMS SHALL BE SET AND MAINTAINED IN TRUE ALIGNMENT, GRADE AND SECTION UNTIL THE CONCRETE HAS SUFFICIENTLY SET. THE INTERIOR SURFACES OF FORMS SHALL BE ADEQUATELY TREATED WITH AN ACCEPTABLE MATERIAL TO INSURE NON-ADHESION OF MORTAR. ALL FORMS SHALL BE MORTAR-TIGHT. WHEN FORMS APPEAR TO BE UNSATISFACTORY IN ANY WAY, CONCRETE PLACEMENT SHALL BE STOPPED UNTIL THE DEFECTS HAVE BEEN CORRECTED.
3.2.4. METAL TIE RODS OR ANCHORAGES WITHIN THE FORMS SHALL BE FITTED WITH SUITABLE CONES OR COMPARABLE DEVICES. METAL TIE RODS OR ANCHORAGES SHALL BE REMOVED TO A DEPTH OF 1" FROM THE SURFACE WITHOUT INJURY TO THE CONCRETE. ALL FITTINGS OF METAL TIES SHALL BE OF SUCH DESIGN THAT UPON THEIR REMOVAL, THE CAVITIES SHALL BE FILLED WITH CEMENT MORTAR AND THE SURFACE LEFT SOUND, SMOOTH AND EVEN.
3.2.5. FORM RELEASE AGENT SHALL BE APPLIED TO THE FORM SO THAT NO AGENT COMES IN CONTACT WITH REINFORCING STEEL.
3.3. PLACING
3.3.1. ALL CONCRETE SHALL BE PLACED BEFORE IT HAS TAKEN ITS INITIAL SET AND SHALL BE PLACED IN HORIZONTAL LAYERS AND IN SUCH A MANNER AS TO AVOID SEGREGATION. THE CONCRETE ADJACENT TO THE FORMS AND JOINTS SHALL BE THOROUGHLY INTERNAL CONSOLIDATED WITH A VIBRATOR OPERATING AT NOT LESS THAN 4,500 VIBRATION PER MINUTE.
3.3.1.1. PUMPING EQUIPMENT SHALL BE OF SUITABLE TYPE, WITHOUT Y-SECTIONS, AND WITH ADEQUATE PUMPING CAPACITY.
3.3.1.2. LOSS OF SLUMP IN PUMPING SHOULD NOT EXCEED 1-1/2"
3.3.2. THE CONCRETE SHALL BE DEPOSITED AS NEARLY AS POSSIBLE IN ITS FINAL POSITION. DROP CHUTES AND ELEPHANT TRUNKS SHALL BE USED ON DROPS GREATER THAN 5 FEET. CONCRETE SHALL BE PLACED AT SUCH A RATE THAT ALL CONCRETE IN THE SAME LIFT WILL BE DEPOSITED ON PLASTIC CONCRETE. THE CONCRETE COMPRISING EACH UNIT OF WORK SHALL BE PLACED IN A CONTINUOUS LIFT.
3.3.3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS (1 WORKING DAY) PRIOR TO CONCRETE PLACEMENT.
3.3.3.1. THE FORM WORK AND REINFORCING STEEL PLACEMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO ORDERING CONCRETE
3.3.4. FORM REMOVAL. MINIMUM TIMES FOR REMOVAL AFTER CONCRETE PLACEMENT ARE AS FOLLOWS:
3.3.4.1. BEAM SIDES BUT NOT SHORING 3 DAYS
3.3.4.2. COLUMN FORMS AND WALL FORMS 2 DAYS
3.3.4.3. FORMS FOR SUPPORTED SLABS BUT NOT SHORING 14 DAYS

CAST-IN-PLACE CONCRETE NOTES CONT.

- 3.4. CURING
3.4.1. EXPOSED CONCRETE SURFACES SHALL BE PROTECTED FROM PREMATURE DRYING BY COVERING AS SOON AS POSSIBLE WITH CANVAS, PLASTIC SHEETS WITH SEALED JOINTS, BURLAP, SAND OR OTHER SATISFACTORY MATERIALS AND KEPT CONTINUOUSLY MOIST; OR, IF THE SURFACES ARE NOT COVERED, THEY SHALL BE KEPT CONTINUOUSLY MOIST BY FLUSHING OR SPRINKLING
3.4.1.1. CURING SHALL CONTINUE FOR A PERIOD OF NOT LESS THAN 7 DAYS AFTER PLACING THE CONCRETE. IF CURING COMPOUND IS USED, TWO (2) APPLICATIONS WILL BE MADE FOR EVEN COVERAGE. CURING METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
3.5. FINISHING
3.5.1. DEFECTIVE AND HONEYCOMBED SURFACES SHALL BE CHIPPED BACK TO SUCH A DEPTH TO EXPOSE SOLID CONCRETE. THE SURFACE SHALL BE DAMPENED AND COATED WITH A BONDING AGENT AND PACKED WITH MORTAR
3.5.2. CONCRETE FINISHES FOR VERTICAL SURFACES:
3.5.2.1. FORM FACING MATERIAL SHALL PRODUCE A SMOOTH, HARD, UNIFORM TEXTURE
3.5.2.2. AT A MINIMUM, REPAIR THE FOLLOWING SURFACE DEFECTS:
3.5.2.2.1. TILE HOLES
3.5.2.2.2. HONEYCOMBS DEEPER THAN 1/4-INCH
3.5.2.2.3. AIR POCKETS DEEPER THAN 1/4-INCH
3.5.2.2.4. ROCK HOLES DEEPER THAN 1/4-INCH
3.5.2.2.5. SCABBING
3.5.3. CHIP OR RUB OFF FINIS EXCEEDING 1/8-INCH IN HEIGHT
3.5.4. PROVIDE CLASS 1 FINISH FOR:
3.5.4.1. WALLS BEING WATER PROOFED, PAINTED, COATED WITH SOME OTHER MATERIAL
3.5.4.2. ALL EXPOSED SURFACES NOT SPECIFIED TO RECEIVE ANOTHER FINISH.
3.5.5. CONCRETE FINISHES FOR HORIZONTAL SLAB SURFACES:
3.5.5.1. TAMP CONCRETE TO FORCE COARSE AGGREGATE DOWN FROM SURFACE. SCREED WITH STRAIGHTEDGE, ELIMINATE HIGH AND LOW PLACES, BRING SURFACE TO REQUIRED FINISH ELEVATIONS; SLOPE UNIFORMLY TO DRAINS. DUSTING OF SURFACE WITH DRY CEMENT OR SAND DURING FINISHING PROCESSES NOT PERMITTED
3.5.5.2. SLAB FINISH SHALL BE AS FOLLOWS:
3.5.5.2.1. SURFACES INTENDED TO RECEIVE DAMP PROOFING OR WATER PROOFING MEMBRANES: FLOAT FINISH
3.5.5.2.2. FLOORS INTENDED TO RECEIVE FLOOR COVERINGS AND MCC ROOMS: TROWEL FINISH
3.5.5.2.3. SIDEWALKS, GARAGE FLOORS, DRIVE-THROUGHS AND RAMPS: BROOM FINISH
3.5.5.2.4. EXTERIOR SLABS, PLATFORMS, STEPS AND LANDINGS, EXTERIOR AND INTERIOR PEDESTRIAN RAMPS AND INTERIOR STAIRS AND ALL PROCESS EQUIPMENT AREAS, NOT COVERED BY OTHER FINISH MATERIALS: BROOM FINISH.
3.5.5.3. DEVIATION IN FINISH SURFACE SHALL NOT EXCEED 1/4-INCH IN 10FT
3.5.6. NO TOLERANCE WILL BE ALLOWED THAT WILL RESULT IN THE MAXIMUM RUNNING OR CROSS, SLOPE EXCEEDING THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT.
3.6. TESTING
3.6.1. TESTING OF CONCRETE SHALL BE AS REQUIRED BY THE ENGINEER AND IN ACCORDANCE WITH ACI 301, CHAPTER 16.
3.7. WATERTIGHTNESS OF CONCRETE WORK
3.7.1. IT IS THE INTENT OF THIS SPECIFICATION TO OBTAIN CONCRETE AND GROUT WITH HOMOGENOUS STRUCTURE, WHICH WHEN HARDENED WILL HAVE THE REQUIRED STRENGTH, IS WATERTIGHT, AND RESISTANT TO WEATHERING.
GROUT NOTES
1. INCLUDED WORK
1.1. EPOXY GROUTING OF ANCHOR BOLTS AND REINFORCING BARS TO BE INSTALLED IN HARDENED CONCRETE.
1.2. ADHESIVE BONDING OF FRESH CONCRETE TO EXISTING HARDENED CONCRETE SURFACES.
1.3. STRUCTURE AND EQUIPMENT LEVELING PADS
2. APPROVED PRODUCTS
2.1. NONSHRINKING GROUT
2.1.1. L&M CHEMICAL "CRYSTEX", GIFFORD-HILL "SUPREME", MASTER BUILDERS "MASTERFLOW 713 GROUT", SAUERISEN CEMENTS F-100 LEVEL FILL GROUT", U.S. GROUT "FIVE STAR GROUT", UPCCO "UPCON HIGH FLOW" OR "UPCON SUPER FLOW", OR EQUAL
2.2. EPOXY GROUT
2.2.1. ADHESIVE MOISTURE INSENSITIVE
2.2.1.1. FOR FLOORS AND HORIZONTAL SURFACES
2.2.1.1.1. ADHESIVE ENGINEERING "CONCRETE 1539", RESCON "CONCRETE BONDER R616", OR EQUAL
2.2.1.2. FOR VERTICAL WALLS OR OVERHEAD APPLICATIONS, NON-SAGGING CONSISTENCY
2.2.1.2.1. ADHESIVE ENGINEERING "CONCRETE 1440" RESCON "CONCRETE BONDER R616" OR EQUAL
2.2.3. AGGREGATE
2.2.3.1. AS RECOMMENDED BY THE EPOXY GROUT MANUFACTURER.
2.2.3.2. EPOXY BONDING ADHESIVE
2.2.2.1. SIKADUR 32, HI-MOD MASTER BUILDERS CONCRETE STANDARD LIQUID OR EQUAL.
2.2.3. WATER
2.2.3.1. CLEAN AND FREE FROM DELETERIOUS SUBSTANCES
2.3. PRODUCT NOTES
2.3.1. NON-SHRINKING GROUT SHALL BE FURNISHED FACTORY PREMIXED, SO ONLY WATER IS ADDED AT JOBSITE. GROUT SHALL BE MIXED IN A MECHANICAL MIXER. NO MORE WATER SHALL BE USED THAN IS NECESSARY TO PRODUCE A FLOWABLE GROUT. CURED GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI.
2.3.2. EPOXY GROUT SHALL CONSIST OF A TWO COMPONENT LIQUID EPOXY ADHESIVE OF APPROPRIATE VISCOSITY FOR THE POSITION AND LOCATION AND AN INERT AGGREGATE FILLER COMPONENT. COMPONENTS SHALL BE PACKAGED SEPARATELY AT THE FACTORY AND FIELD MIXED. ALL PROPORTIONING AND MIXING OF THE COMPONENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CURED GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI.
3. PREPARATION
3.1. THE CONCRETE SURFACE TO RECEIVE NON-SHRINKING GROUT SHALL BE SATURATED WITH WATER FOR 24 HOURS PRIOR TO GROUTING.
3.2. WHERE INDICATED ON THE DRAWINGS, DOWELS SHALL BE EPOXY GROUTED IN HOLES DRILLED INTO HARDENED CONCRETE. HOLE DIAMETER SHALL BE AS RECOMMENDED BY THE MANUFACTURER. THE EMBEDMENT DEPTH FOR EPOXY GROUTED DOWELS SHALL BE AS INDICATED ON THE PLANS.
3.3. HOLES SHALL BE PREPARED FOR GROUTING AS RECOMMENDED BY THE GROUT MANUFACTURER
3.4. THE EXISTING CONCRETE SURFACE TO RECEIVE FRESH CONCRETE SHALL BE CLEAN AND SOUND. THE EXISTING SURFACE MAY BE DRY OR DAMP, BUT FREE OF STANDING WATER, FREE OF DUST, LAITANCE, GREASE, AIRING COMPOUNDS, AND DISINTEGRATED MATERIALS. THE EXISTING CONCRETE SURFACE AND REBAR SHALL BE SAND BLASTED OR CLEANED BY APPROVED MECHANICAL METHODS.
4. INSTALLATION
4.1. NON-SHRINKING GROUT
4.1.1. PLACEMENT - UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE PLANS, THE THICKNESS OF GROUT SHALL BE 1-1/2-INCHES. GROUT SHALL BE PLACED IN STRICT ACCORDANCE WITH THE DIRECTIONS OF THE MANUFACTURER.
4.1.2. EDGE FINISHING - THE GROUT SHALL BE FINISHED SMOOTH IN ALL LOCATIONS WHERE THE EDGE OF THE GROUT WITH BE EXPOSED TO VIEW AFTER IT HAS REACHED ITS INITIAL SET. EXCEPT WHERE INDICATED TO BE FINISHED ON A SLOPE, THE EDGES OF GROUT SHALL BE CUT OFF FLUSH AT THE BASE PLATE, BEDPLATE, MEMBER, OR PIECE OF EQUIPMENT.
4.1.3. CURING - NON-SHRINKING GROUT SHALL BE PROTECTED AGAINST RAPID LOSS OF MOISTURE BY COVERING WITH WET RAGS OR POLYETHYLENE SHEETS. AFTER EDGE FINISHING IS COMPLETE, THE GROUT SHALL BE WET CURED FOR AT LEAST 7 DAYS
4.1.4. EPOXY GROUT - DOWELS SHALL BE CLEAN, DRY, AND FREE OF GREASE AND OTHER FOREIGN MATTER AT TIME OF INSTALLATION. THE BARS SHALL BE SET AND POSITIONED AND THE EPOXY GROUT SHALL BE PLACED AND FINISHED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT ALL SPACES AND CAVITIES ARE FILLED WITH EPOXY GROUT, WITHOUT VOIDS.
4.2. EPOXY BONDING ADHESIVE: PRE-MIX EACH COMPONENT AS SPECIFIED BY MANUFACTURER. MIX ONLY THAT QUANTITY THAT CAN BE APPLIED WITHIN ITS POT LIFE. APPLY AS SPECIFIED BY MANUFACTURER.

CONCRETE ACCESSORIES NOTES

- 1. SUBMITTALS
1.1. PRODUCT DATA
1.1.1. WATERSTOPS AND PREFORMED EXPANSION JOINT MATERIAL: SUFFICIENT INFORMATION ON EACH TYPE OF MATERIAL FOR REVIEW TO DETERMINE CONFORMANCE OF MATERIAL TO REQUIREMENTS SPECIFIED.
1.2. PROVIDE MATERIAL CERTIFICATES, SHOP FABRICATION AND PLACEMENT DRAWINGS, AND SCHEDULE.
1.3. PROVIDE SAMPLES OF EACH PRODUCT TO BE SUPPLIED UNDER THIS SECTION.
1.4. LABORATORY TEST REPORTS: INDICATING THAT AVERAGE PROPERTIES OF MATERIAL AND FINISH CONFORM TO REQUIREMENTS SPECIFIED IN THIS SECTION.
1.5. MANUFACTURER'S INSTALLATION INSTRUCTIONS: FOR ALL MATERIALS SPECIFIED UNDER THIS SECTION
1.6. WRITTEN CERTIFICATES THAT WATERSTOPS AND PREFORMED EXPANSION JOINT MATERIAL SUPPLIED MEET OR EXCEED PHYSICAL PROPERTY REQUIREMENTS OF THIS SECTION
2. QUALITY ASSURANCE
2.1. DEMONSTRATE ABILITY TO WELD ACCEPTABLE JOINTS IN POLYVINYL CHLORIDE WATERSTOP BEFORE INSTALLATION OF WATERSTOP BEGINS.
2.2. FIELD JOINTS
2.2.1. POLYVINYL CHLORIDE WATERSTOP FIELD JOINTS: SHALL BE FREE OF MISALIGNMENT, BUBBLES, INADEQUATE BOND, POROSITY, CRACKS, OFFSETS AND OTHER DEFECTS WHICH WOULD REDUCE THE POTENTIAL RESISTANCE OF THE MATERIAL TO WATER PRESSURE AT ANY POINT. REPLACE DEFECTIVE JOINTS. REMOVE FAULTY MATERIAL FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE.
2.3. INSPECTIONS
2.3.1. QUALITY OF WELDED JOINTS WILL BE SUBJECT TO ACCEPTANCE OF THE ENGINEER.
2.3.2. POLYVINYL CHLORIDE WATERSTOP: THE FOLLOWING DEFECTS THAT REPRESENT A PARTIAL LIST THAT WILL BE GROUNDS FOR REJECTION:
2.3.2.1. ANY COMBINATION OF OFFSET TO CRACK WHICH WILL RESULT IN A NET REDUCTION IN THE CROSS SECTION OF THE WATERSTOP IN EXCESS OF 1/16-INCH OR 15 PERCENT OF THE MATERIAL THICKNESS, AT ANY POINT, WHICHEVER IS LESS.
2.3.2.2. MISALIGNMENT OF THE JOINT, WHICH WILL RESULT IN MISALIGNMENT OF THE WATERSTOP IN EXCESS OF 1/2-INCH IN 10 FEET.
2.3.2.3. POROSITY IN THE WELDED JOINT AS EVIDENCED BY VISUAL INSPECTION.
2.3.2.4. BUBBLES OR INADEQUATE BONDING.
3. PRODUCTS
3.1. WATERSTOPS
3.1.1. POLYVINYL CHLORIDE WATER STOPS:
3.1.1.1. ONE OF THE FOLLOWING OR ENGINEER APPROVED EQUIVALENT:
3.1.1.1.1. VITULIN CORPORATION, KWICK-TIE
3.1.1.1.2. GREENSTREAK PLASTIC PRODUCTS COMPANY, INC.
3.1.1.2. TYPE: RIBBED WATERSTOP, UNLESS OTHERWISE SPECIFIED. JOINTS SHALL BE CONSTRUCTED AS FOLLOWS
3.1.1.2.1. CONSTRUCTION JOINTS: RIBBED TYPE WIDTH TO BE 7-INCHES UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE PLANS, WITHOUT CENTER BULB.
3.1.1.2.2. EXPANSION JOINTS (FOR CANAL LINING): RIBBED TYPE, WIDTH TO BE 7-INCHES UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE PLANS, WITH HOLLOW CENTER BULB.
3.1.2. HYDROPHILIC WATERSTOP
3.1.2.1. ONE OF THE FOLLOWING OR ENGINEER APPROVED EQUIVALENT:
3.1.2.1.1. CETCO, AKWASTOP
3.1.2.1.2. GREENSTREAK PLASTIC PRODUCTS COMPANY, INC., HYDROTITE
3.1.3. BENTONITE STRIP WATERSTOP
3.1.3.1. ONE OF THE FOLLOWING OR ENGINEER APPROVED EQUIVALENT:
3.1.3.1.1. CETCO, WATERSTOP, RX
3.2. PREFORMED EXPANSION JOINT MATERIALS:
3.2.1. PREFORMED SYNTHETIC SPONGE RUBBER EXPANSION JOINT MATERIAL:
3.2.1.1. MANUFACTURERS: ONE OF THE FOLLOWING OR ENGINEER APPROVED EQUIVALENT:
3.2.1.1.1. TARMSTECH, INC., CEMENTONE.
3.2.1.1.2. BURKE CONCRETE ACCESSORIES INC., NEOPRENE SPONGE RUBBER EXPANSION JOINT.
3.2.2. PREFORMED BITUMINOUS FIBER EXPANSION JOINT MATERIAL:
3.2.2.1. CONFORM TO ASTM D994071, PREFORMED BITUMINOUS TYPE, 1/2-INCH THICK
3.2.2.2. ONE OF THE FOLLOWING OR ENGINEER APPROVED EQUIVALENT:
3.2.2.2.1. TARMSTECH, INC., HORNBOARD/FIBER.
3.2.2.2.2. BURKE CONCRETE ACCESSORIES INC., FIBER EXPANSION JOINT.
4. INSTALLATION
4.1. WATERSTOPS - GENERAL
4.1.1. WATERSTOPS SHALL BE STORED SO AS TO PERMIT FREE CIRCULATION OF AIR AROUND THE WATER STOP MATERIAL AND TO PREVENT DIRECT EXPOSURE TO SUNLIGHT.
4.1.2. INSTALL WATERSTOPS IN CONCRETE JOINTS WHERE INDICATED ON THE DRAWINGS.
4.1.3. CARRY WATERSTOPS IN WALLS INTO LOWER SLABS AND JOIN TO WATERSTOPS IN SLABS WITH APPROPRIATE TYPES OF FITTINGS.
4.1.4. IN WATER BEARING STRUCTURES; PROVIDE ALL JOINTS WITH WATERSTOPS, WHETHER INDICATED ON THE DRAWINGS OR NOT.
4.1.5. PROVIDE WATERSTOPS THAT ARE CONTINUOUS.
4.1.6. SET WATERSTOPS ACCURATELY TO POSITION AND LINE AS INDICATED ON THE DRAWINGS.
4.1.7. HOLD AND SECURELY FIX EDGES IN POSITION AT INTERVALS OF NOT MORE THAN 24-INCHES SO THAT THEY DO NOT MOVE DURING PLACING OF CONCRETE.
4.1.8. POSITION THE WATERSTOP SO THAT THE CENTER AXIS OF THE WATERSTOP SHALL BE COINCIDENT WITH THE CENTERLINE OF THE JOINT.
4.1.9. DO NOT DRIVE NAILS, SCREWS OR OTHER FASTENERS THROUGH WATERSTOPS IN VICINITY OF CONSTRUCTION JOINTS
4.1.10. SECURE WATERSTOP AGAINST MOVEMENT AT NOT MORE THAN 24-INCHES ON CENTERS.
4.1.11. TERMINATE WATER STOPS 3-INCHES FROM TOP OF FINISH SURFACES OF WALLS AND SLABS UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS.
4.1.12. WHEN ANY WATERSTOP IS INSTALLED IN THE CONCRETE ON ONE SIDE OF A JOINT, WHILE THE OTHER HALF OR PORTION OF THE WATERSTOP REMAINS EXPOSED TO THE ATMOSPHERE FOR MORE THAN TWO DAYS, SUITABLE PRECAUTIONS SHALL BE TAKEN TO SHADE AND PROTECT THE EXPOSED WATERSTOP FROM DIRECT RAYS OF SUNLIGHT DURING THE ENTIRE EXPOSURE AND UNTIL THE EXPOSED PORTION IS EMBEDDED IN CONCRETE.
4.1.13. USE SPECIFIED TYPE IN APPLICATIONS AS INDICATED ON THE DRAWINGS.
4.1.14. NO SCRAP OR RECYCLED MATERIAL SHALL BE USED.
4.2. POLYVINYL CHLORIDE WATERSTOPS:
4.2.1. INSTALL WATERSTOPS SO THAT JOINTS ARE WATERTIGHT.
4.2.2. WELD JOINTS SUCH AS UNIONS, CROSSES, ELLS, AND TEES, WITH THERMOSTATICALLY CONTROLLED EQUIPMENT RECOMMENDED BY WATERSTOP MANUFACTURER.
4.2.2.1. THE MATERIAL SHALL NOT BE DAMAGED BY HEAT SEALING.
4.2.2.2. MAKE JOINTS BY OVERLAPPING THEN SIMULTANEOUSLY CUT THE ENDS OF THE SECTIONS TO BE SPLICED SO THEY WILL FORM A SMOOTH EVEN JOINT.
4.2.2.3. THE CONTINUITY OF THE WATERSTOP RIBS AND TUBULAR CENTER AXIS SHALL BE MAINTAINED.
4.2.2.4. THE SPLICES SHALL HAVE A TENSILE STRENGTH OF NOT LESS THAN 60 PERCENT OF THE UNSPLICED MATERIALS TENSILE STRENGTH.
4.2.3. BUTT JOINTS OF THE ENDS OF TWO IDENTICAL WATERSTOP SECTIONS MAY BE MADE WHILE THE MATERIAL IS IN THE FORMS.
4.2.4. ALL JOINTS WITH WATERSTOPS INVOLVING MORE THAN TWO ENDS TO BE JOINED TOGETHER, AND ALL JOINTS THAT INVOLVE AN ANGLE CUT, ALIGNMENT CHANGE, OR THE JOINING OF TWO DISSIMILAR WATERSTOP SECTIONS SHALL BE PREFABRICATED PRIOR TO PLACEMENT IN THE FORMS, PROVIDING NOT LESS THAN 24-INCH LONG STRIPS OF WATERSTOP MATERIAL BEYOND THE JOINT.
4.2.5. VERTICAL CROSSES AND TEES SHALL BE PREFABRICATED BY THE MANUFACTURER. HORIZONTAL CROSSES OR TEES MAY BE FIELD OR FACTOR WELDED.
4.2.6. SPLIT TYPE WATERSTOP WILL NOT BE PERMITTED EXCEPT WHERE SPECIFICALLY INDICATED ON THE PLANS.
4.3. PREFORMED EXPANSION JOINT MATERIAL:
4.3.1. FASTEN EXPANSION JOINT STRIPS TO CONCRETE, MASONRY, OR FORMS WITH ADHESIVE. NO NAILING WILL BE PERMITTED, NOR SHALL EXPANSION JOINT STRIPS BE PLACED WITHOUT FASTENING.
4.4. JOINTS
4.4.1. INSTALL CONSTRUCTION, AND EXPANSION JOINTS AS INDICATED ON THE PLANS.

COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING... 100% DESIGN FOR BIDDING PURPOSES ONLY 08/02/2024

PROVOST & PRITCHARD ENGINEERING logo and registration information, including 'REGISTERED PROFESSIONAL ENGINEER' and 'ED CAMINATA' details.

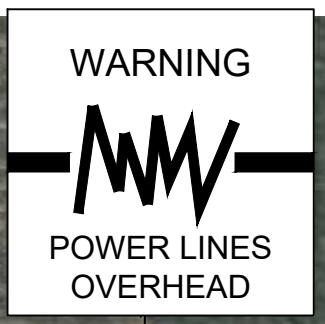
LATERAL X-W CONNECTION SOUTH SAN JOAQUIN IRRIGATION DISTRICT SAN JOAQUIN COUNTY GENERAL CONSTRUCTION NOTES

DESIGN ENGINEER: ED CAMINATA LICENSE NO: 88473

DRAFTED BY: LAJ, JMG CHECKED BY: ACC DATE: 08/02/2024 JOB NO: 105522007 PROJECT NO: 105522007

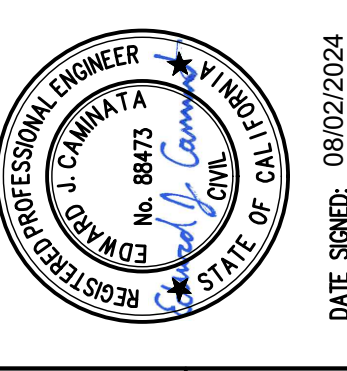
PHASE: PRE ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS. SHEET G4 4 OF 16

8/2/2024 12:24 PM G:\South San Joaquin ID-1055105522007-WX-Interim300 CAD\340 Sheet Set\01_General\G4 CONSTRUCTION NOTES.dwg - Jessica Laine



COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING
 THE CITY OF PROVOST & PRITCHARD ENGINEERING
 reserves its common law copyright and other applicable property
 or could be in any form or medium whatsoever, or any part thereof,
 assigned to a third party without first obtaining the written permission
 of the City of Provo & Pritchard Engineering Group, Inc. Any
 party shall hold the City of Provo & Pritchard Engineering Group,
 Engineering Group, Inc. & legal fees associated with defending and
 enforcing these rights.

**100% DESIGN
 FOR BIDDING PURPOSES ONLY
 08/02/2024**



**LATERAL X-W CONNECTION
 SOUTH SAN JOAQUIN IRRIGATION DISTRICT
 SAN JOAQUIN COUNTY
 DEMOLITION PLANS
 DEMOLITION SHEET INDEX**

PROVOST & PRITCHARD
 4701 SISK ROAD, SUITE 102
 MODESTO, CALIFORNIA 95356
 TEL: (209) 529-2200
 FAX: (209) 529-2200
 www.provostandpritchard.com

DESIGN ENGINEER:
 ED CAMINATA
 LICENSE NO:
 88473

DRAFTED BY:
 LAJ, JMG

CHECKED BY:
 ACC

DATE: 08/02/2024

JOB NO: 105522007

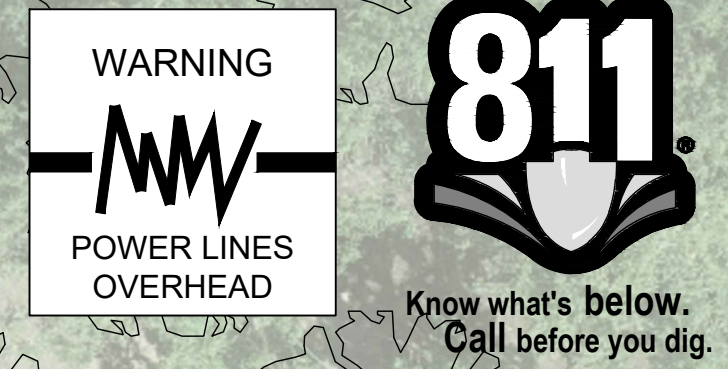
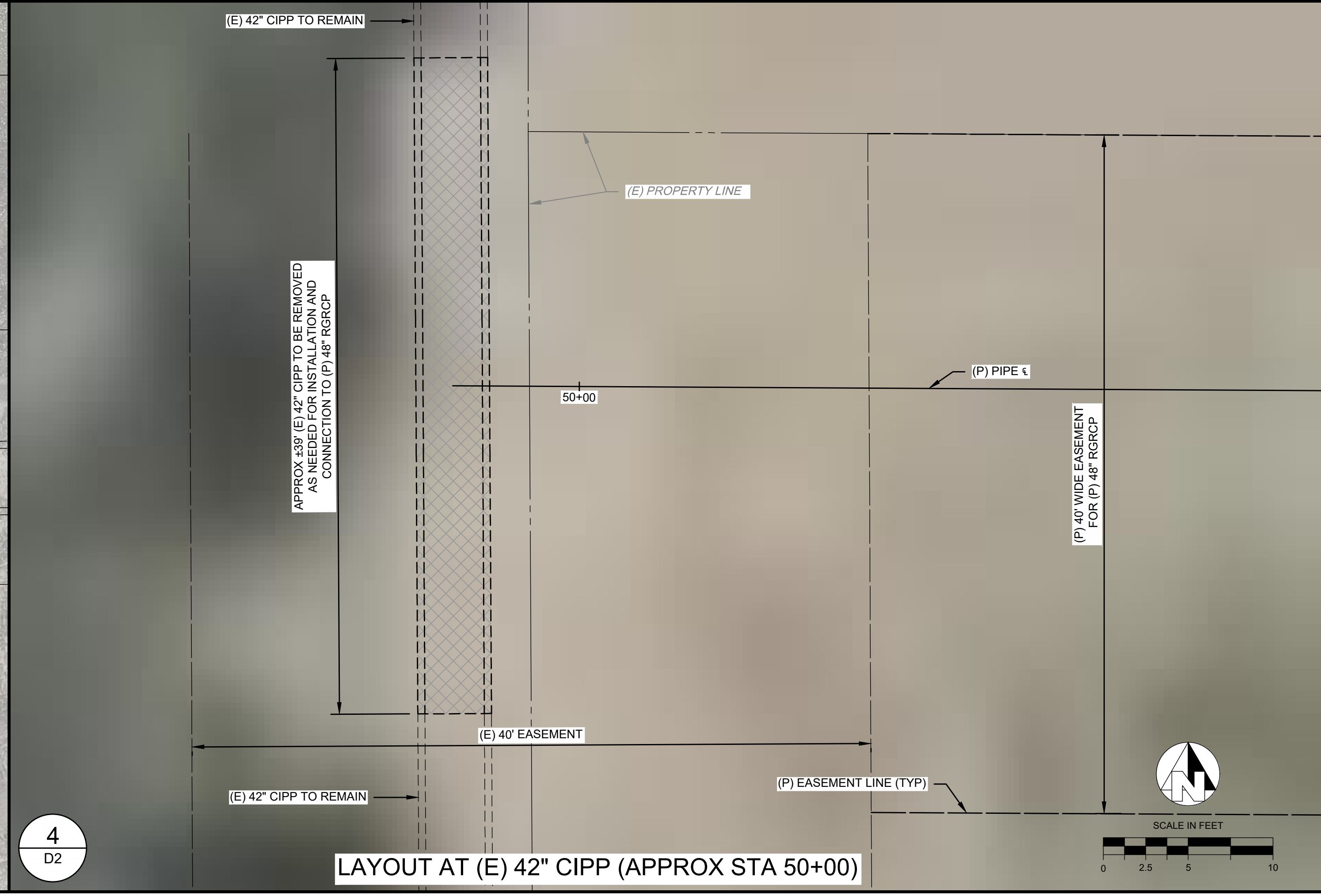
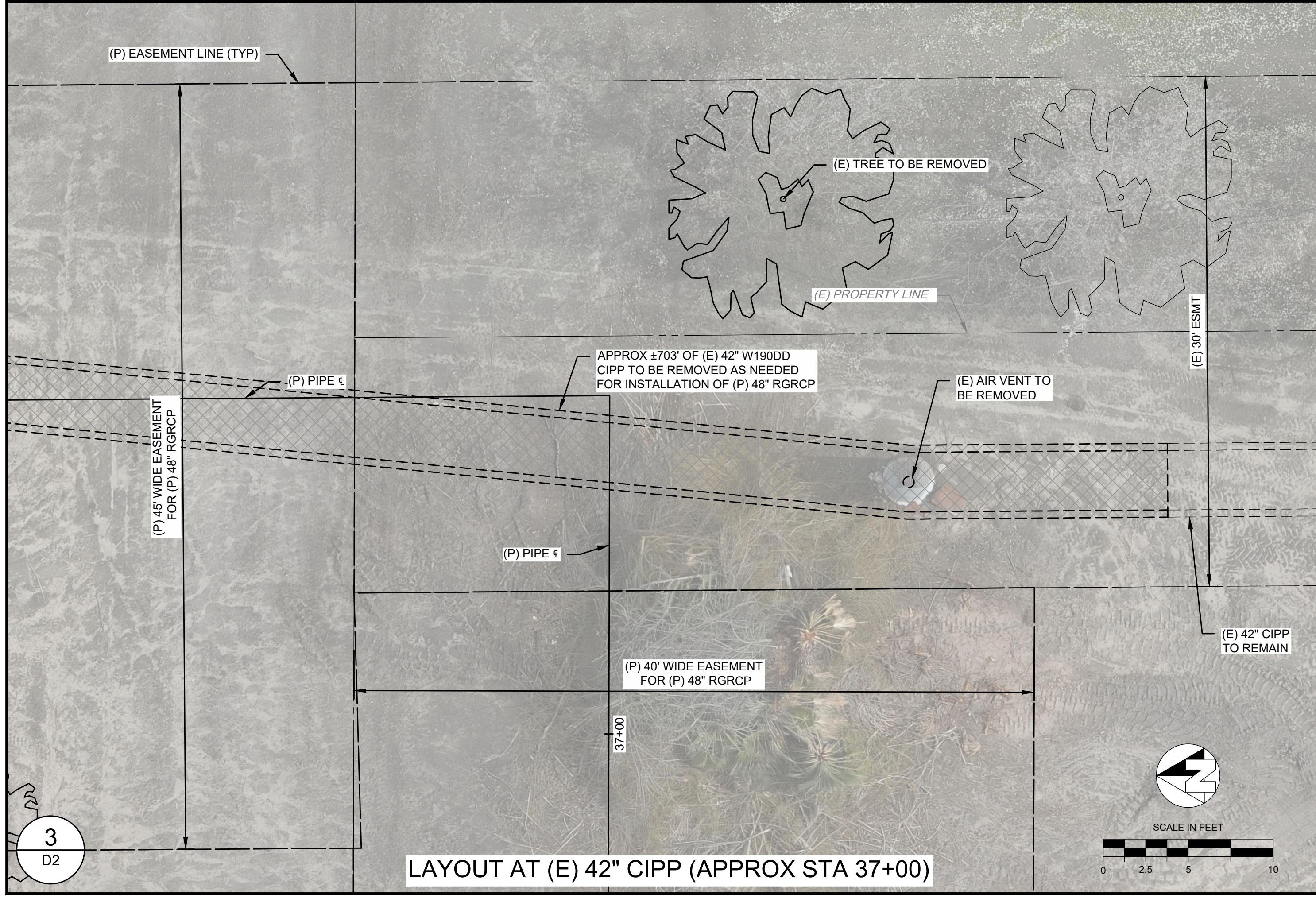
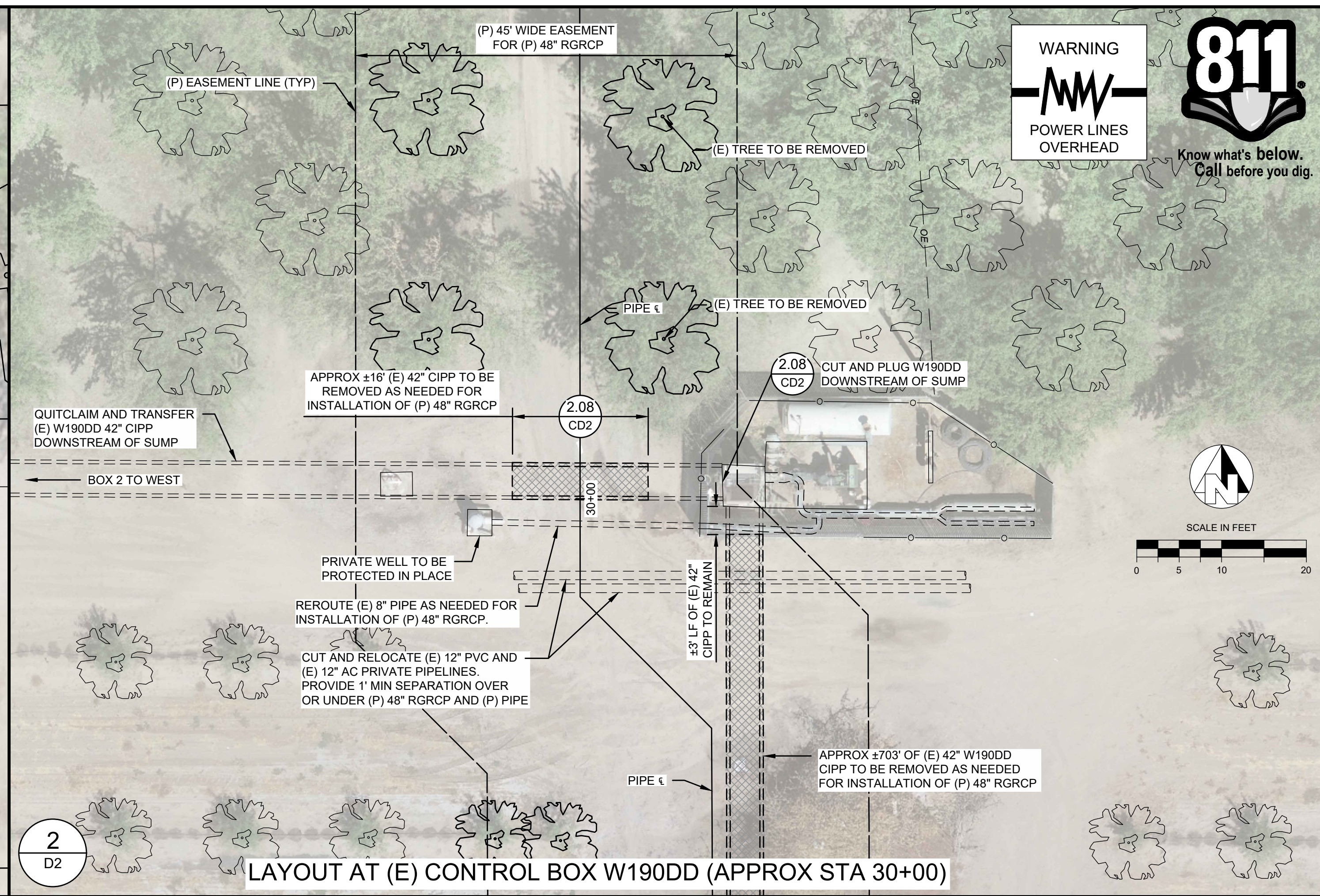
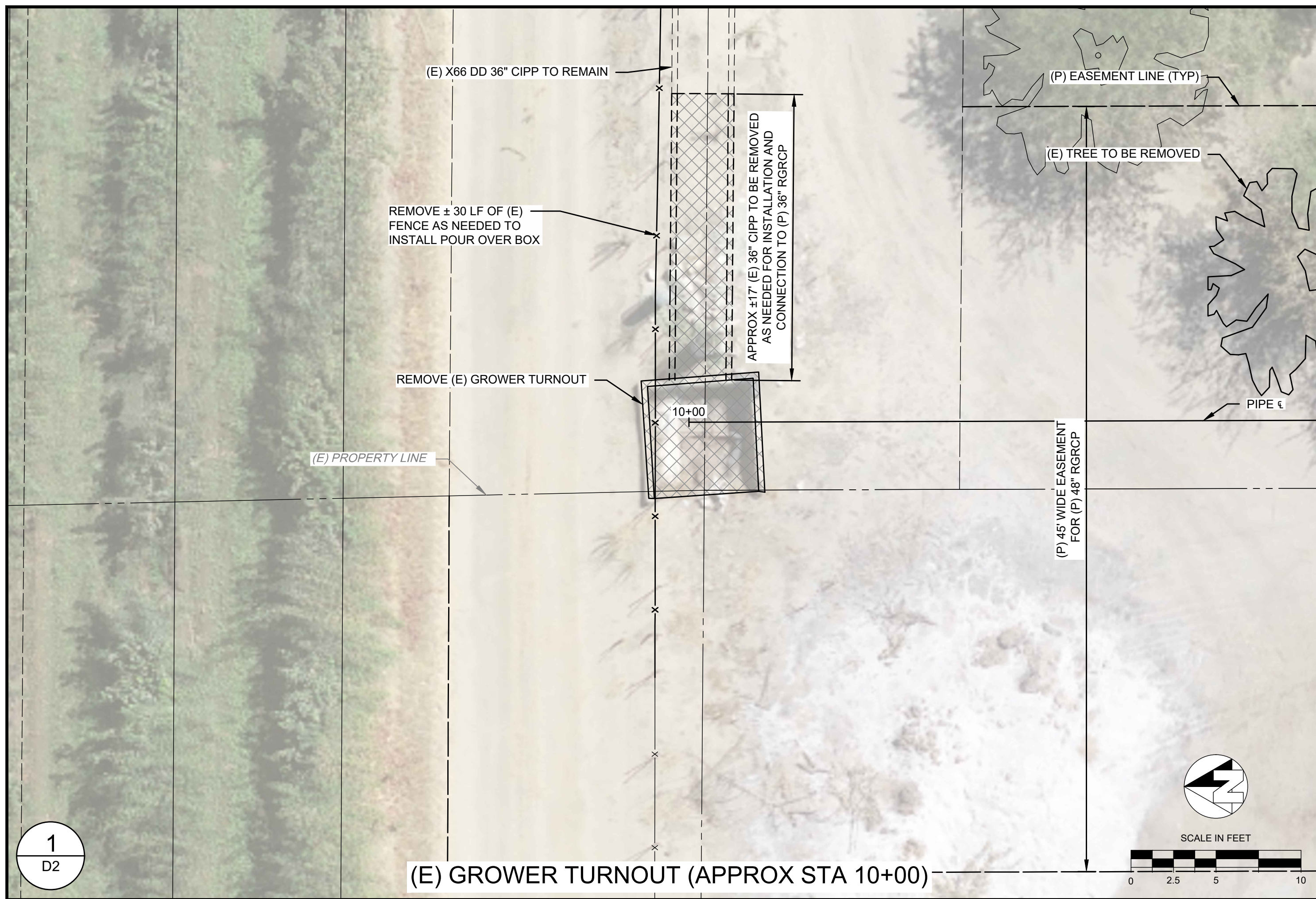
PROJECT NO: 105522007

PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE
 INCH, ADJUST SCALE FOR
 REDUCED OR ENLARGED PLANS.

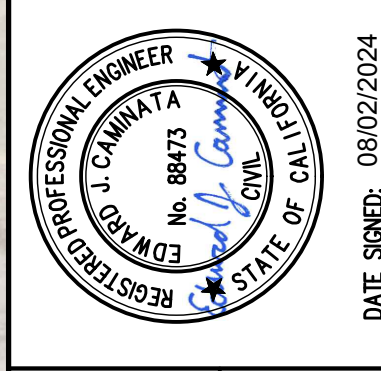
SHEET **D1**
 5 OF 16

8/2/2024 12:24 PM G:\South San Joaquin ID-1055105522007-WX\Inlets\300 CAD\340 Sheet Set\02_Plans_Maps\01 DEMOLITION SHEET INDEX.dwg -Jessica Louie



COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS PLAN IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. THE USER OF THIS PLAN SHALL HOLD THE FIRM OF PROVOST & PRITCHARD ENGINEERING, INC. AND ITS ENGINEERS AND SURVEYORS HARMLESS FROM AND AGAINST ALL SUCH CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS PLAN.

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
DEMOLITION SITE PLANS

PROVOST & PRITCHARD
4701 SISKIYOU ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 528-2900
FAX: (209) 528-2900
www.provostandritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473

DRAFTED BY:
LAJ, JMG

CHECKED BY:
ACC

DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007

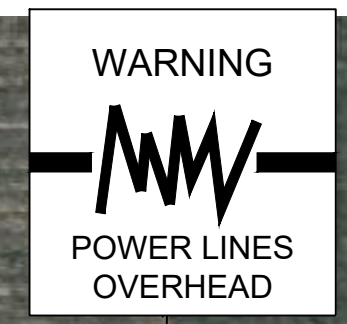
PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET
D2

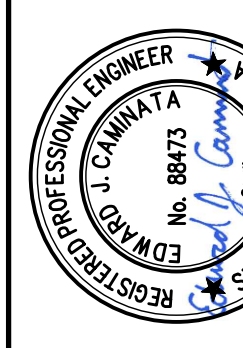
6 OF 16

DATE SIGNED: 08/02/2024
BY: [Signature]
REVISION: [Table]
NO. [Table]
DATE [Table]



EASEMENT TABLE		
APN	ADDITIONAL O&M EASEMENT	QUIT CLAIM EASEMENT
226-120-100	334 SF	
226-120-190	29,983 SF	
226-120-200	28,713 SF	
226-120-260	58,982 SF	
226-130-340	51,653 SF	53,561 SF

100% DESIGN
FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
CIVIL - PLAN & PROFILE

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2300
FAX: (209) 898-2300
www.provostandritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473

DRAFTED BY: LAJ, JMG CHECKED BY: ACC

DATE: 08/02/2024

JOB NO: 105522007

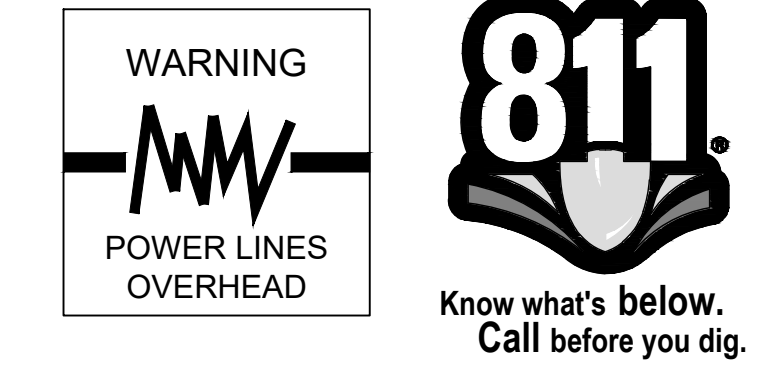
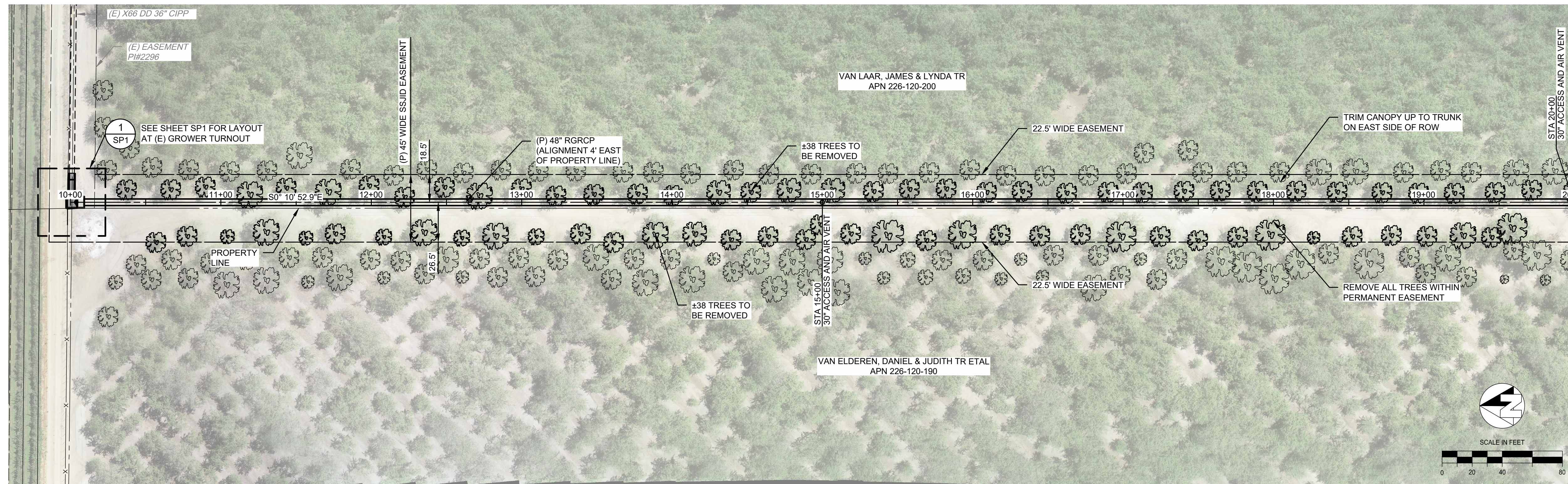
PROJECT NO: 105522007

PHASE: PRE

0" = 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET **C1**

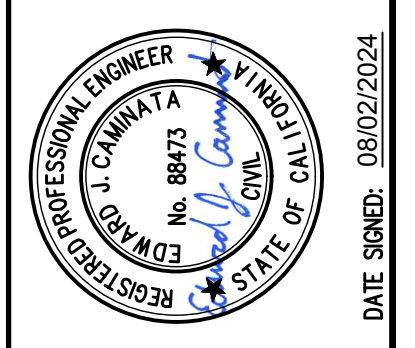
7 OF 16



- NOTES**
1. RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 2. PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 3. PIPELINE SHALL BE ASTM C-76 CL III RUBBER GASKETED REINFORCED CONCRETE PIPE.
 4. WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.

COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS PLAN IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. ANY UNAUTHORIZED USE OF THIS PLAN IS STRICTLY PROHIBITED. PROVOST & PRITCHARD ENGINEERING, INC. IS A REGISTERED PROFESSIONAL ENGINEERING FIRM IN THE STATE OF CALIFORNIA. LICENSE NO. 88473. REGISTERED PROFESSIONAL ENGINEER ED CAMINATA. DATE: 08/02/2024

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024

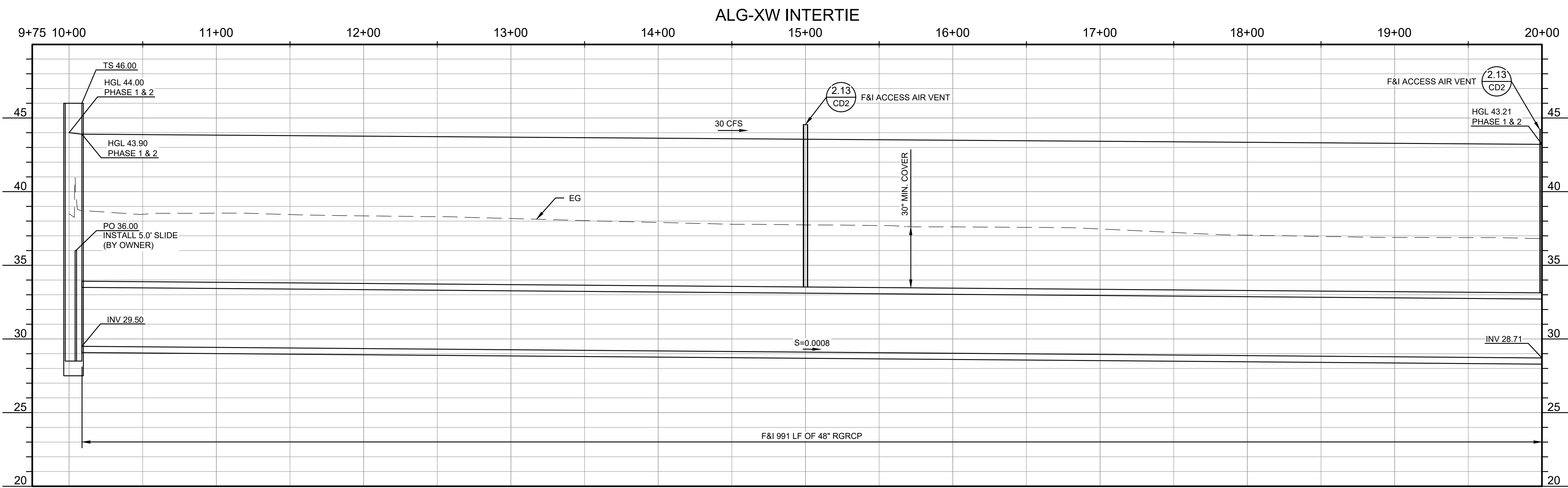


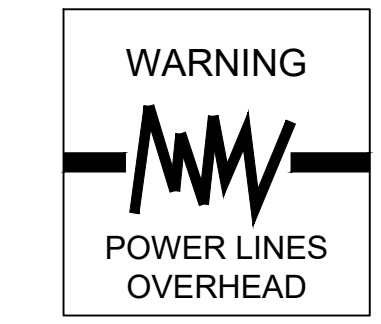
LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
CIVIL - PLAN & PROFILE
STA 10+00-20+00

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 569-2900
FAX: (209) 569-2900
www.provostandritchard.com

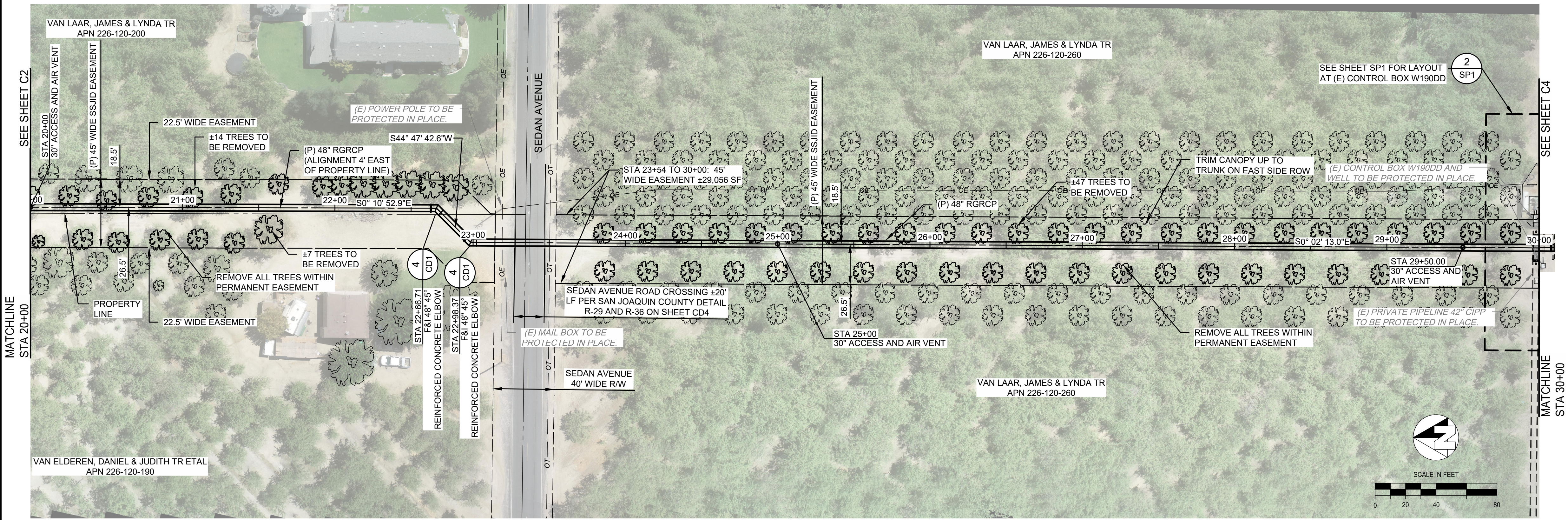
DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473
DRAFTED BY:
LAJ, JMG
CHECKED BY:
ACC
DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET **C2**
8 OF 16



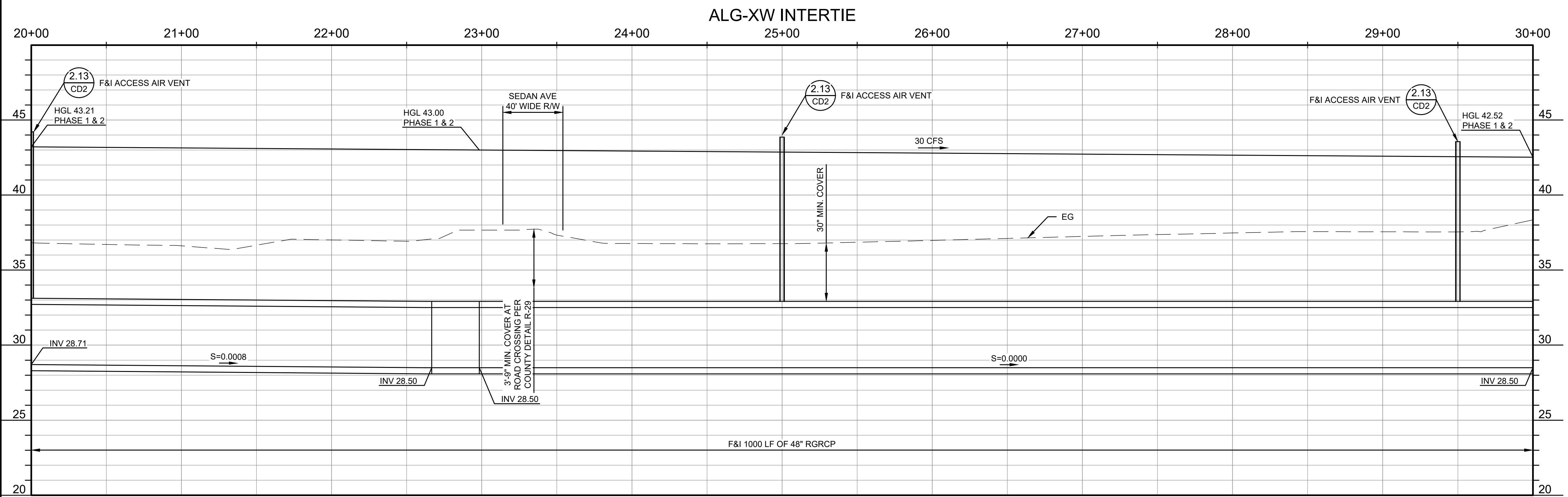
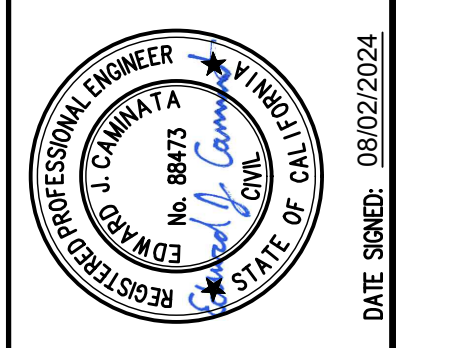


COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS PLAN IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC., NO PART OF THIS PLAN MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE USER OF THIS PLAN SHALL HOLD THE FIRM OF PROVOST & PRITCHARD ENGINEERING, INC. AND ITS ASSOCIATES AND SUBSIDIARIES HARMLESS FROM AND AGAINST ALL SUCH CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS PLAN.



- NOTES**
1. RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 2. PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 3. PIPELINE SHALL BE ASTM C-76 CL III RUBBER GASKETED REINFORCED CONCRETE PIPE.
 4. WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
CIVIL - PLAN & PROFILE
STA 20+00-30+00

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2900
FAX: (209) 898-2900
www.provostandpritchard.com

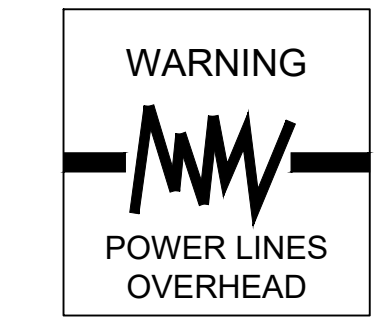
DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473

DRAFTED BY:
LAJ, JMG

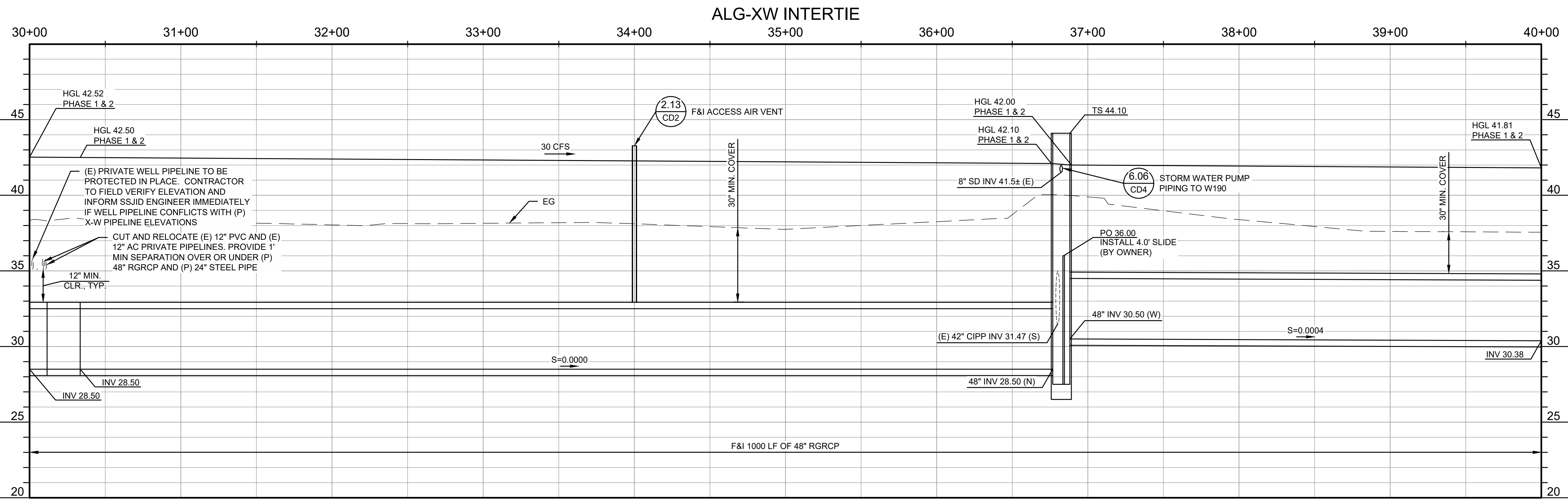
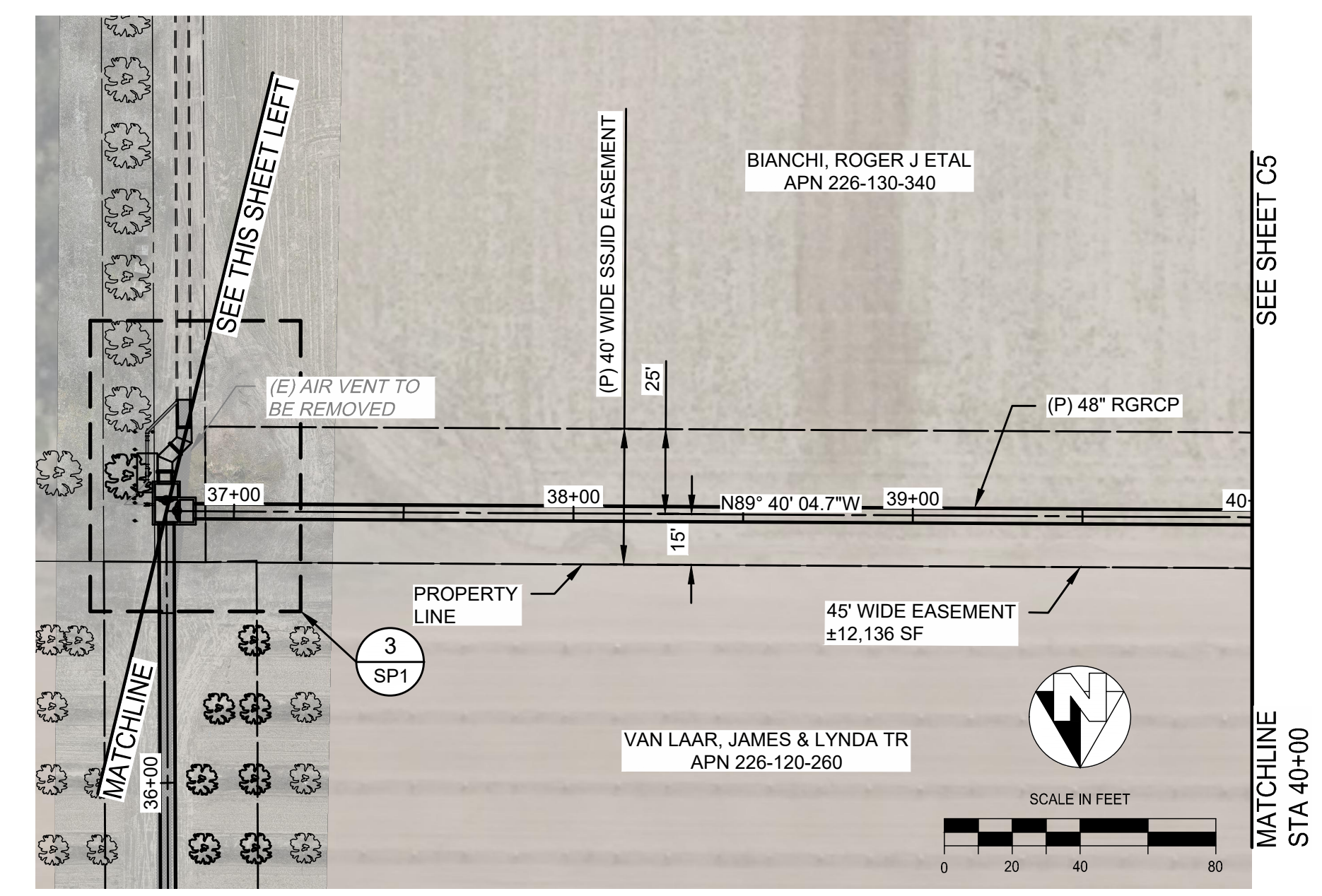
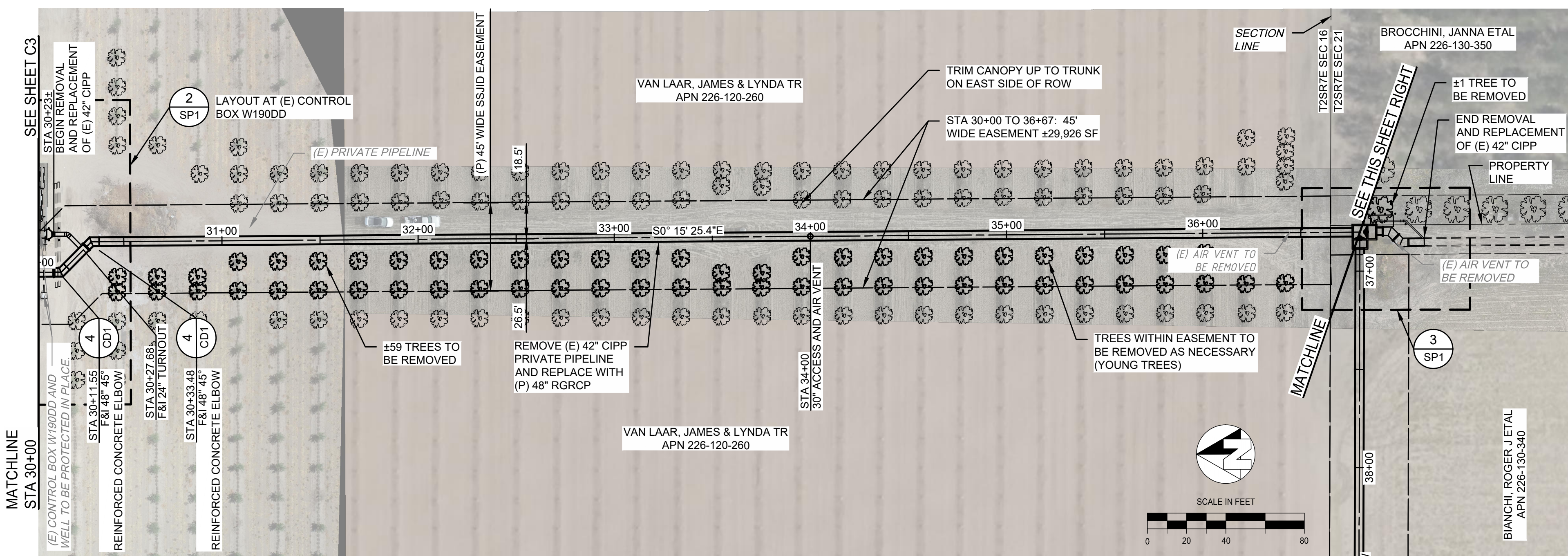
CHECKED BY:
ACC

DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: PRE

0 1" = 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET **C3**
9 OF 16

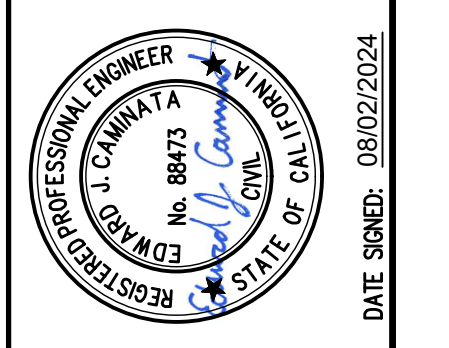


COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS DRAWING IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. THE USER OF THIS DRAWING SHALL HOLD THE FIRM OF PROVOST & PRITCHARD ENGINEERING, INC. AND ITS ASSOCIATES, ENGINEERS, ARCHITECTS, AND SURVEYORS, HARMLESS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS DRAWING.



- NOTES**
1. RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 2. PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 3. PIPELINE SHALL BE ASTM C-76 CL III RUBBER GASKETED REINFORCED CONCRETE PIPE.
 4. WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.

100% DESIGN
FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
CIVIL - PLAN & PROFILE
STA 30+00-40+00

PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 569-2900
FAX: (209) 569-2900
www.provostandpritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473

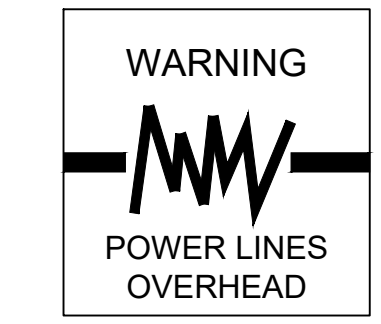
DRAFTED BY: LAJ, JMG
CHECKED BY: ACC

DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007

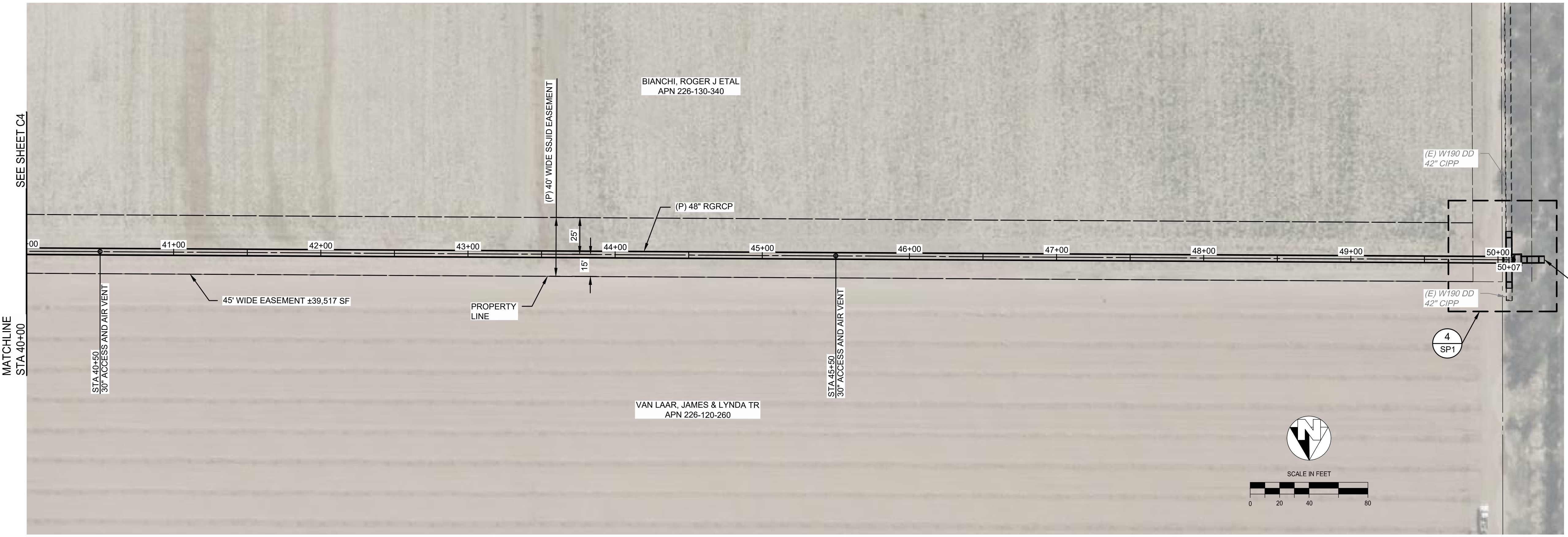
PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

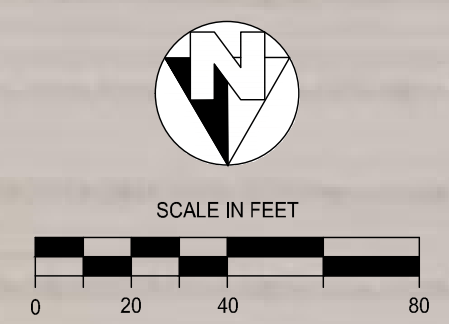
SHEET **C4**
10 OF 16



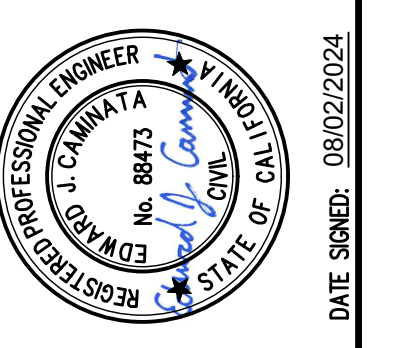
COPYRIGHT 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS PLAN IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. ANY UNAUTHORIZED REPRODUCTION OR USE OF THIS PLAN SHALL BE THE RESPONSIBILITY OF THE USER. PROVOST & PRITCHARD ENGINEERING, INC. IS A REGISTERED PROFESSIONAL ENGINEERING FIRM IN THE STATE OF CALIFORNIA. LICENSE NO. 88473. WEBSITE: WWW.PROVOSTANDPRITCHARD.COM



- NOTES**
- RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 - PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 - PIPELINE SHALL BE ASTM C-76 CL III RUBBER GASKETED REINFORCED CONCRETE PIPE.
 - WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.



100% DESIGN
FOR BIDDING PURPOSES ONLY
08/02/2024



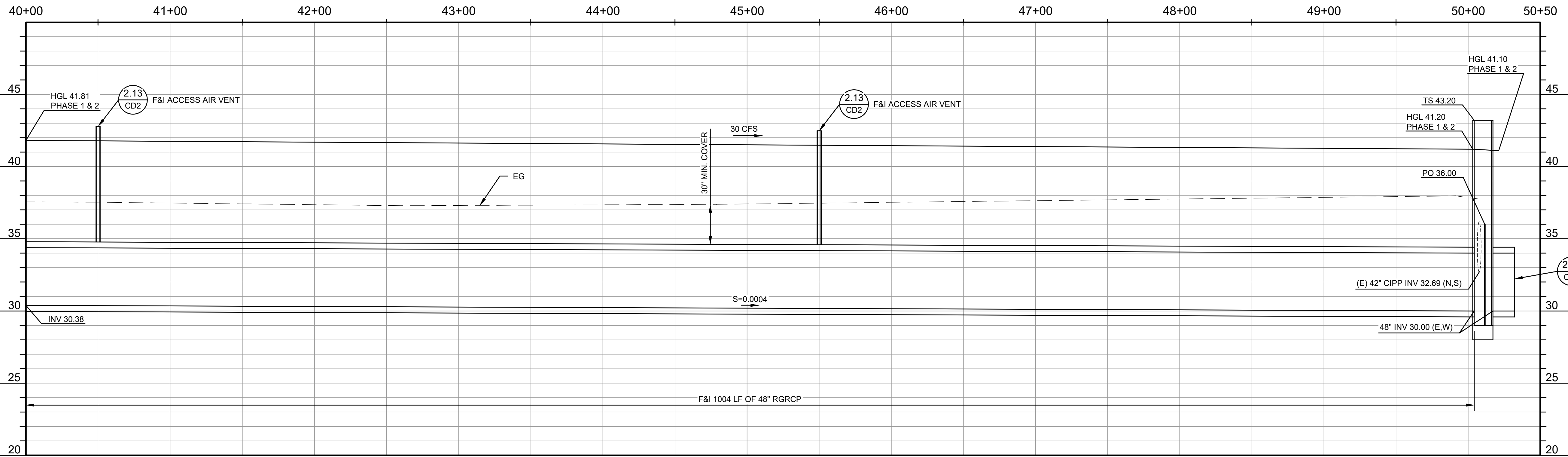
LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
CIVIL - PLAN & PROFILE
STA 40+00-END

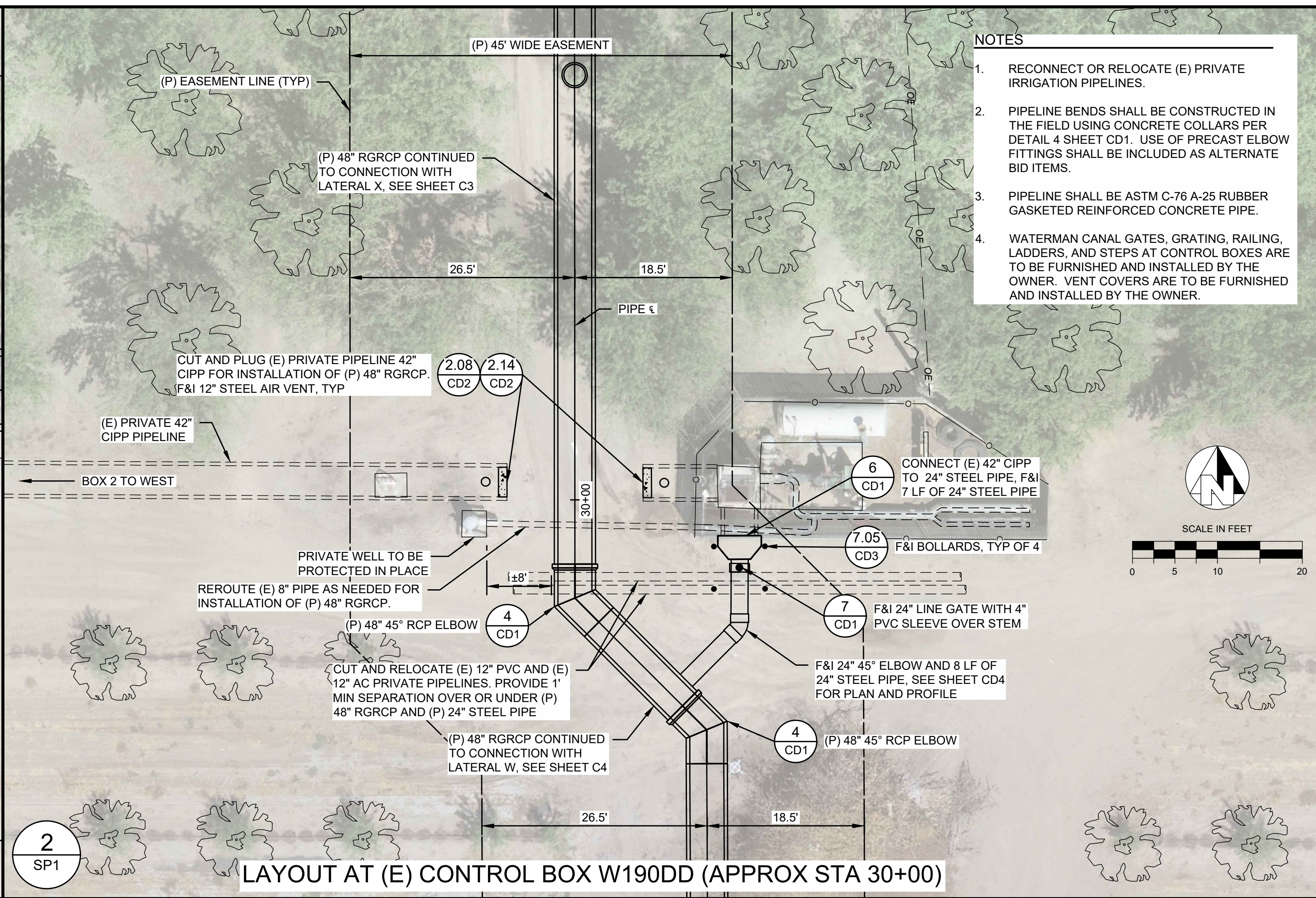
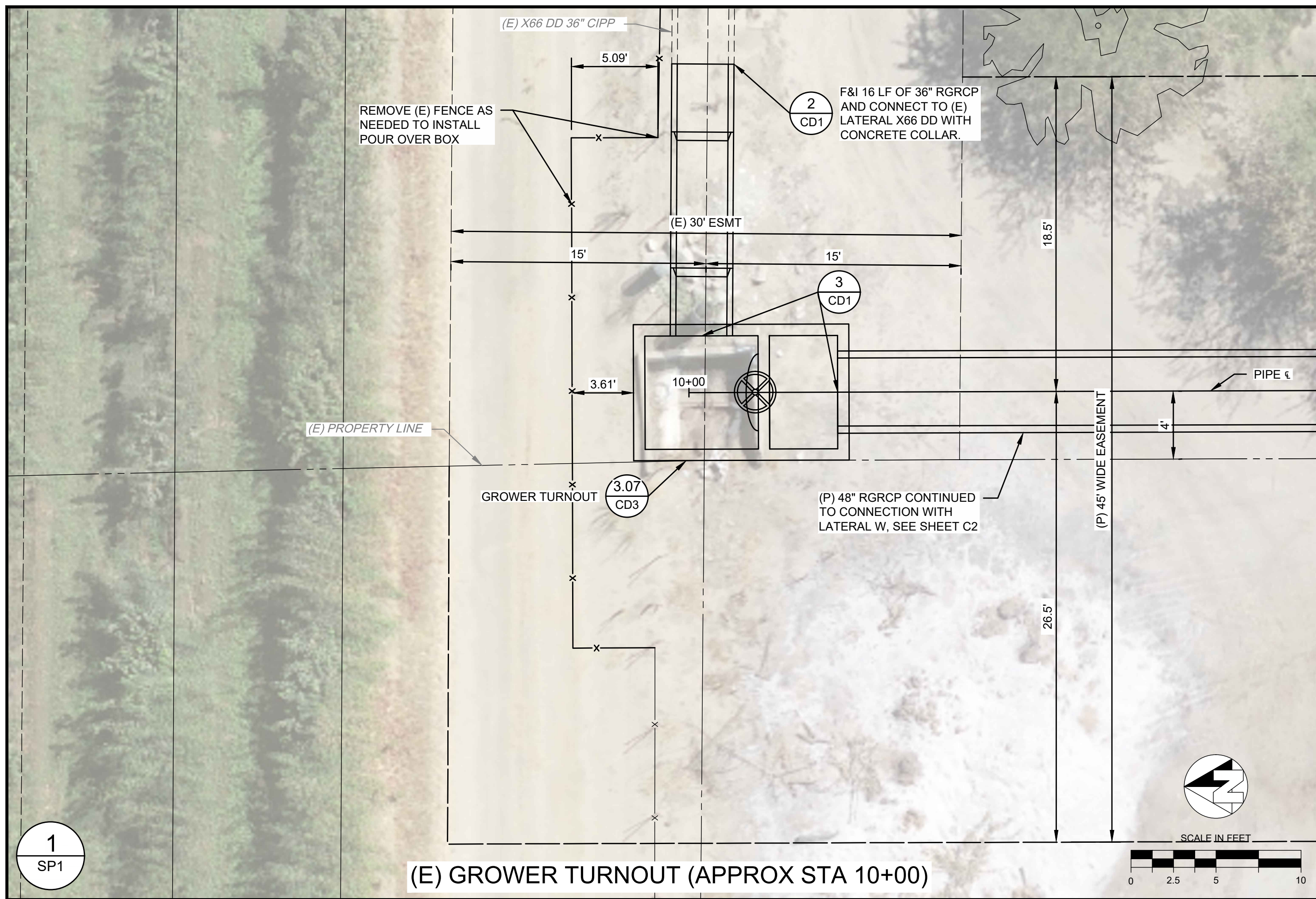
PROVOST & PRITCHARD
4701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2900
FAX: (209) 898-2900
www.provostandpritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO:
88473
DRAFTED BY:
LAJ, JMG
CHECKED BY:
ACC
DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: PRE

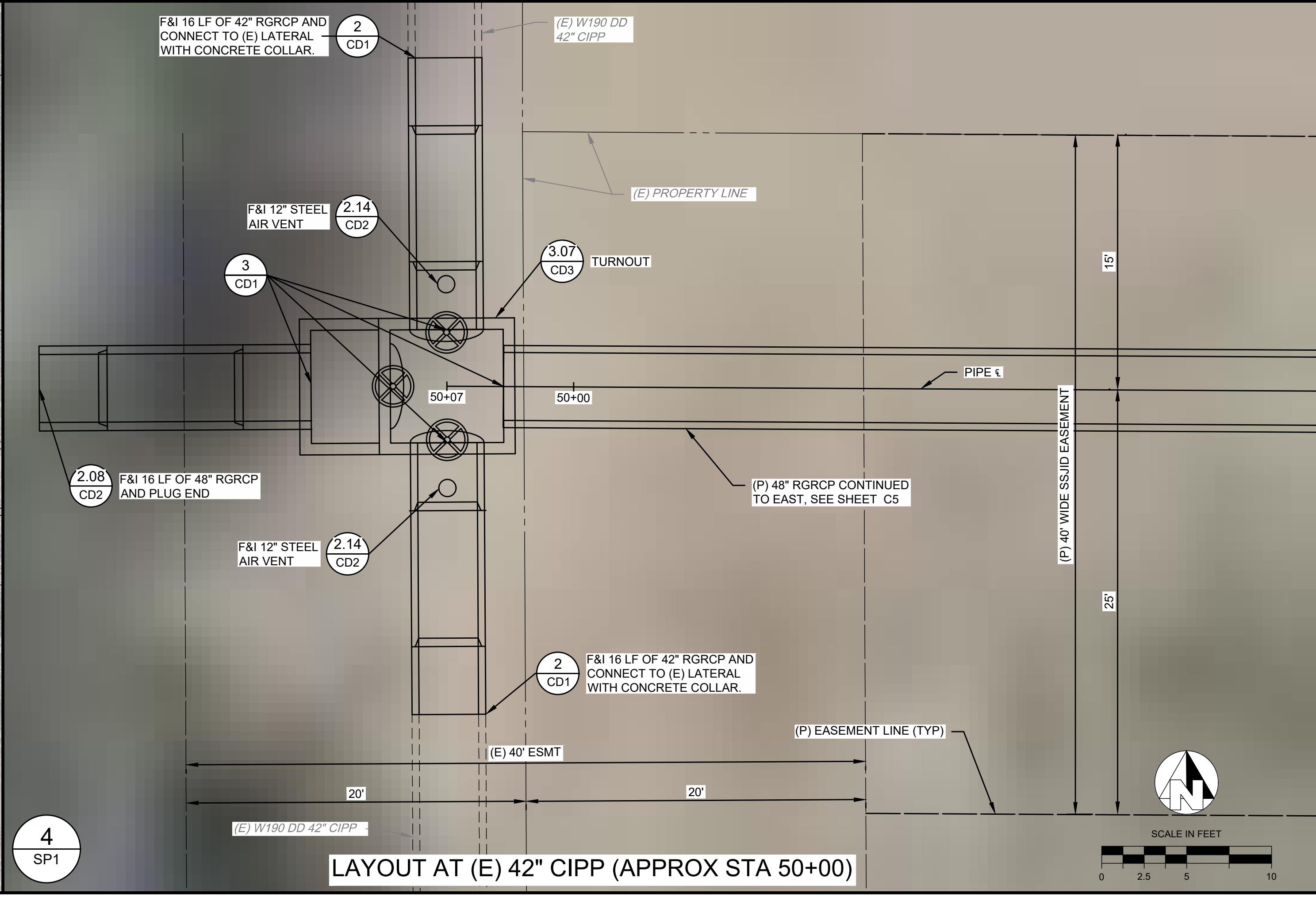
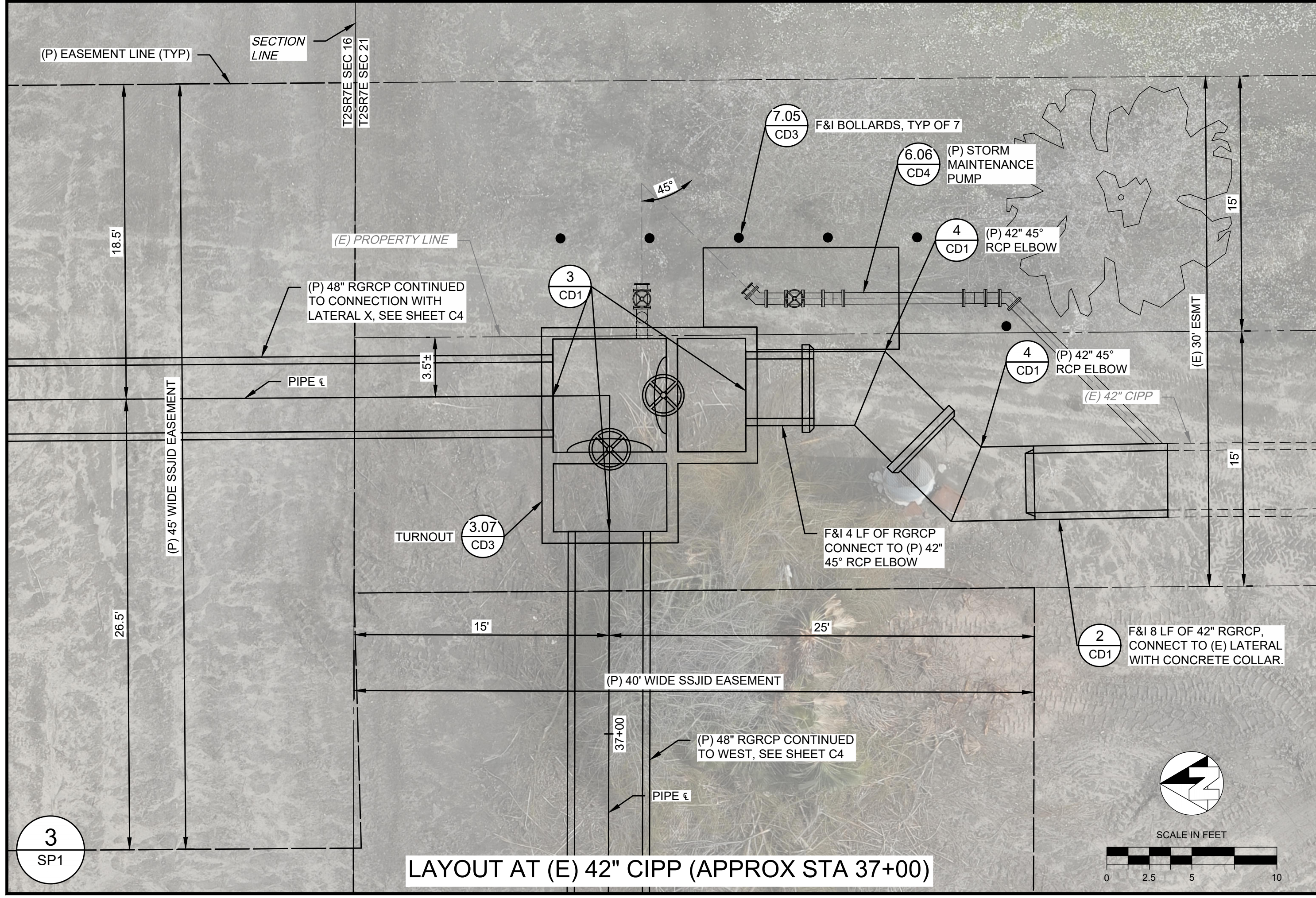
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET **C5**
11 OF 16

ALG-XW INTERTIE





- NOTES**
1. RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 2. PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 3. PIPELINE SHALL BE ASTM C-76 A-25 RUBBER GASKETED REINFORCED CONCRETE PIPE.
 4. WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.



100% DESIGN FOR BIDDING PURPOSES ONLY 08/02/2024

LATERAL X-W CONNECTION SOUTH SAN JOAQUIN IRRIGATION DISTRICT SAN JOAQUIN COUNTY SITE PLANS

DESIGN ENGINEER: ED CAMINATA LICENSE NO: 88473

DRAFTED BY: LAJ, JMG CHECKED BY: ACC

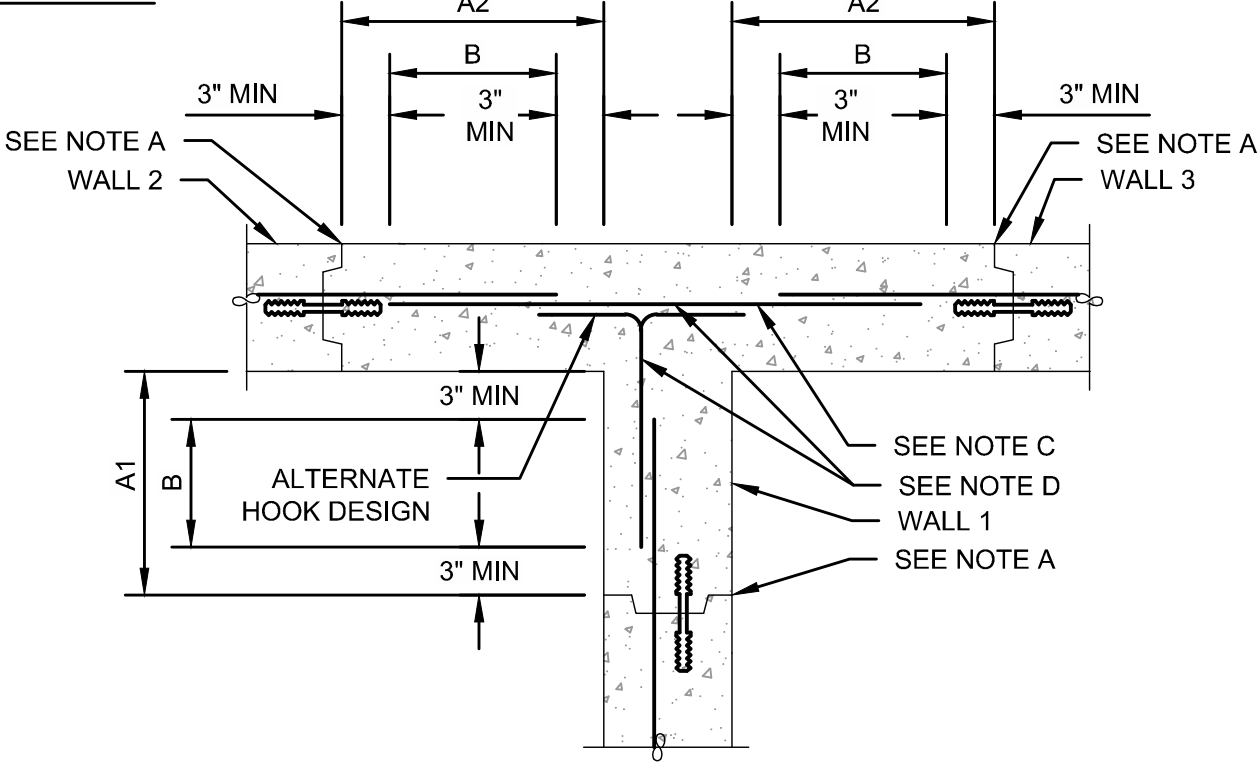
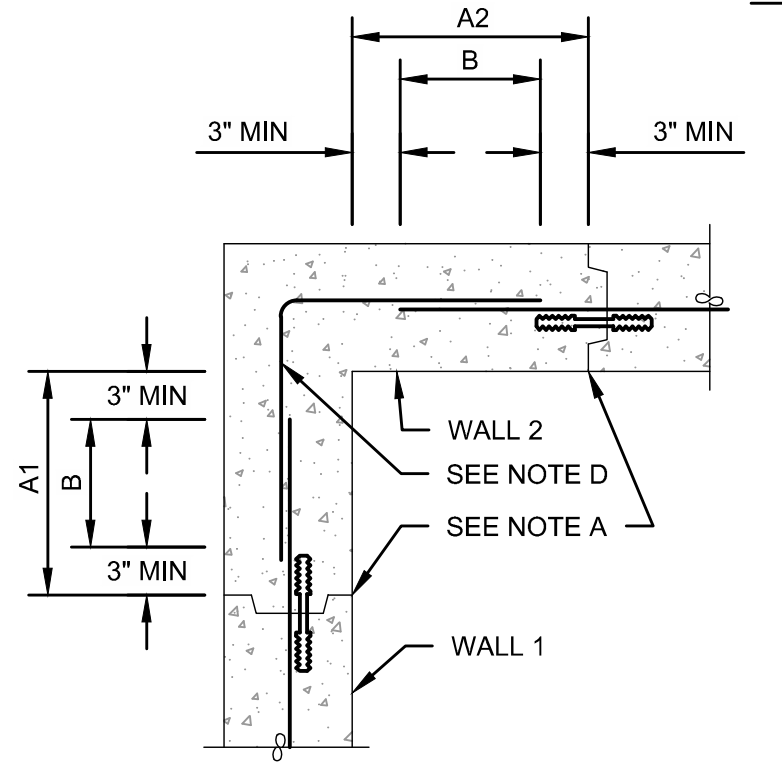
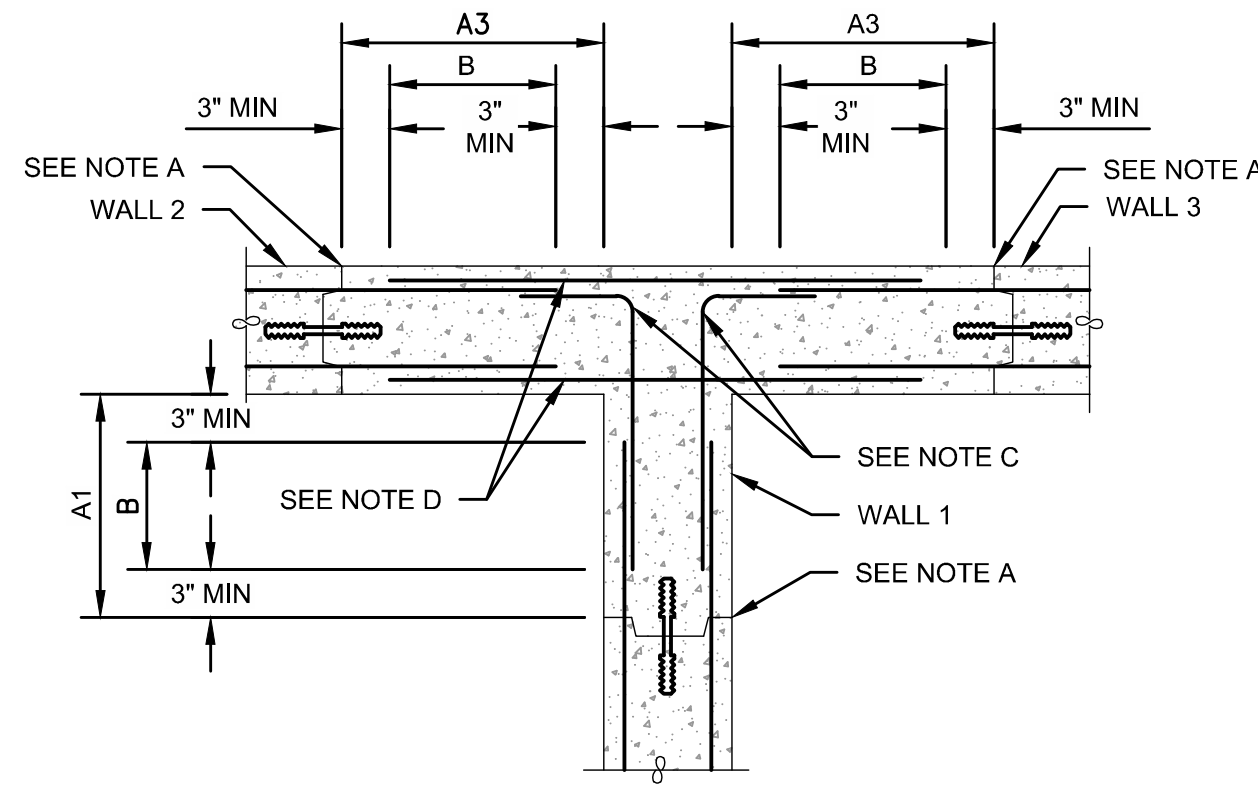
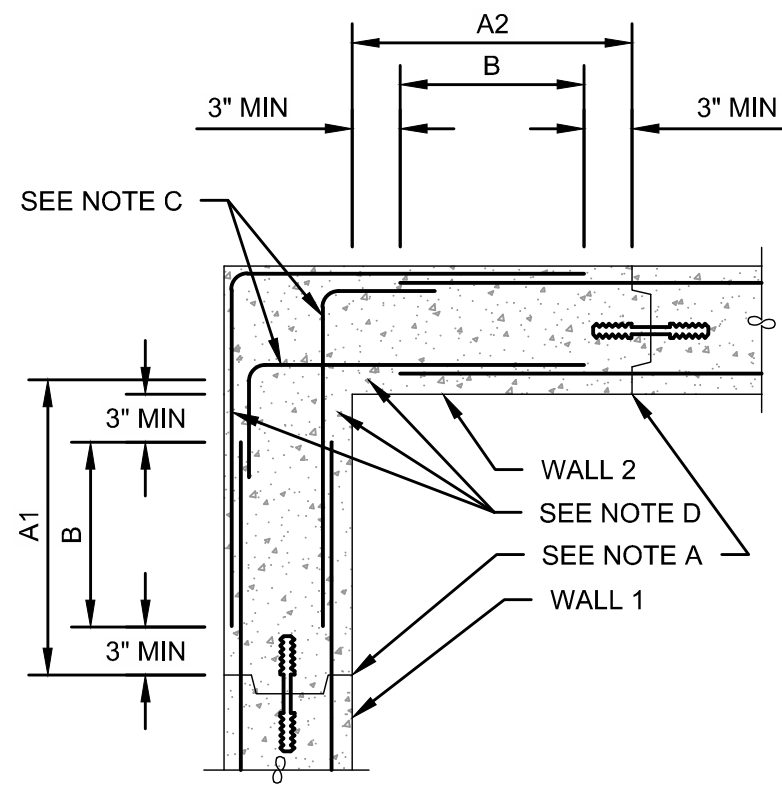
DATE: 08/02/2024 JOB NO: 105522007 PROJECT NO: 105522007 PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS. SHEET **SP1** 12 OF 16

DATE SIGNED: 08/02/2024

PROFESSIONAL ENGINEER ED CAMINATA No. 88473 STATE OF CALIFORNIA

COPYRIGHT © 2024 BY PROVOST & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED. THIS DOCUMENT IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING GROUP, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING GROUP, INC. THE USER OF THIS DOCUMENT AGREES TO HOLD PROVOST & PRITCHARD ENGINEERING GROUP, INC. HARMLESS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS DOCUMENT.



NOTES

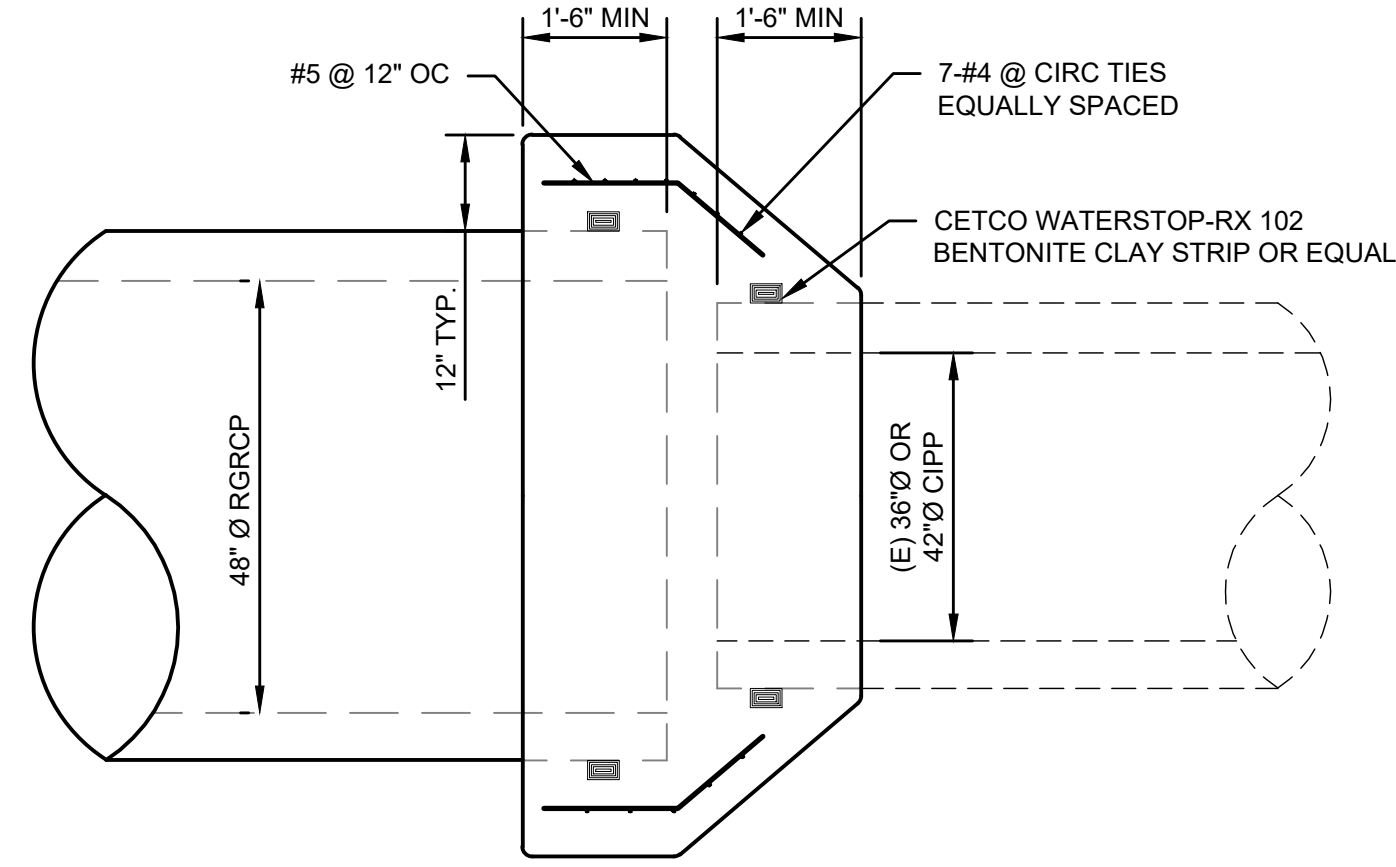
- VERTICAL REINFORCING NOT SHOWN.
- THESE DETAILS SHALL BE APPLICABLE TO ALL WALL CORNERS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- A = VERTICAL CONSTRUCTION JOINT WITH WATERSTOP NEAREST TO WALL CORNER
- A(X) = DISTANCE FROM INSIDE CORNER FACE NEAREST VERTICAL CONSTRUCTION JOINT IN SIMILARLY NUMBERED WALL A SHALL NOT BE LESS THAN DIMENSIONS INDICATED BY THESE DETAILS; NOR GREATER THAN INDICATED ON PLAN DRAWINGS; BUT IN ANY CASE SHALL NOT EXCEED 30 FEET.
- B = OPTIONAL SPLICE LOCATION UNLESS SPECIFICALLY NOTED ON PLAN DRAWINGS. SPLICE LENGTH SHALL NOT BE LESS THAN THAT AS SHOWN IN THE CONCRETE REINFORCEMENT SPLICE TABLE. USE SPLICE LENGTH FOR THE SMALLER OF THE TWO BARS BEING SPLICED.
- C = STANDARD HOOK
- D = TYPICAL CORNER REINFORCEMENT. SIZE SHALL MATCH LARGEST ADJACENT WALL HORIZONTAL REINFORCEMENT; SPACING SHALL MATCH MINIMUM ADJACENT WALL HORIZONTAL REINFORCEMENT SPACING.

NOT TO SCALE

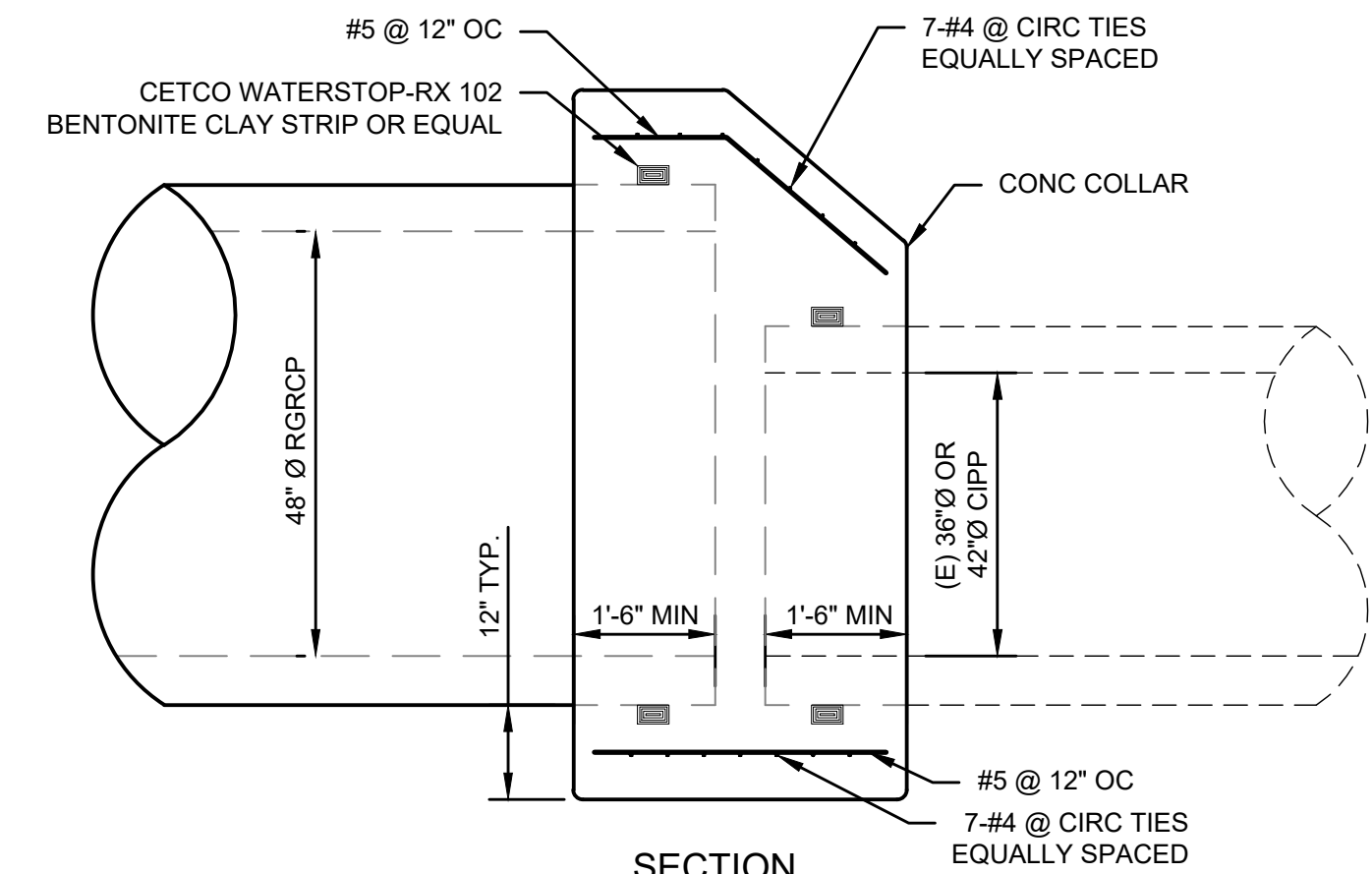
1
CD1

REINFORCEMENT LAPS WITH WATERSTOPS

STRC



PLAN



SECTION

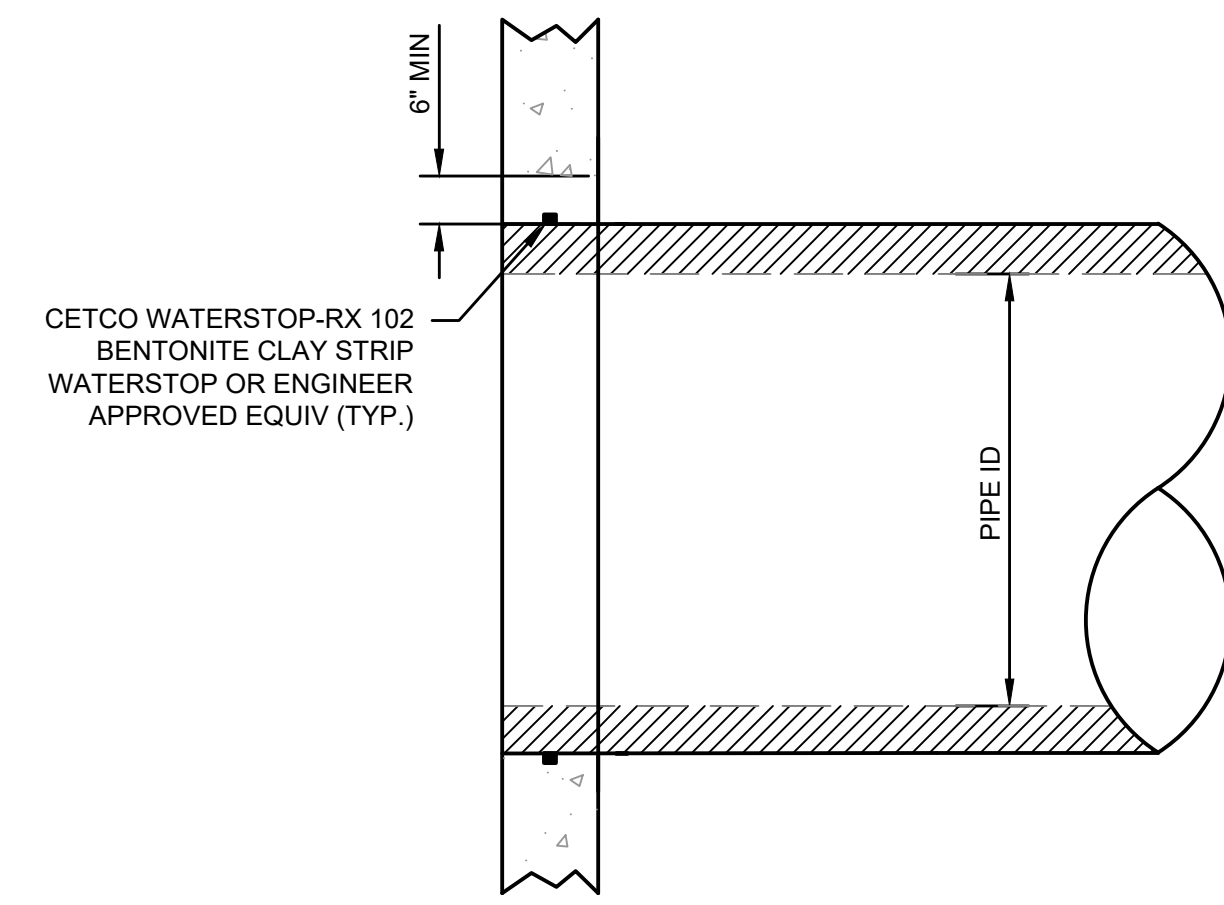
NOTE
JOINT TO BE BANDED ON THE INSIDE PRIOR TO PLACING OF COLLAR (HAND HOLE IN EXISTING PIPE IS ALLOWED TO MAKE INSIDE BAND). TWENTY-FOUR HOURS AFTER INSIDE BAND IS MADE, COAT WITH EPOXY OVER BANDED AREA. HAND HOLE PLUG TO BE EPOXIED AT MATCHING SURFACES WITH PIPE AND THEN MORTAR AND PLUG HOLE. WHEN IN PLACE AND SET EXTERNAL COLLAR MUST BE WATERED DOWN TO A POINT OF SATURATION THEN COVERED WITH WET BURLAP AND SHADED WITH SIX INCHES OF SOIL OVER ENTIRE AREA. SAID SOIL MUST BE KEPT MOIST FOR A PERIOD OF FIVE CONTINUOUS DAYS. THE ENTIRE SURFACE OF THE PIPE IN THE COLLAR AREA IS TO BE COATED WITH EPOXY PRIOR TO POURING THE COLLAR.

NOT TO SCALE

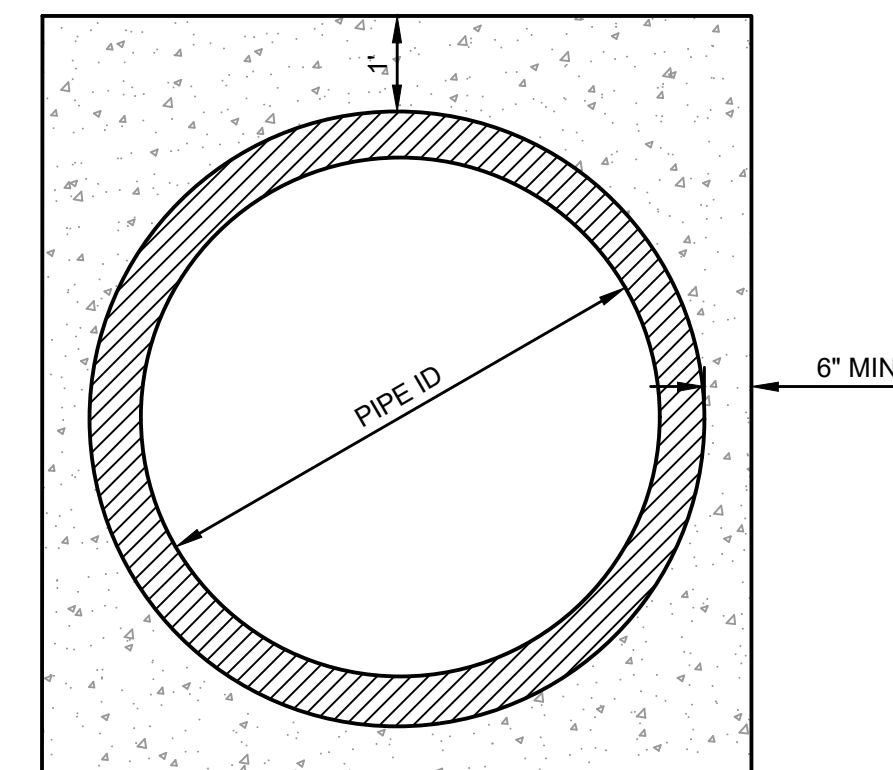
2
CD1

36" OR 42" CIPP TO 48" RGRCP COLLAR

PPNG



PLAN



SECTION

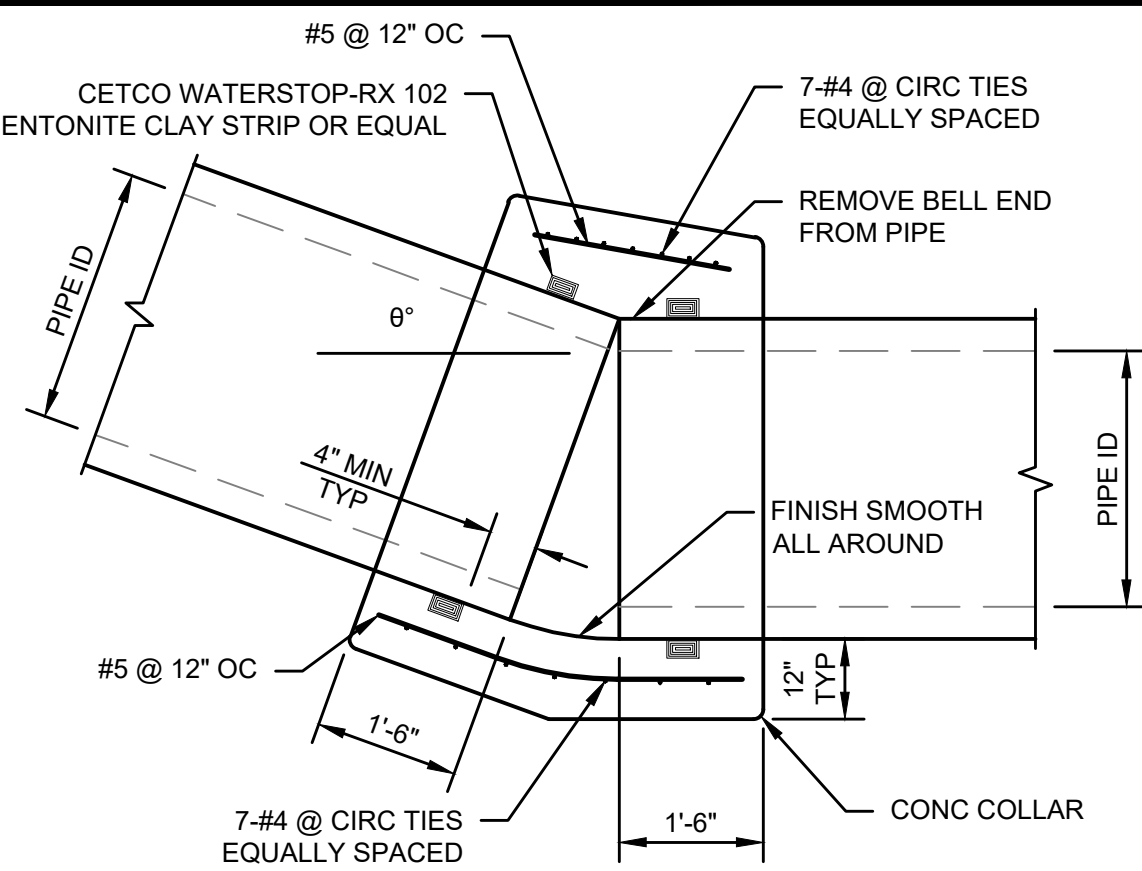
NOTE
1. THIS DETAIL IS ONLY VALID WHEN RGRCP IS INSTALLED AND THE CAST-IN-PLACE CONCRETE HEADWALL IS POURED WITH THE PIPE IN PLACE.

NOT TO SCALE

3
CD1

RGRCP TO HEADWALL CONNECTION

STRC

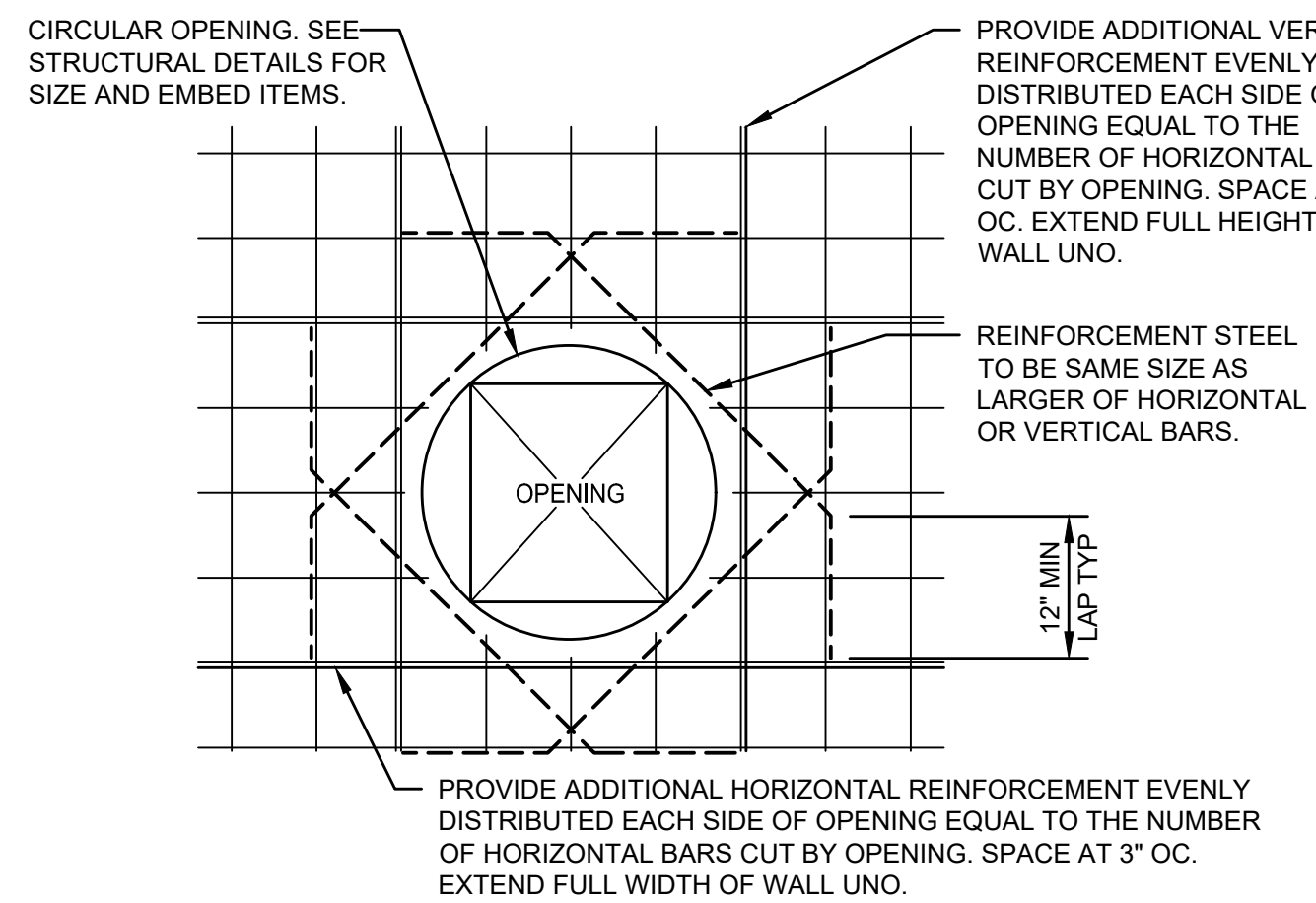


NOTES

- ANGLE θ SHALL BE DETERMINED IN THE FIELD AND REBAR PLACEMENT APPROVED BY DISTRICT CONSTRUCTION INSPECTOR PRIOR TO CONCRETE PLACEMENT.
- CONCRETE SHALL BE A MINIMUM 6 SACK MIX.
- CONCRETE SHALL BE VIBRATED AROUND PIPE JOINT DURING PLACEMENT.
- INSIDE JOINT TO BE SMOOTH FINISH (BRUSHED) & FLUSH.

4
CD1

CONCRETE PIPE COLLAR - ANGLED JOINT

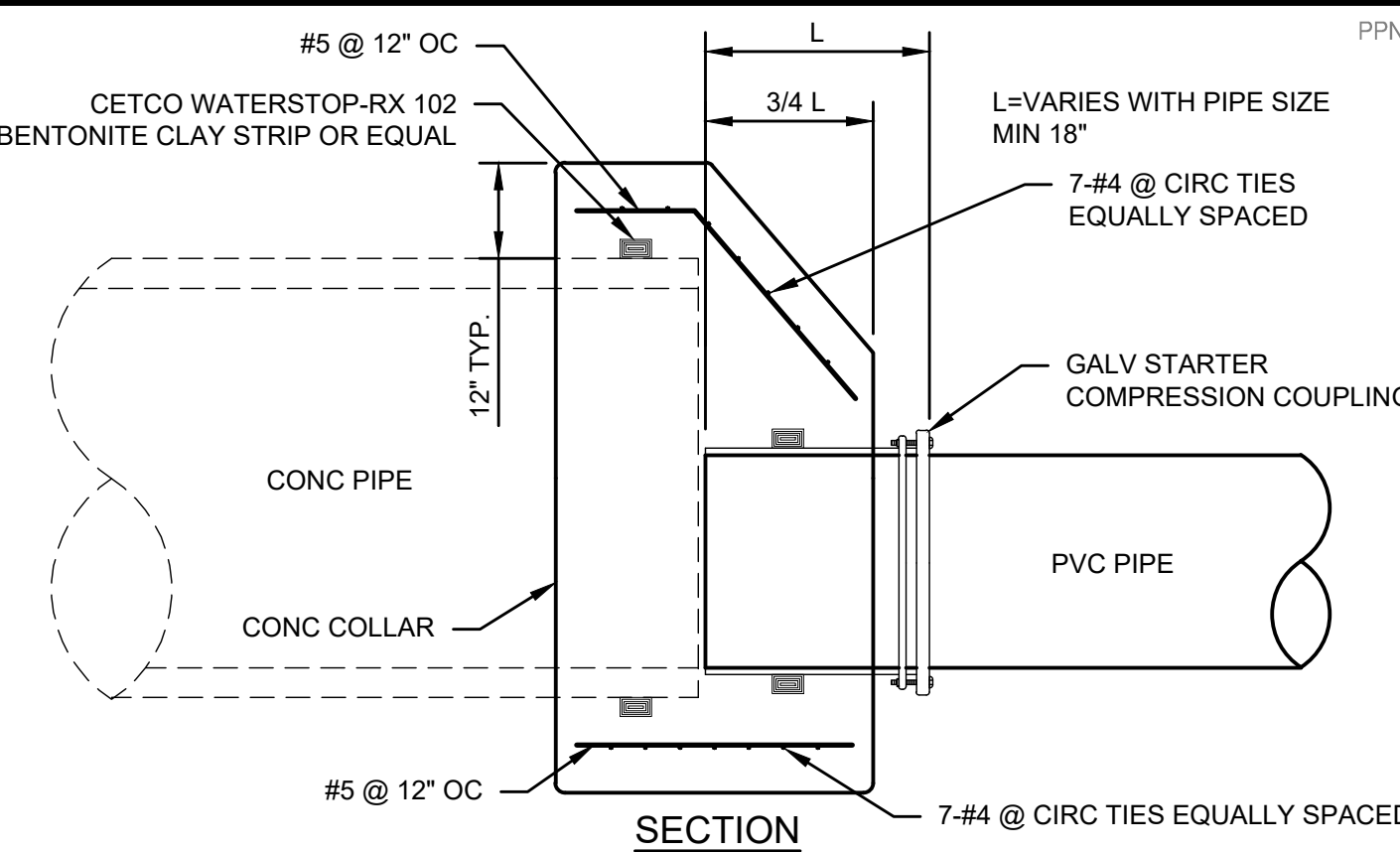


NOTE
THIS DETAIL APPLIES TO ALL OPENINGS IN WALLS AND SLABS THAT DO RETAIN LIQUID OR SOIL.

NOT TO SCALE

5
CD1

CONCRETE OPENING REINFORCEMENT



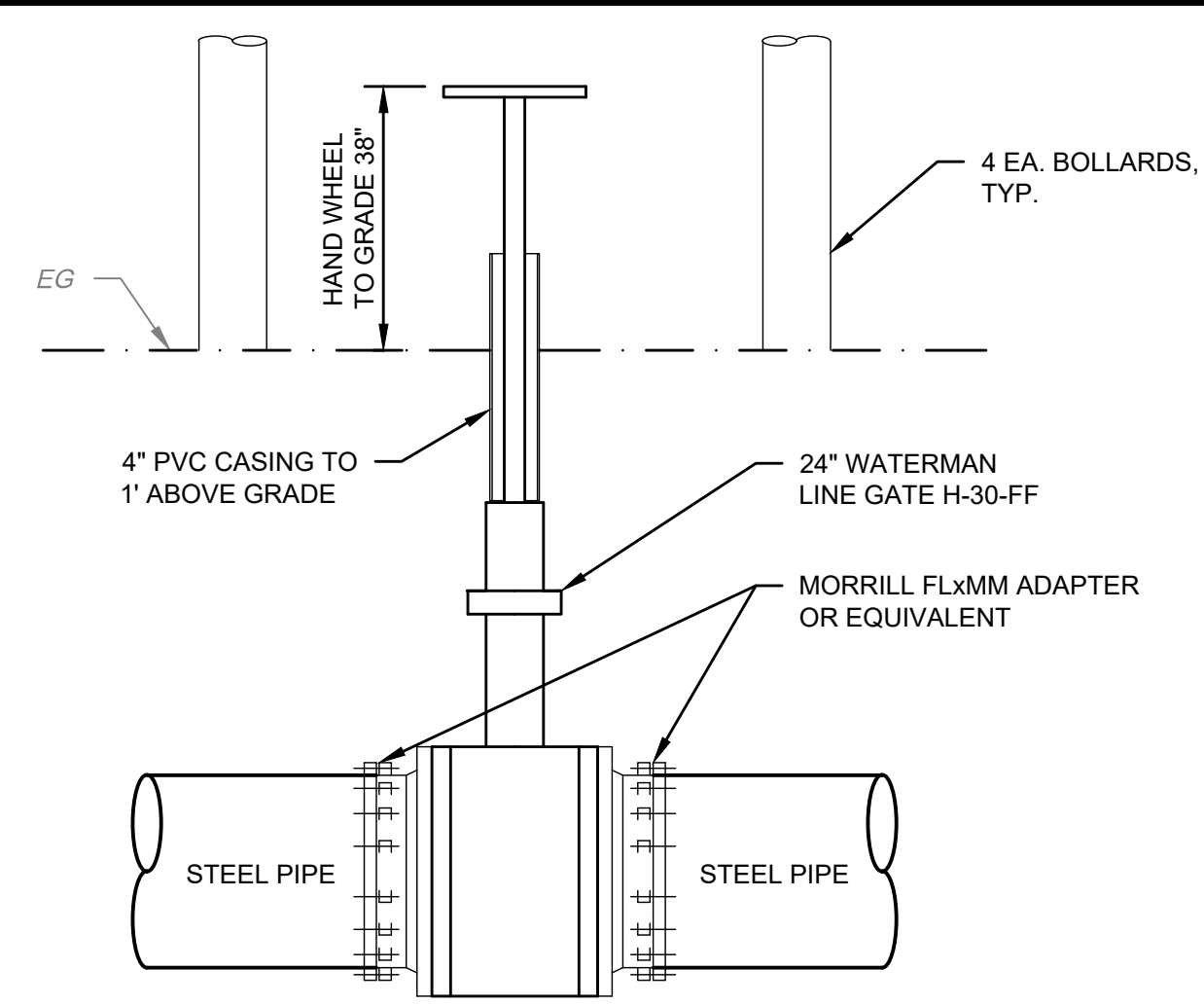
SECTION

NOTE
JOINT TO BE BANDED ON THE INSIDE PRIOR TO PLACING OF COLLAR (HAND HOLE IN EXISTING PIPE IS ALLOWED TO MAKE INSIDE BAND). TWENTY-FOUR HOURS AFTER INSIDE BAND IS MADE, COAT WITH EPOXY OVER BANDED AREA. HAND HOLE PLUG TO BE EPOXIED AT MATCHING SURFACES WITH PIPE AND THEN MORTAR AND PLUG HOLE. WHEN IN PLACE AND SET EXTERNAL COLLAR MUST BE WATERED DOWN TO A POINT OF SATURATION THEN COVERED WITH WET BURLAP AND SHADED WITH SIX INCHES OF SOIL OVER ENTIRE AREA. SAID SOIL MUST BE KEPT MOIST FOR A PERIOD OF FIVE CONTINUOUS DAYS. THE ENTIRE SURFACE OF THE PIPE IN THE COLLAR AREA IS TO BE COATED WITH EPOXY PRIOR TO POURING THE COLLAR.

6
CD1

PVC TO CONCRETE PIPE CONNECTION

PPNG

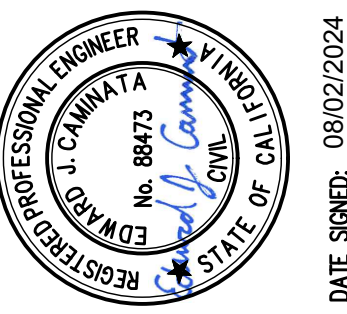


GATE CONNECTION W/ PIPE STAND

7
CD1

COPYRIGHT © 2024 BY PROVOST & PRITCHARD ENGINEERING, INC. ALL RIGHTS RESERVED. THIS DRAWING IS THE PROPERTY OF PROVOST & PRITCHARD ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PROVOST & PRITCHARD ENGINEERING, INC. THE USER OF THIS DRAWING SHALL HOLD THE FIRM OF PROVOST & PRITCHARD ENGINEERING, INC. AND ITS ENGINEERS AND ARCHITECTS HARMLESS FROM AND AGAINST ALL LIABILITY, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING FROM OR OUT OF THE USE OF THIS DRAWING.

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
DETAILS

PROVOST & PRITCHARD
4701 818K ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2900
FAX: (209) 898-2900
www.provostandpritchard.com

DESIGN ENGINEER:
ED CAMINATA
LICENSE NO.:
88473

DRAFTED BY: LAJ, JMG
CHECKED BY: ACC

DATE: 08/02/2024
JOB NO: 105522007
PROJECT NO: 105522007

PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET **CD1**
13 OF 16

SOIL NOTE
SEE CONSTRUCTION NOTE 9. PROJECT AREA IN SANDY AREA OF DISTRICT. NATIVE SOIL EXPECTED TO BE SUITABLE TO FOR BEDDING.

NOTES
1. SEE SHEET 2 FOR CONSTRUCTION NOTES.
2. PIPE DEPTHS GREATER THAN 5.00' SHALL BE APPROVED BY SSJID ENGINEER AND MAY REQUIRE ADDITIONAL EASEMENT WIDTH.

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/24/2024
SCALE: NOT TO SCALE STANDARD DETAIL 2.03 1 OF 2

CONSTRUCTION NOTES

- COMPACTED EARTH/FILL SHALL MEET 90% MAXIMUM DENSITY (ASTM D-1557) AND BE ACCOMPLISHED BY MANUALLY DIRECTED HAND COMPACTORS TO A MINIMUM DEPTH OF 12 INCHES OVER TOP OF PIPE. THE MAXIMUM LAYER THICKNESS SHALL BE 12 INCHES BEFORE COMPACTION.
- ALL STRUCTURE SUBGRADES TO BE INSPECTED BY THE SSJID ENGINEER PRIOR TO BACKFILL. SUBGRADES SHALL MEET 90% MAXIMUM DENSITY (ASTM D-1557).
- EARTH/FILL SHALL BE SELECT NATIVE MATERIAL. CONTAIN NO MATERIALS OVER 3 INCHES IN DIAMETER OR LENGTH, AND BE COMPACTED AGAINST UNDISTURBED EARTH. FILL MATERIAL SHALL CONTAIN NO SOD, BRUSH, ROOTS, OR OTHER ORGANIC OR UNSUITABLE MATERIAL.
- PIPELINE SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS AND SPECIFICATIONS. MINIMUM DEPTH OF COVER SHALL BE PER SHEET 1 EXCEPT IN SSJID CANAL BANKS WHERE THE MINIMUM DEPTH OF COVER SHALL BE 3 FEET.
- SSJID REQUIRED COMPACTION TESTS SHALL BE AT THE LANDOWNER OR DEVELOPER EXPENSE. ANY RETESTS SHALL BE PAID BY THE CONTRACTOR. FREQUENCY AND LOCATION OF THE TESTS TO BE DETERMINED BY THE SSJID ENGINEER.
- DEWATERING DUE TO HIGH GROUNDWATER OR CANAL SEEPAGE MAY BE REQUIRED. DEWATERING METHODS SHALL BE APPROVED BY THE SSJID ENGINEER PRIOR TO COMMENCEMENT OF DEWATERING.
- TRENCH WIDTHS SHALL BE AS SHOWN UNLESS THE PIPELINE SIZE IS 4 INCHES OR SMALLER, WHERE THE TRENCH SHALL HAVE A 12 INCH MINIMUM WIDTH.

FINAL BACKFILL SHALL BE MINIMUM 90% RELATIVE COMPACTION (ASTM D-1557), UNLESS OTHER LOCAL AGENCY STANDARDS DICTATE HIGHER COMPACTION.

BEDDING, IF REQUIRED SHALL BE MINIMUM 4 INCHES AS SPECIFIED BY THE SSJID ENGINEER. BEDDING SHALL CONFORM TO THE SPECIFICATIONS BELOW. SOIL TYPES SHALL BE AS DETERMINED BY THE SSJID ENGINEER.

(A) **ON SANDY SOIL (BEDDING & HAUNCHING):**
NATIVE MATERIAL, IF SUITABLE, OR SAND AS APPROVED BY THE SSJID ENGINEER.
3/8" PEA GRAVEL OR SAND WITH A SAND EQUIVALENT OF AT LEAST 30.

(B) **ON CLAY SOIL (BEDDING & HAUNCHING):**
THE AREA WITHIN THE BOUNDARY SHOWN ON DETAIL 2.04 SHALL BE ASSUMED TO BE CLAY SOIL AND REQUIRE BEDDING PER NOTE 9 ABOVE. NATIVE MATERIAL WITHIN THIS BOUNDARY MAY BE PERMITTED FOR USE AS BEDDING IF DETERMINED TO BE ACCEPTABLE BY A LICENSED GEOTECHNICAL ENGINEER AND SUBMITTED TO SSJID FOR APPROVAL. SSJID MAY REQUIRE THE USE OF IMPORTED BEDDING MATERIAL IN AREAS OUTSIDE THE BOUNDARY AREA SHOWN, IF THE NATIVE SOIL IS DEEMED UNACCEPTABLE FOR USE AS BEDDING.

COVER FILL HEIGHT	ASTM C76 OR C361 RGRCP PIPE CLASS
< 2.5'	NOT ALLOWED
2.5' TO 5'	CLASS III
5' <	REQUIRES APPROVAL OF SSJID BOARD OF DIRECTORS

NOTE: AS DETERMINED BY SSJID ENGINEER, CL IV PIPE WILL BE REQUIRED IN AREAS WITH HEAVY TRUCK TRAFFIC AND IN ALL PUBLIC RIGHT-OF-WAY AREAS SUBJECT TO VEHICULAR TRAFFIC.

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/24/2024
SCALE: NOT TO SCALE STANDARD DETAIL 2.03 2 OF 2

CONSTRUCTION NOTE
1. INSTALL A 12 INCH ACCESS AIR VENT (DETAIL 2.14) IN DEAD-END LINE NEAR PLUG. HEIGHT OF VENT SHALL MATCH HEIGHT OF NEAREST UPSTREAM VENT, OR AS DIRECTED BY SSJID ENGINEER.

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/26/2024
SCALE: NOT TO SCALE STANDARD DETAIL 2.08 1 OF 1

NOTES
1. CONSULT WITH DISTRICT ENGINEER TO DETERMINE REQUIREMENTS FOR PIPE DIAMETERS LESS THAN 30"

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/26/2024
SCALE: NOT TO SCALE STANDARD DETAIL 2.13 1 OF 1

NOTES
1. CONSULT WITH DISTRICT ENGINEER TO DETERMINE REQUIREMENTS FOR PIPE DIAMETERS LESS THAN 30"

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/12/2024
SCALE: NOT TO SCALE STANDARD DETAIL 2.14 1 OF 1

DIMENSION OF STANDARD 180° HOOKS, ALL GRADES

SIZE	D	J	A OR G
#3	2 1/4"	3"	5"
#4	3"	4"	6"
#5	3 3/4"	5"	7"
#6	4 1/2"	6"	8"
#7	5 1/4"	7"	10"
#8	6"	8"	11"
#9	9 1/2"	11 3/4"	15"
#10	10 3/4"	13 1/4"	17"
#11	12"	14 3/4"	19"
#14	18 1/4"	21 3/4"	27"
#18	24"	28 1/2"	36"

DIMENSION OF STANDARD 90° HOOKS, ALL GRADES

SIZE	D	A OR G
#3	2 1/4"	6"
#4	3"	8"
#5	3 3/4"	10"
#6	4 1/2"	12"
#7	5 1/4"	14"
#8	6"	16"
#9	9 1/2"	19"
#10	10 3/4"	22"
#11	12"	24"
#14	18 1/4"	31"
#18	24"	41"

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/11/2024
SCALE: NOT TO SCALE STANDARD DETAIL 3.03 1 OF 3

SIZE	D	A OR G	ARROX. H
#3	1 1/2"	4"	2 1/2"
#4	2"	4 1/2"	3"
#5	2 1/2"	5 1/2"	3 3/4"
#6	4 1/2"	8"	4 1/2"
#7	5 1/4"	9"	5 1/4"
#8	6"	10 1/2"	6"

SIZE	D	A OR G	A OR G	ARROX. H
#3	1 1/2"	4"	4"	2 1/2"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"
#7	5 1/4"	14"	9"	5 1/4"
#8	6"	16"	10 1/2"	6"

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/11/2024
SCALE: NOT TO SCALE STANDARD DETAIL 3.03 2 OF 3

NOTES
1. SPLICES SHOWN ARE NORMALWEIGHT CONCRETE, UNCOATED SPLICE $f_y=60$ ksi $f_c=4$ ksi CALCULATED PER ACI 318-14 SECTION 25.4.2.2. SEE CHART 1 FOR DIFFERENT CONCRETE STRENGTHS.
2. $D_b = (1)$ BAR DIAMETER
 $D =$ FINISHED INSIDE BEND DIA.
 $D = 6D_b$ FOR #3-#8
 $D = 8D_b$ FOR #9-#11
 $D = 10D_b$ FOR #14 AND #18

CHART 1
CONCRETE STRENGTH (PSI)

	2500	3000	3500	4000	5000
#6 AND SMALLER	63	57	53	50	45
#7-#11	78	72	66	62	56

CHART 2

BAR SIZE	CL1	CL2
#4	0.5	0.65
#5	0.63	0.81
#6	0.75	0.98
#7	0.875	1.14
#8	1.0	1.3
#9	1.28	1.47

CONCRETE BAR TYPES
FOOTING BARS (OTHER THAN TOP BARS) CL1
HORIZ. WALL BARS CL2
FOOTING 'TOP BARS' CL2
WALL CHORD BARS CL3

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
APPROVED: FORREST KILLINGSWORTH, PE DATE: 7/11/2024
SCALE: NOT TO SCALE STANDARD DETAIL 3.03 3 OF 3

100% DESIGN FOR BIDDING PURPOSES ONLY
08/02/2024

REVISION

NO.	BY	DATE

DATE SIGNED: 08/02/2024

PROFESSIONAL ENGINEER
ED CAMINATA
No. 88473
CIVIL
REISSUED 08/02/2024

LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
DETAILS

DISTRICT DETAILS

PROVOST & PRITCHARD
4701 SISKIYOU ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 529-2900
FAX: (209) 529-2900
www.provostandpritchard.com

DESIGN ENGINEER: ED CAMINATA
LICENSE NO.: 88473

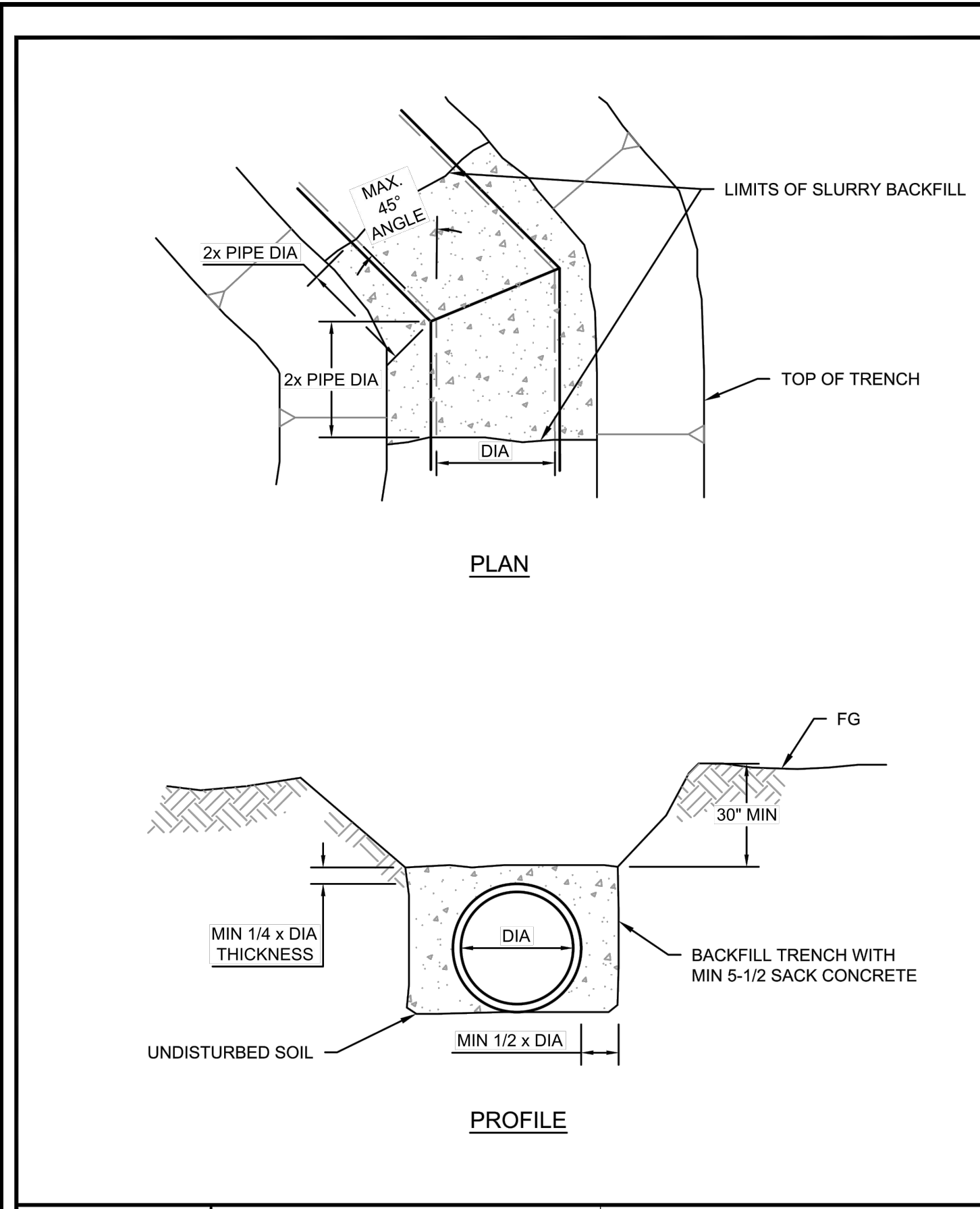
DRAFTED BY: LAJ, JMG
CHECKED BY: ACC

DATE: 08/02/2024
JOB NO.: 105522007
PROJECT NO.: 105522007

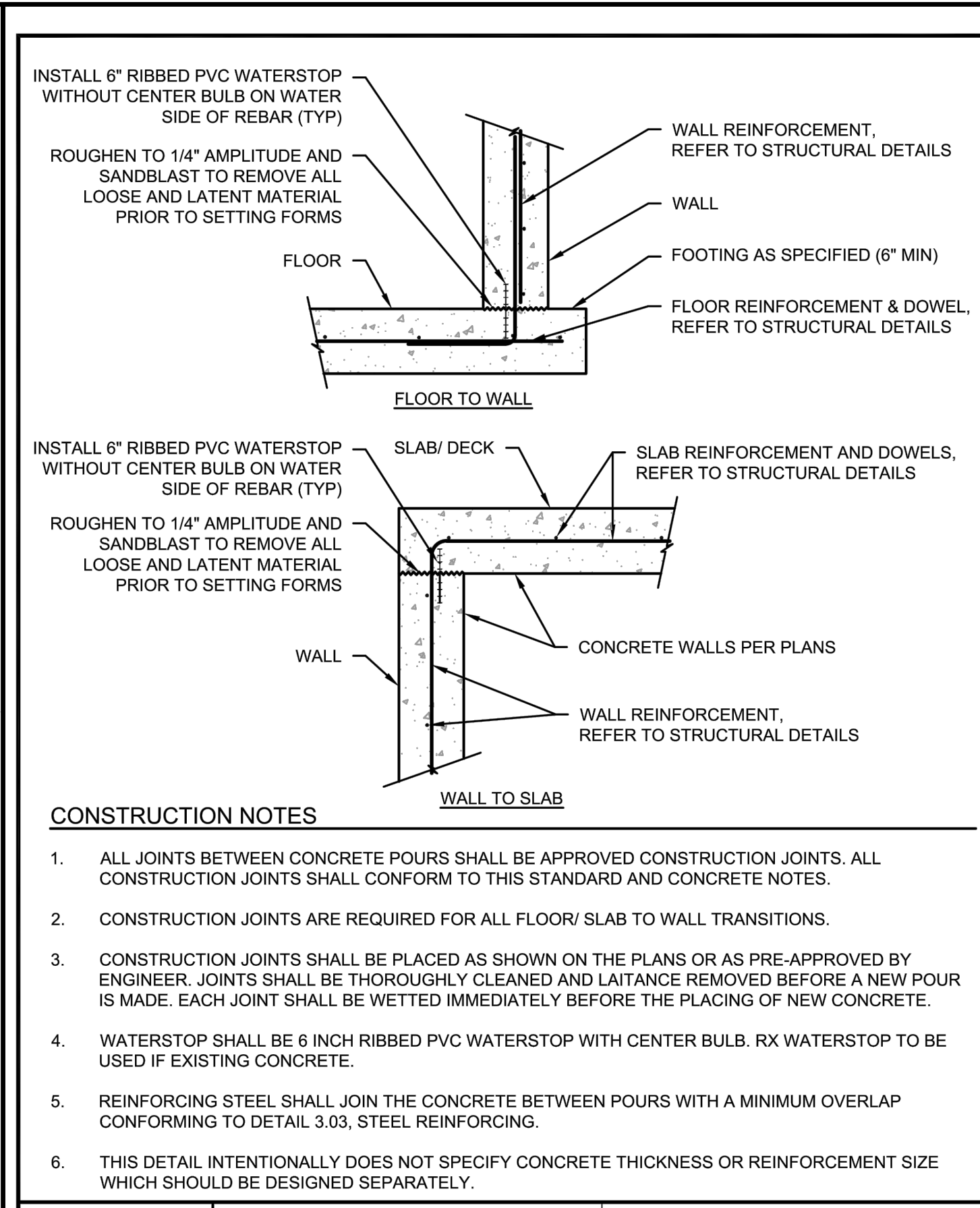
PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

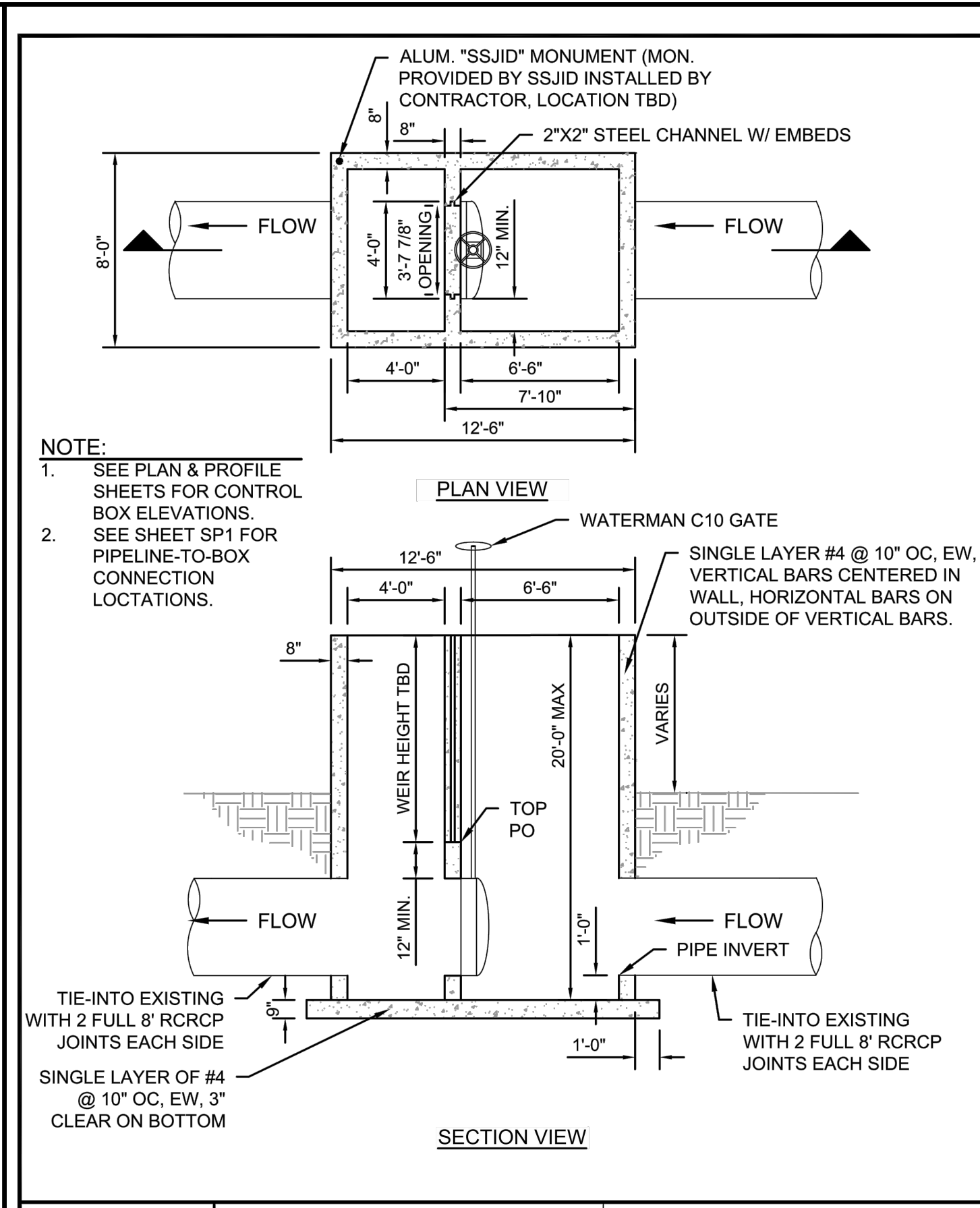
SHEET CD2 **14 OF 16**



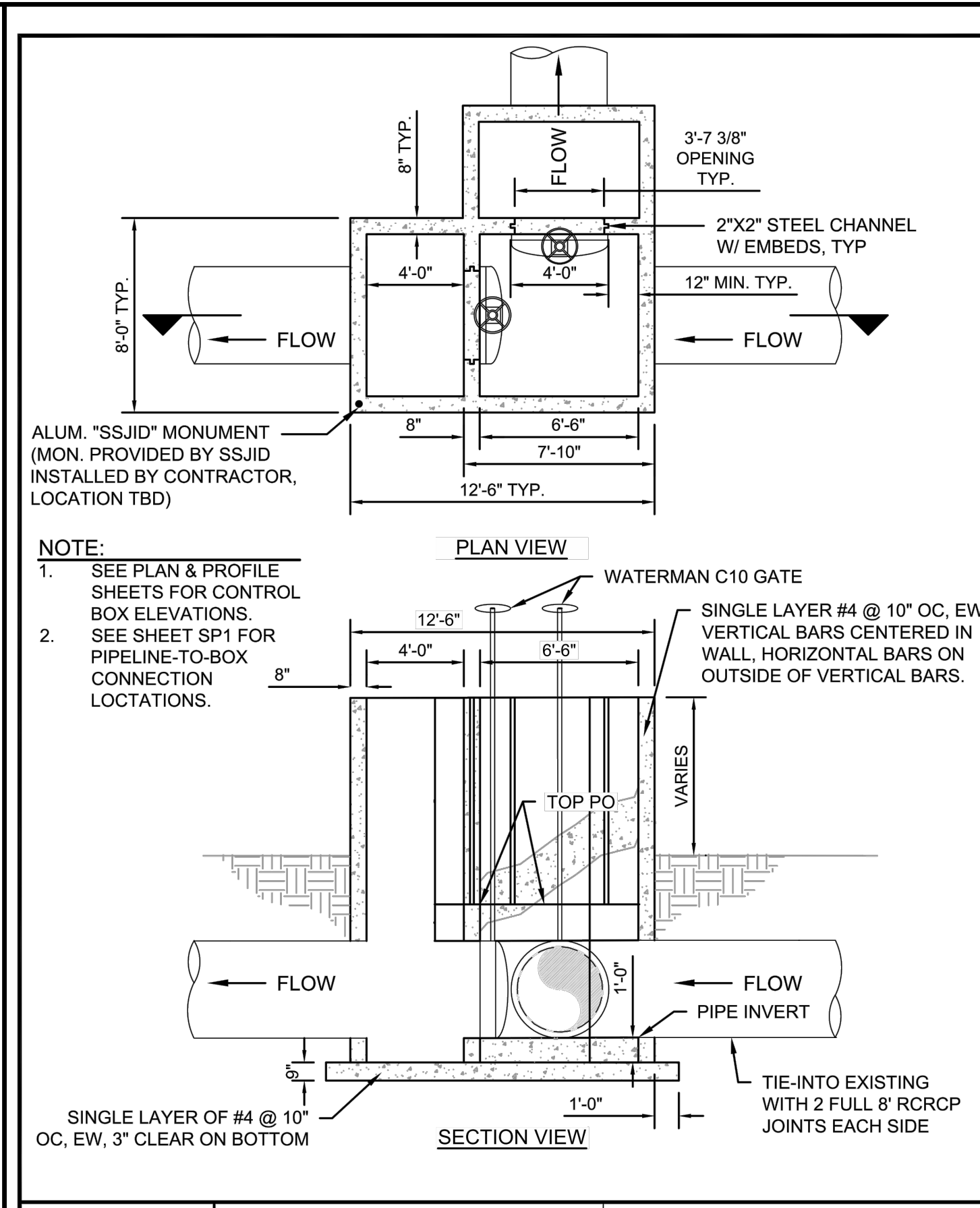
SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	CONCRETE PIPE THRUST BLOCK	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 2.04 1 OF 1



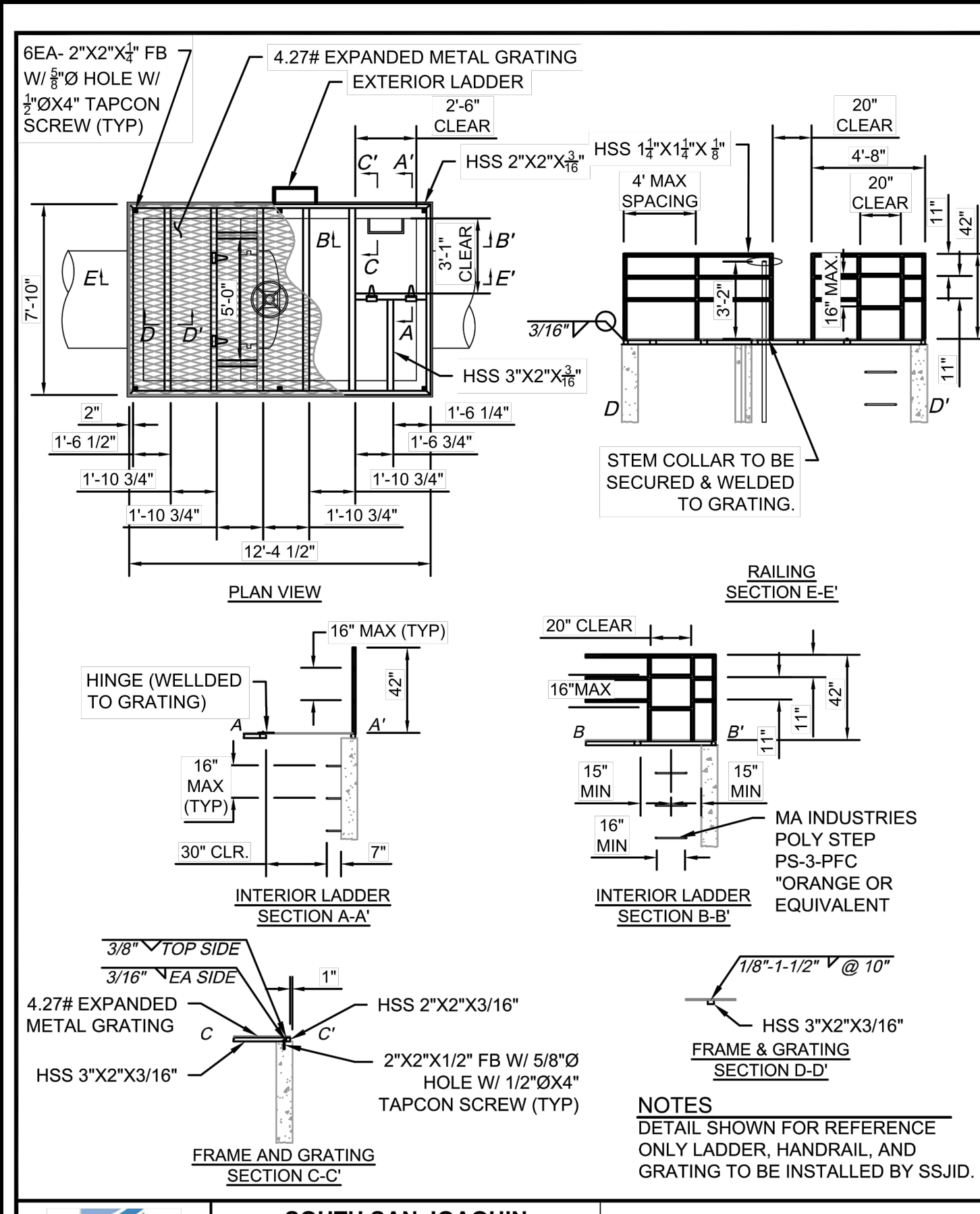
SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	COLD JOINTS	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.05 1 OF 1



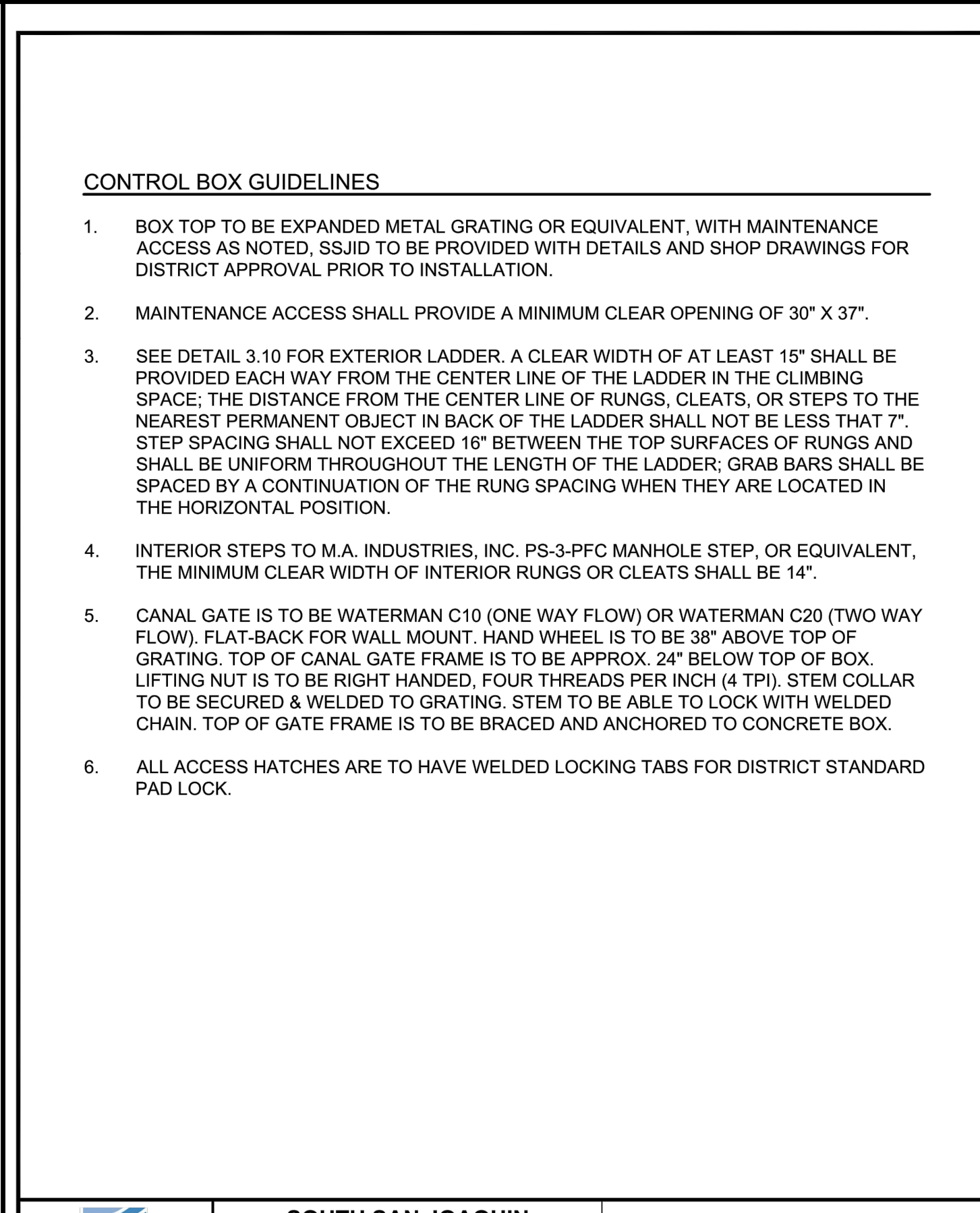
SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	POUR-OVER CONTROL BOX	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.07 1a OF 3



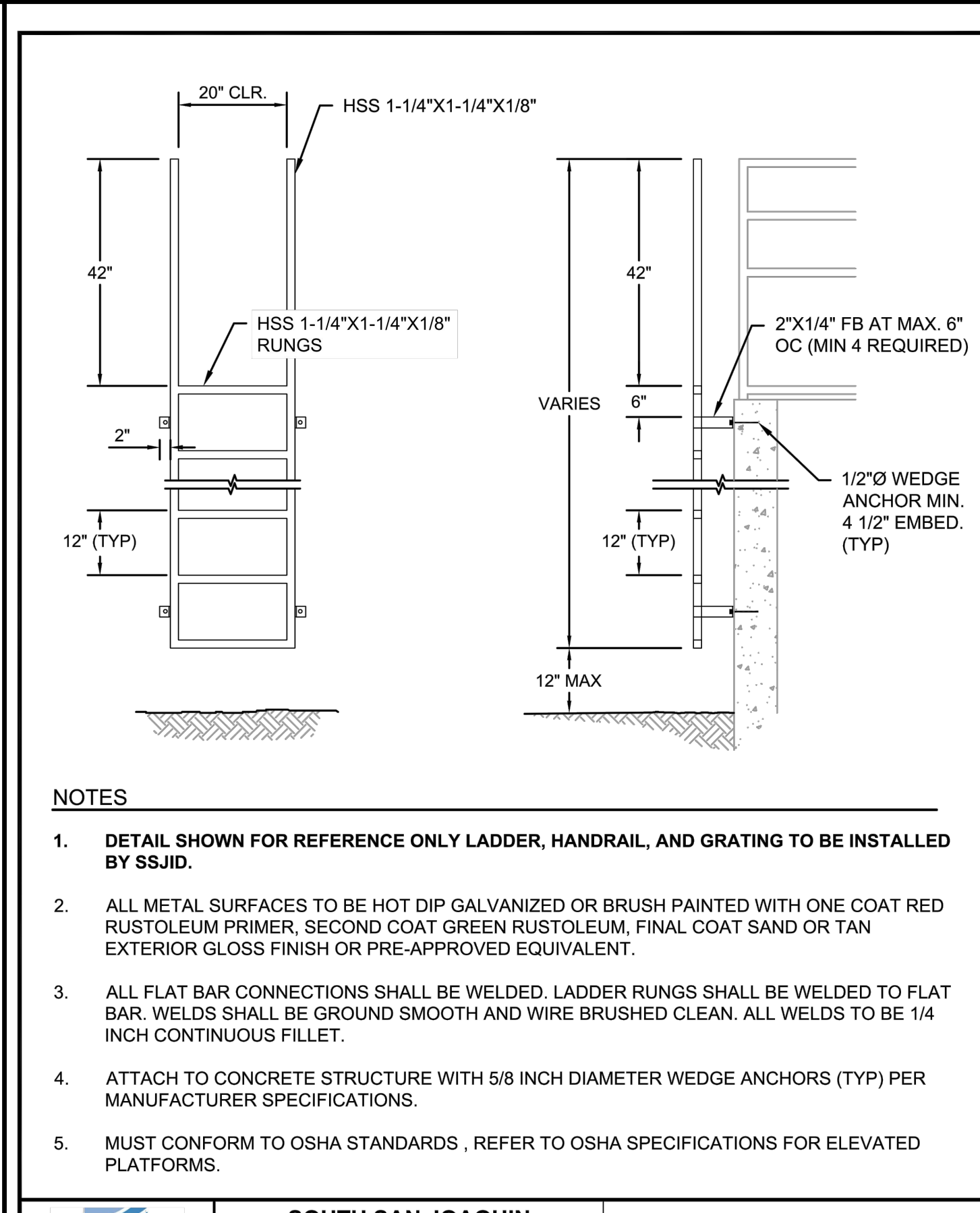
SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	POUR-OVER CONTROL BOX	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.07 1b OF 3



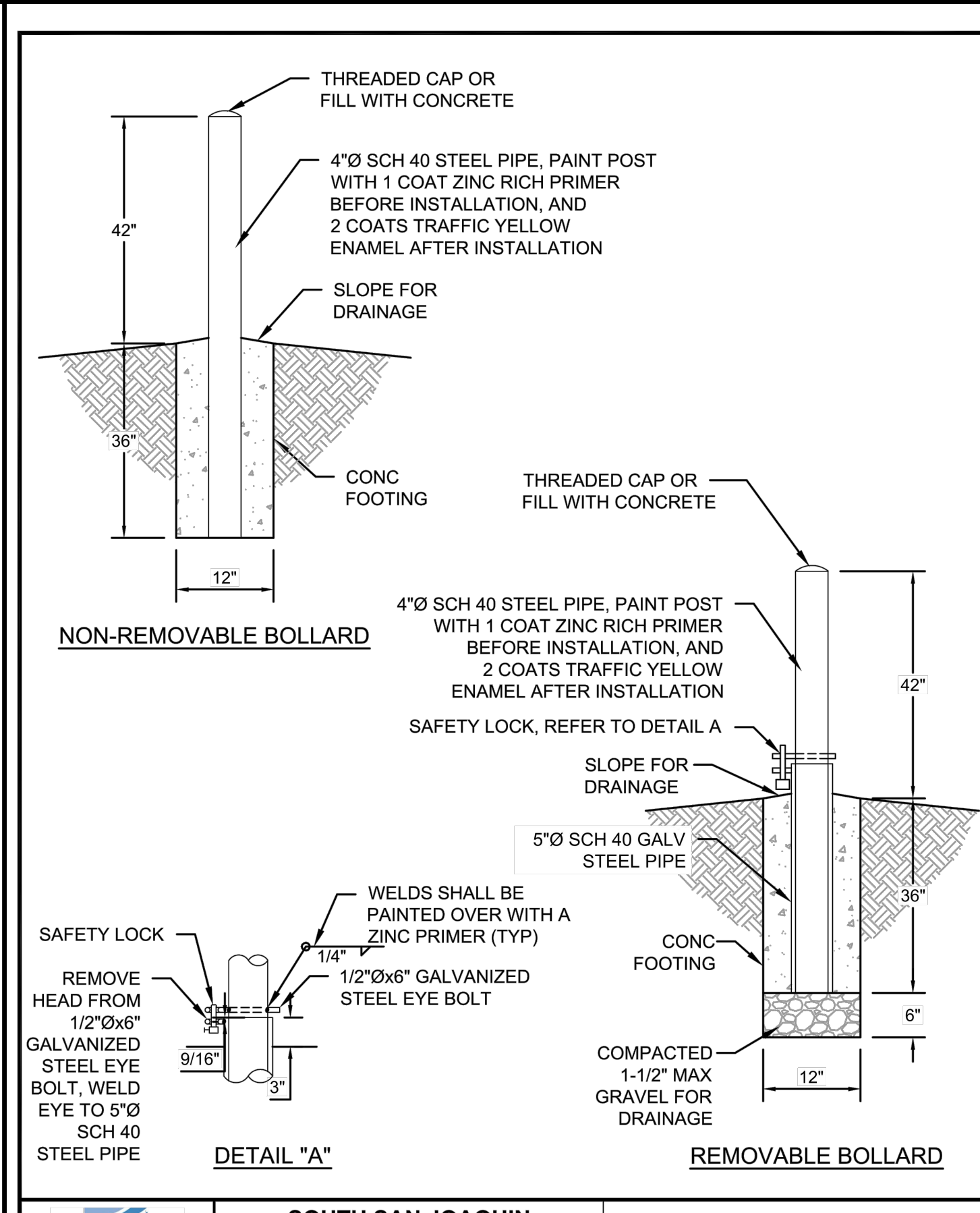
SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	POUR-OVER CONTROL BOX	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.07 2 OF 3



SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	POUR-OVER CONTROL BOX	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.07 3 OF 3



SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	CONTROL BOX LADDER	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 3.10 1 OF 1



SSJID SOUTH SAN JOAQUIN IRRIGATION DISTRICT	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	BOLLARDS	
	APPROVED: FORREST KILLINGSWORTH, PE DATE: _____	SCALE: NOT TO SCALE	STANDARD DETAIL 7.05 1 OF 1

100% DESIGN FOR BIDDING PURPOSES ONLY 08/02/2024

REVISION BY DATE

NO. IN. DATE

DATE SCHED: 08/02/2024

PROFESSIONAL ENGINEER ED CAMINATA No. 88473 STATE OF CALIFORNIA

LATERAL X-W CONNECTION DISTRICT DETAILS SOUTH SAN JOAQUIN IRRIGATION DISTRICT SAN JOAQUIN COUNTY

PROVOST & PRITCHARD DESIGN ENGINEER ED CAMINATA LICENSE NO: 88473

DRAFTED BY: LAJ, JMG CHECKED BY: ACC

DATE: 08/02/2024

JOB NO: 105522007

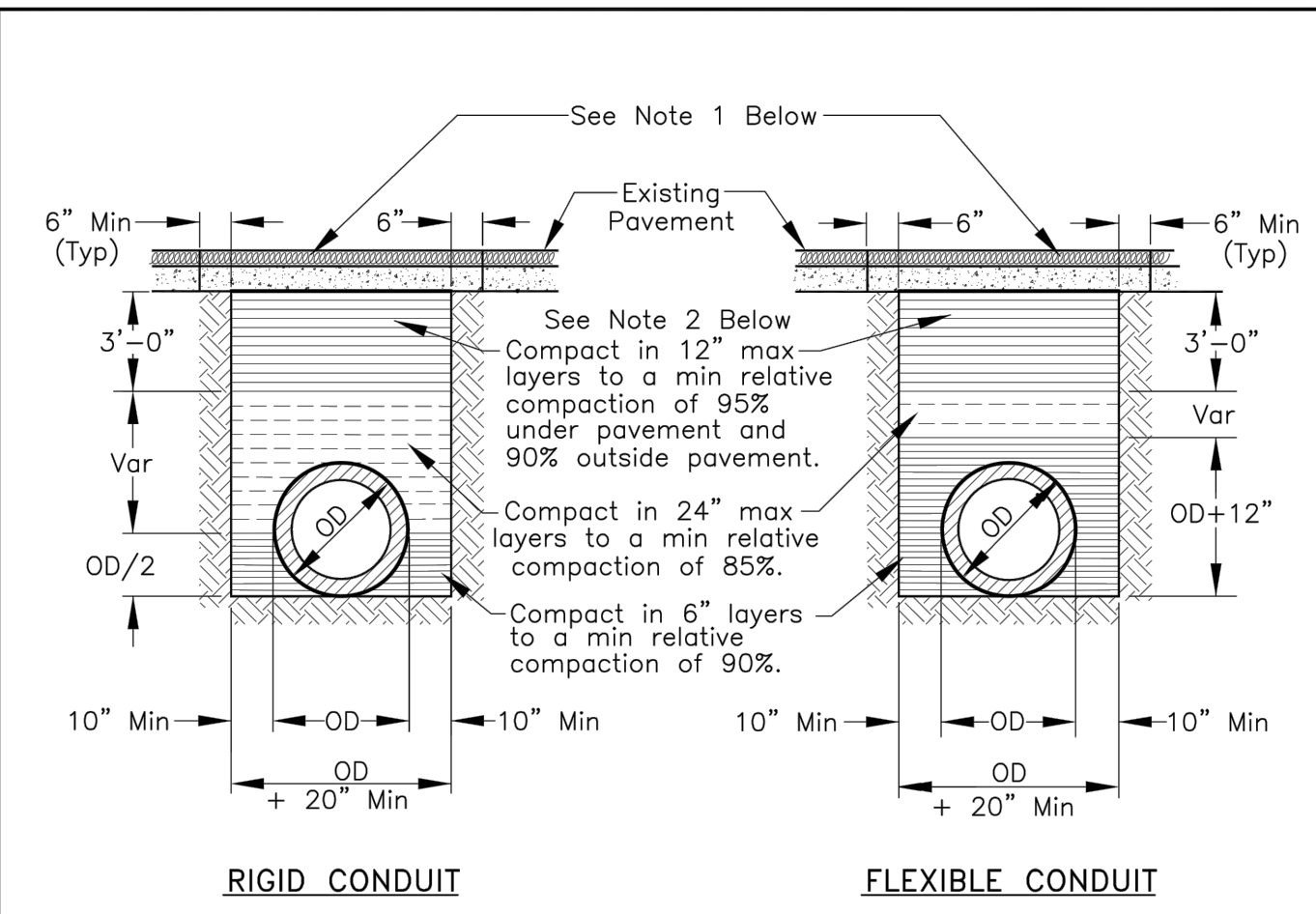
PROJECT NO: 105522007

PHASE: PRE

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET **CD3**

15 OF 16



- NOTES:**
1. New pavement shall be 1" thicker than existing pavement, minimum of 0.25 Ft. New base shall be 1" thicker than existing base, min of 0.50 Ft.
 2. Select native material or imported granular material as approved by the Director of Public Works. Backfill with materials equal to or better than the existing pavement and base in quality.
 3. Relative compaction of materials shall be tested in accordance with the State of California, Dept. of Transportation Testing Manuals, test method No. California 216 or 231.
 4. All existing pavement shall be neatly cut to line prior to trench excavation.
 5. Jetting or ponding will be permitted within the street right-of-way with a 3 year bond, when approved by the Director of Public Works.
 6. When shown by soil composition and compactability, ninety percent (90%) compaction may be used, when approved by the Director of Public Works.
 7. Special bedding and backfill requirements may be shown on the plans or specified in the special provisions.

Public Works
Working for YOU

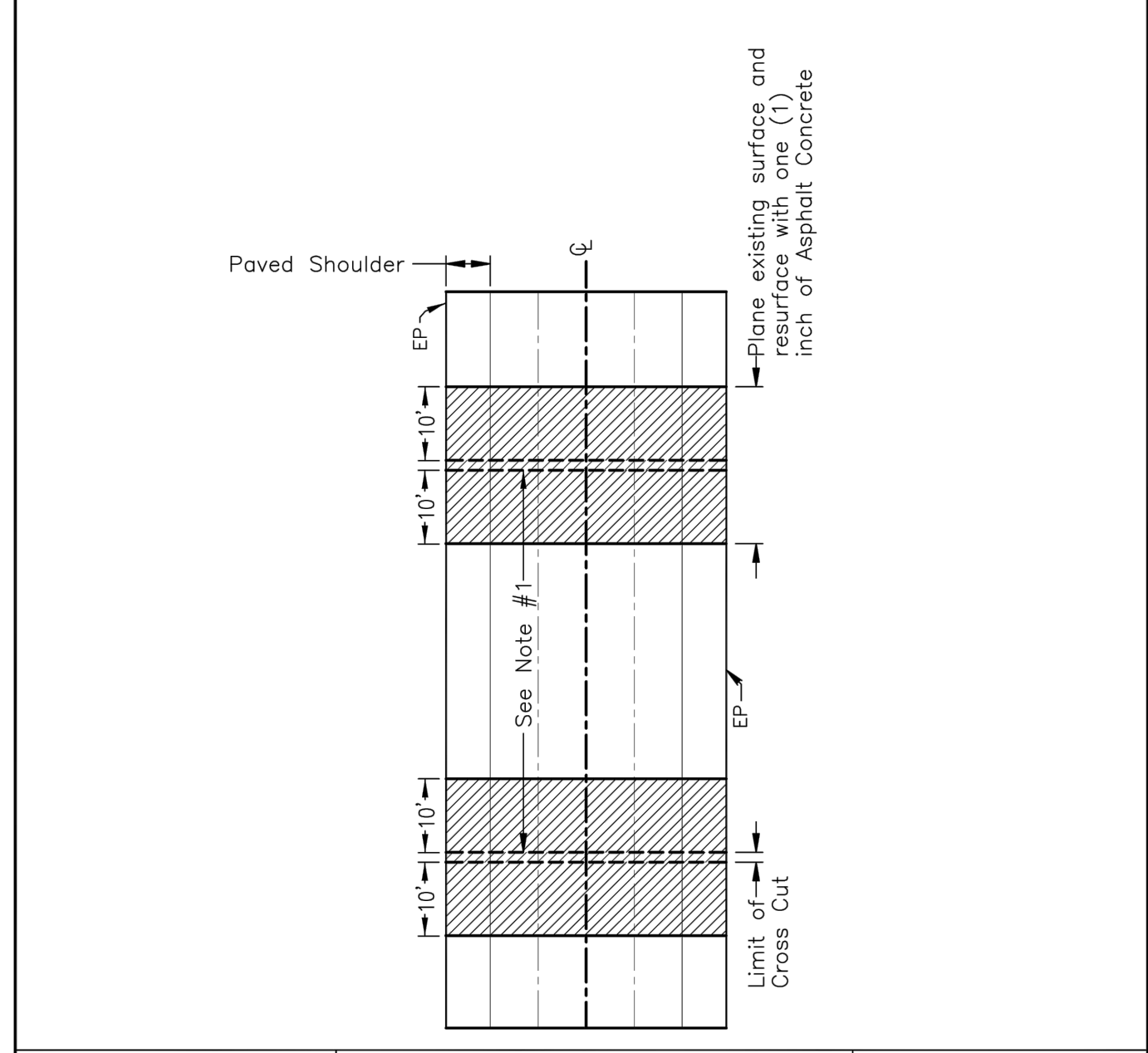
TYPICAL TRENCH BACKFILL

APPROVED BY: *Thomas M. Stave*

COUNTY OF SAN JOAQUIN
DEPARTMENT OF PUBLIC WORKS

Date: DEC 2014 Std. Dwg. No. **R-29**

- NOTES:**
1. If the distance between cross-cuts are less than 150' the entire area between cross-cuts shall be planed and resurfaced with one (1) inch of Asphalt Concrete.
 2. The resurfacing requirements shall be in addition to County Standard Drawing No. R-29.
 3. Resurfacing for Bell Holes shall meet these requirements. If excavation occurs within the shoulder or lane, only that area shall be resurfaced as shown.
 4. If cross-cutting is performed on Local Roads at intervals less than 150' a Seal Coat for that half of the roadway containing the trench can be used in lieu of resurfacing. Section 2-5.03 (B-2).



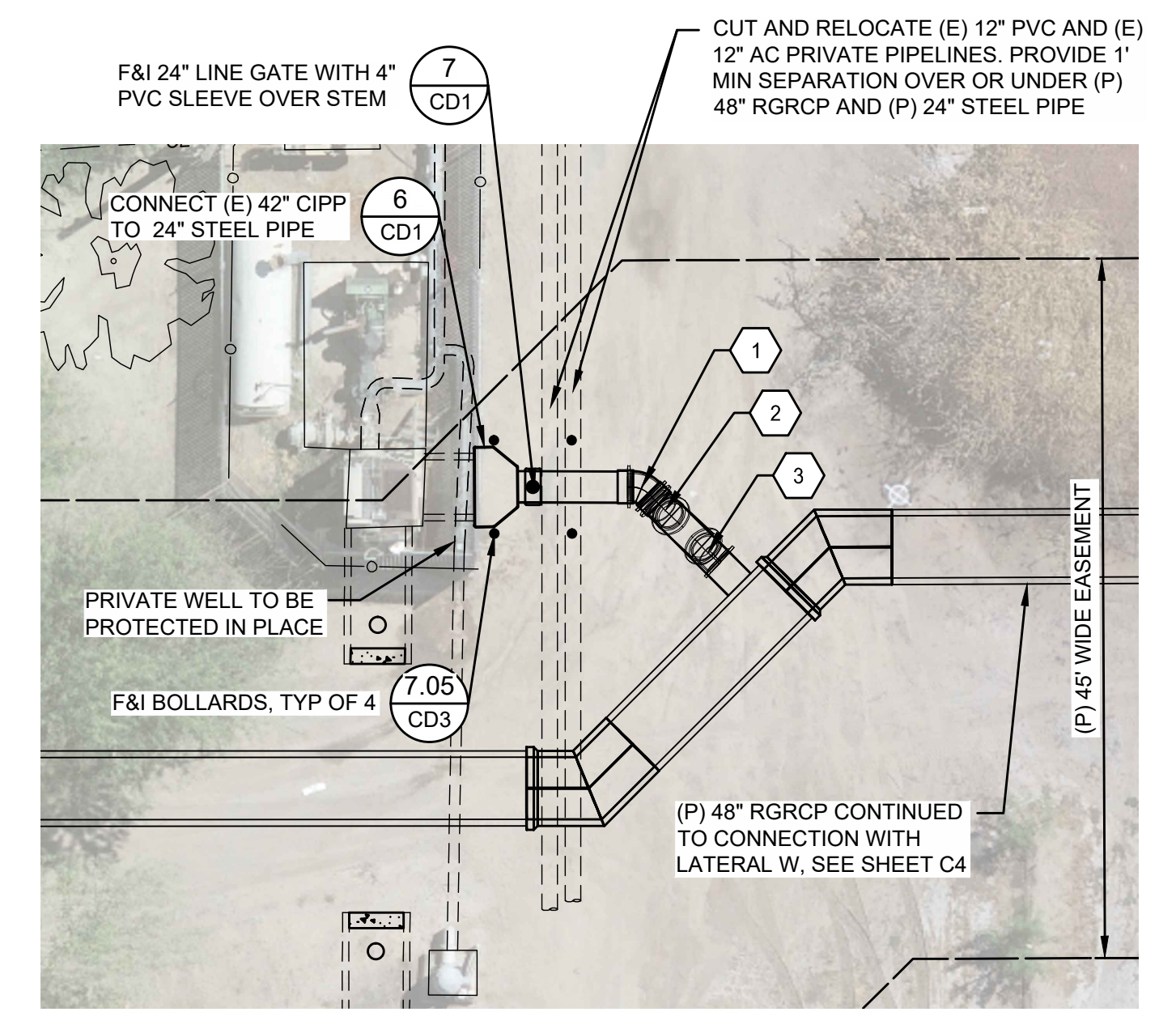
Public Works
Working for YOU

**TRENCH CUTTING POLICY
CROSS CUTTING OF
COUNTY ROADWAYS**

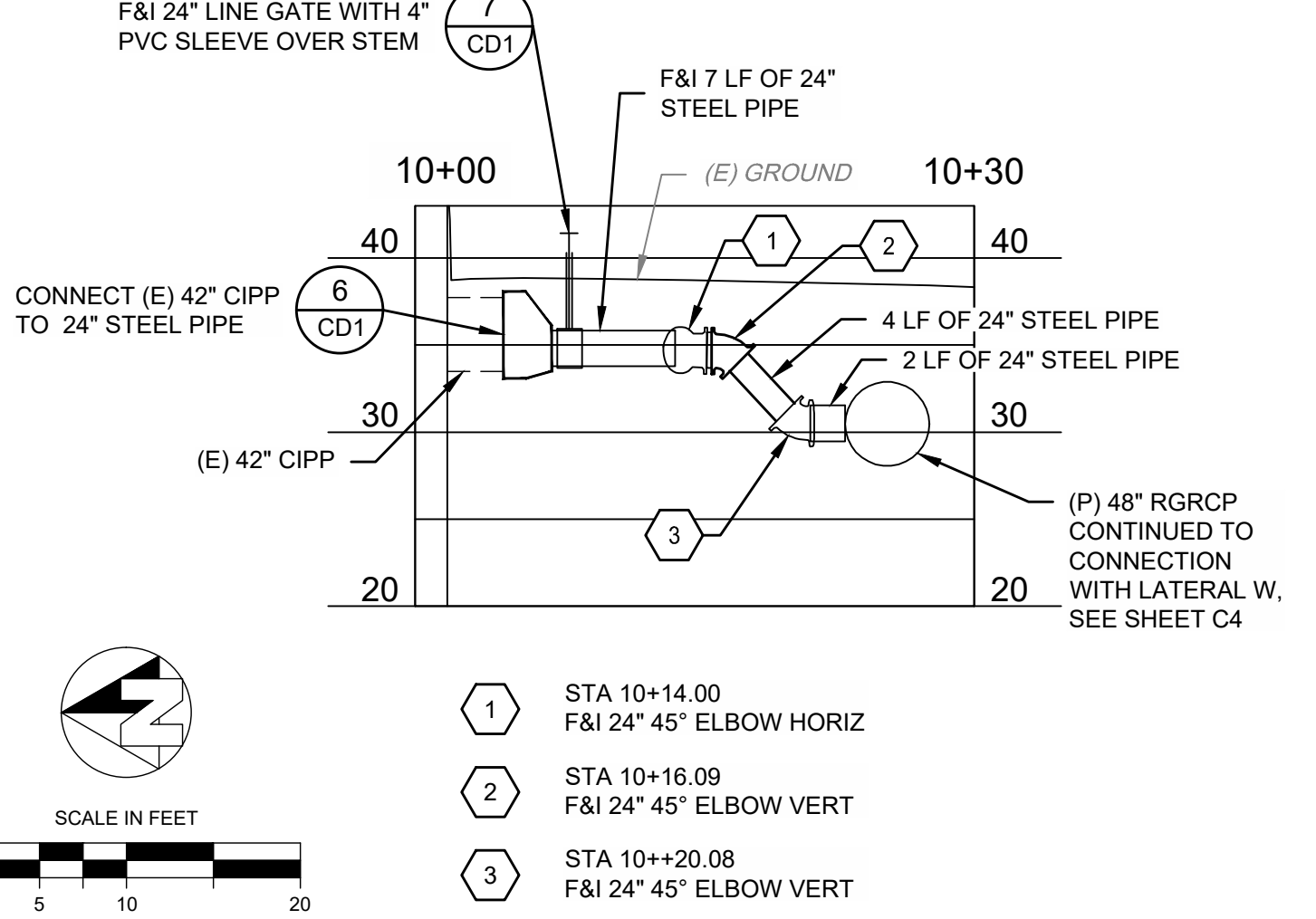
APPROVED BY: *Michael J. Kelly*

COUNTY OF SAN JOAQUIN
DEPARTMENT OF PUBLIC WORKS

Date: MAY 2016 Std. Dwg. No. **R-36**

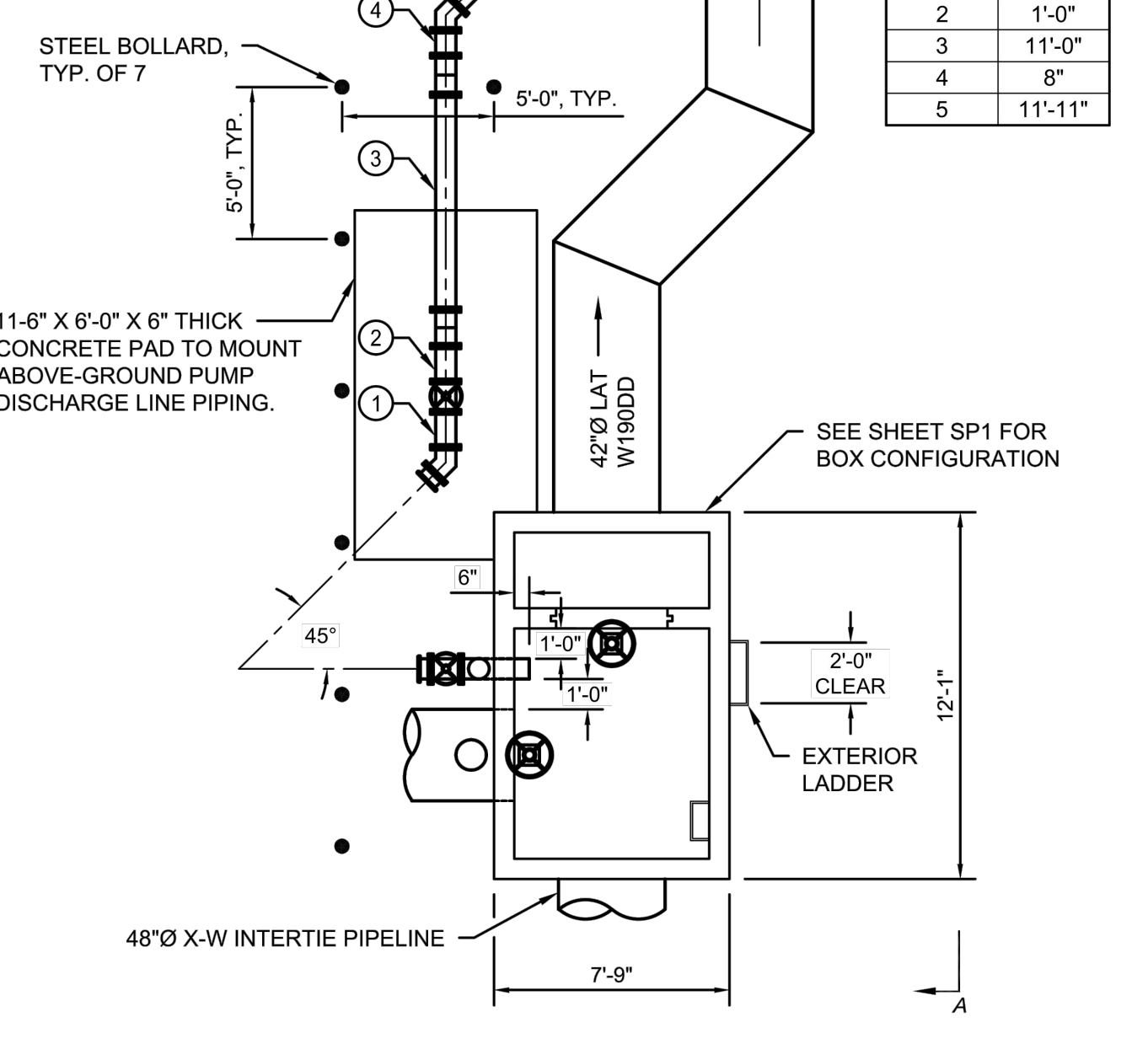


- NOTES:**
1. RECONNECT OR RELOCATE (E) PRIVATE IRRIGATION PIPELINES.
 2. PIPELINE BENDS SHALL BE CONSTRUCTED IN THE FIELD USING CONCRETE COLLARS PER DETAIL 4 SHEET CD1. USE OF PRECAST ELBOW FITTINGS SHALL BE INCLUDED AS ALTERNATE BID ITEMS.
 3. PIPELINE SHALL BE ASTM C-76 A-25 RUBBER GASKETED REINFORCED CONCRETE PIPE.
 4. WATERMAN CANAL GATES, GRATING, RAILING, LADDERS, AND STEPS AT CONTROL BOXES ARE TO BE FURNISHED AND INSTALLED BY THE OWNER. VENT COVERS ARE TO BE FURNISHED AND INSTALLED BY THE OWNER.



- 1 STA 10+14.00 F&I 24\"/>
- 2 STA 10+16.09 F&I 24\"/>
- 3 STA 10+20.08 F&I 24\"/>

- NOTES:**
- PIPE AND FITTINGS FOR PUMP SUCTION AND DISCHARGE ASSEMBLIES SHOWN ARE 8\"/>



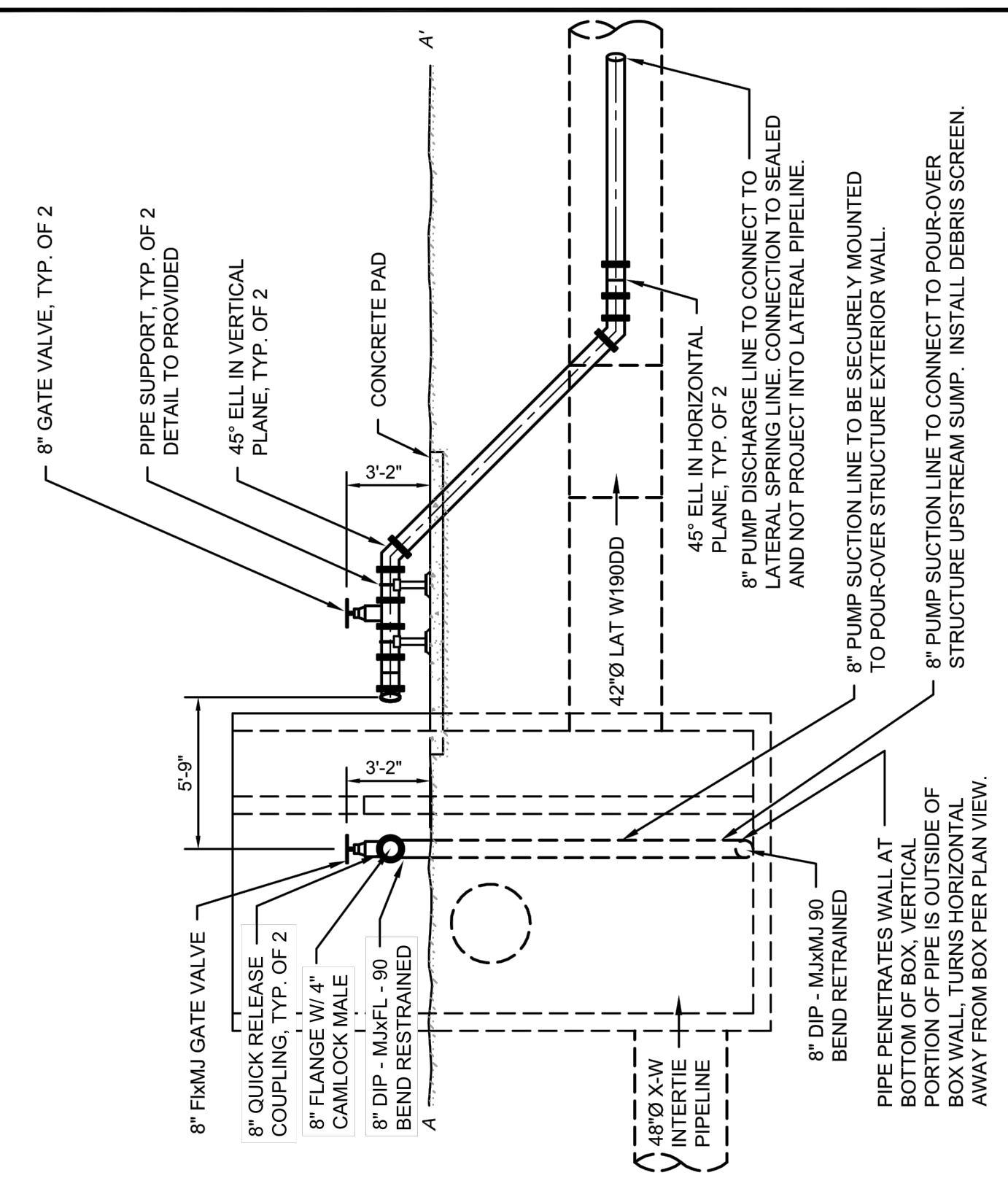
SSIID
SOUTH SAN JOAQUIN IRRIGATION DISTRICT

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

MAINTENANCE PUMP CONNECTION

APPROVED: FORREST KILLINGSWORTH, PE DATE: 8/2/2024

SCALE: NOT TO SCALE STANDARD DETAIL 6.06 1 OF 2



SSIID
SOUTH SAN JOAQUIN IRRIGATION DISTRICT

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

MAINTENANCE PUMP CONNECTION

APPROVED: FORREST KILLINGSWORTH, PE DATE: 8/2/2024

SCALE: NOT TO SCALE STANDARD DETAIL 6.06 2 OF 2

100% DESIGN FOR BIDDING PURPOSES ONLY 08/02/2024

DATE SIGNED: 08/02/2024

REVISION BY DATE

NO. 1

EDWARD J. CAMINATA
PROFESSIONAL ENGINEER
No. 88473
CIVIL
STATE OF CALIFORNIA

LATERAL X-W CONNECTION

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY

DETAILS

PROVOST & PRITCHARD
7701 BISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
TEL: (209) 898-2900
FAX: (209) 898-2900
www.provostandpritchard.com

DESIGN ENGINEER: ED CAMINATA
LICENSE NO: 88473

DRAFTED BY: LAJ, JMG CHECKED BY: ACC

DATE: 08/02/2024

JOB NO: 105522007

PROJECT NO: 105522007

PHASE: PRE

0 1"

ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET **CD4**

16 OF 16

APPENDIX B
STORM WATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

for

Linear Underground/Overhead Project Lateral W-X Connection

WDID # 5S39C401406

RISK TYPE 1

Legally Responsible Person (LRP)

South San Joaquin Irrigation District
PO Box 747
Ripon CA 95366
Forrest Killingsworth, Engineering Department Manager
(209) 249-4620

Project Address

Near Alice Road and Sedan Ave
Manteca, CA 95337
Centrally located at 37.757640, -121.201934

SWPPP Prepared by

Provost & Pritchard Consulting Group
455 W Fir Ave
Clovis, CA 93611
Gretchen Heisdorf, RCE 77241, QSD/P 00485, WPCM
(559) 449-2700

SWPPP Preparation Date

June 2023

Estimated Project Dates:

July 15, 2023 through August 31, 2025

Table of Contents

Section 1	SWPPP Requirements.....	3
1.1	Introduction	3
1.2	Permit Registration Documents.....	3
1.3	SWPPP Availability and Implementation	4
1.4	SWPPP Amendments	4
1.5	Retention of Records	5
1.6	Required NonCompliance Reporting.....	5
1.7	Annual Report	6
1.8	Changes to Permit Coverage	6
1.9	Notice of Termination.....	6
Section 2	Project Information.....	7
2.1	Project and Site Description	7
2.1.1	Site Description	7
2.1.2	Existing Conditions	7
2.1.3	Existing Drainage	7
2.1.4	Geology and Groundwater	7
2.1.5	Project Description	7
2.1.6	Developed Condition	7
2.2	Permits and Governing Documents	8
2.3	Stormwater Run-On from Off-site Areas	8
2.4	Findings of the LUP Type Determination.....	8
2.5	Construction Schedule	9
2.6	Potential Construction Activity and Pollutant Sources	9
2.7	Identification of Non-stormwater Discharges	10
2.8	Required Site Map Information.....	11
Section 3	Best Management Practices	12
3.1	Schedule for BMP Implementation	12
3.2	Erosion and Sediment Control.....	13
3.2.1	Erosion Control	13
3.2.2	Sediment Controls	15
3.3	Non-Stormwater Controls and Waste and Materials Management	18
3.3.1	Non-Stormwater Controls	18
3.3.2	Materials Management and Waste Management.....	21
3.4	Post construction Stormwater Management Measures	24
Section 4	BMP Inspection and Maintenance.....	25
4.1	BMP Inspection and Maintenance.....	25
Section 5	Training	26
Section 6	Responsible Parties and Operators.....	27
6.1	Responsible Parties.....	27
6.2	Contractor List.....	27
Section 7	Construction Site Monitoring and Reporting Program	28
7.1	Purpose	28
7.2	Applicability of Permit Requirements	28
7.3	Weather and Rain Event Tracking.....	28
7.3.1	Weather Tracking.....	28
7.3.2	Rain Gauges.....	28
7.4	Monitoring Locations	28
7.5	Safety and Monitoring Exemptions	29
7.6	Visual Monitoring	29

7.6.1	Routine Observations and Inspections.....	30
7.6.1.1	Daily Site BMP Inspections	30
7.6.2	Rain-Event Triggered Observations and Inspections	30
7.6.3	Visual Monitoring Procedures	31
7.6.4	Visual Monitoring Follow-Up and Reporting.....	31
7.6.5	Visual Monitoring Locations	31
7.7	Water Quality Sampling and Analysis.....	31
7.7.1	Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges 31	
7.7.1.1	Sampling Schedule.....	32
7.7.1.2	Sampling Locations.....	32
7.7.1.3	Monitoring Preparation	33
7.7.1.4	Analytical Constituents	34
7.7.1.5	Sample Collection.....	35
7.7.1.6	Sample Analysis	35
7.7.1.7	Data Evaluation and Reporting.....	37
7.7.2	Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges	37
7.7.3	Sampling and Analysis Plan for pH, Turbidity, and SSC in Receiving Water	37
7.7.4	Sampling and Analysis Plan for Other Pollutants Required by the RWQCB.....	37
7.7.5	Training of Sampling Personnel.....	37
7.7.6	Sample Collection and Handling.....	38
7.7.6.1	Sample Collection.....	38
7.7.6.2	Sample Handling.....	38
7.7.6.3	Sample Documentation Procedures	39
7.7	Active Treatment System Monitoring	39
7.8	Bioassessment Monitoring.....	39
7.9	Watershed Monitoring Option	39
7.10	Quality Assurance and Quality Control.....	40
7.10.1	Field Logs.....	40
7.10.2	Clean Sampling Techniques	40
7.10.3	Chain of Custody	40
7.10.4	QA/QC Samples.....	40
7.10.4.1	Field Duplicates	41
7.10.4.2	Equipment Blanks.....	41
7.10.4.3	Field Blanks.....	41
7.10.4.4	Travel Blanks.....	41
7.10.5	Data Verification.....	41
7.11	Records Retention	42
Section 8	References.....	43

Appendices

Appendix A.....	Site Maps
Appendix B.....	Permit Registration Documents
Appendix C.....	SWPPP Amendment Certifications
Appendix D.....	Submitted Changes to PRDs
Appendix E.....	Construction Schedule
Appendix F.....	Construction Activities, Materials Used, and Associated Pollutants
Appendix G.....	Fact Sheets
Appendix H.....	Training Reporting Form, Responsible Parties
Appendix I.....	Contractors and Subcontractors
Appendix J.....	Calculations
Appendix K.....	Weather Reports
Appendix L.....	Monitoring Records
Appendix M.....	Example Forms
Appendix N.....	Field Meter Instructions
Appendix O.....	Supplemental Information
Appendix P.....	Construction General Permit

FOR BIDDING
PURPOSES ONLY

SWPPP Certification

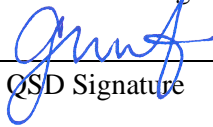
Qualified SWPPP Developer

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: Lateral W-X Connection

WDID Number 5S39C401406

“This Stormwater Pollution Prevention Plan and Attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Order Nos. 2009-009-DWQ, as amended by Order 2010-0014-DWQ, and 2012-0006-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below.”

 QSD Signature	<u>6/16/2023</u> Date	<u>00485</u> QSD Certificate Number
<u>Gretchen Heisdorf</u> QSD Name	<u>Senior Engineer</u> Title and Affiliation	<u>(559) 449-2700</u> Telephone Number

Legally Responsible Person

Either the Legally Responsible Person (LRP) or Approved Signatory must electronically sign, certify, and submit via SMARTS to the SWRCB for Notice of Intent, Changes of Information, Annual Reports, and Notice of Termination. In doing so, the LRP or Approved Signatory is certifying:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

The LRP (and Approved Signatory, if applicable) for this project are:

<u>Signed electronically via SMARTS</u> Legally Responsible Person Signature	<u>6/28/2023</u> Date
<u>Forrest Killingsworth</u> Name	<u>(209) 249-4620</u> Telephone Number

Amendment Log

Project Name: Lateral W-X Connection

WDID Number 5S39C401406

Amendment No.	Date	Brief Description of Amendment, include section and page number	Prepared and Approved By
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#

FOR BIDDING PURPOSES ONLY

Section 1 SWPPP Requirements

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) is designed to comply with California's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) Order No. 2009-0009-DWQ, as amended in 2010 and 2012 (NPDES No. CAS000002) issued by the State Water Resources Control Board (SWRCB) (Appendix P). This SWPPP has been prepared following the SWPPP template provided in the California Stormwater Quality Association's (CASQA's) Construction BMP Handbook (2019).

This project is considered a Linear Underground/Overhead Project (LUP). LUP projects include, but are not limited to, installation of pipelines for conveyance of liquid, gaseous, liquescent or slurry substances, cable line or wire to transmit electrical energy or communications, and ancillary facilities associated with the aforementioned projects. In accordance with the General Permit Attachment A, this SWPPP is designed to address the following:

- Pollutants and their sources, including sources of sediment associated with LUP activity are controlled;
- Where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
- Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from LUPs during construction to the Best Available Technology/Best Control Technology (BAT/BCT) standard; and
- Stabilization BMPs are installed to reduce or eliminate pollutants after construction is completed are effective and maintained.

The Lateral W-X Connection Project (Project) comprises approximately 1.5 acres and is located in a farm road between Veritas Rd and Sedan Ave near Manteca, California. The property is owned by private parties, the pipeline will be owned by South San Joaquin Irrigation District (SSJID, District) the project is being developed by South San Joaquin Irrigation District (SSJID, District). The project's location is shown on the Site Maps in Appendix A.

1.2 PERMIT REGISTRATION DOCUMENTS

Required Permit Registration Documents (PRDs) shall be submitted to the SWRCB via the Storm Water Multiple Application and Report Tracking System (SMARTS) by the Legally Responsible Person (LRP) or Approved Signatory under the direction of the LRP. The project-specific PRDs include:

1. Notice of Intent (NOI);
2. Risk Type determination;
3. Site Maps;
4. Annual fee;
5. Signed certification statement (LRP certification is conducted electronically with SMARTS PRD submittal); and
6. SWPPP.

Site Maps can be found in Appendix A. A copy of the Notice of Intent and Risk Type determination documentation shall be retained in Appendix B.

1.3 SWPPP AVAILABILITY AND IMPLEMENTATION

The discharger 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 municipal 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. (General Permit, Attachment A, Sections E.7 and K.3)

The SWPPP shall be implemented concurrently with the start of ground-disturbing activities.

1.4 SWPPP AMENDMENTS

The SWPPP should be revised when:

- There is a General Permit violation.
- There is a reduction or increase in total disturbed acreage (General Permit Attachment A, Section C).
- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.

Additionally, the SWPPP shall be amended when:

- There is a change in construction or operations which may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4);
- When there is a change in the project duration that changes the project's risk type; or
- When deemed necessary by the QSD. The QSD has determined that the changes listed in Table 1.1 can be field determined by the QSP. All other changes shall be made by the QSD as formal amendments to the SWPPP.

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP proposed, if any; and
- The new BMP proposed.

Amendment shall be logged at the front of the SWPPP and certification retained in Appendix C. The SWPPP text shall be revised replaced, and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD. Amended PRDs will be retained in Appendix D. The following changes have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions.

Table 1.1 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP ¹	Check changes that can be field located or field determined by QSP or contractor
Increase quantity of an Erosion or Sediment Control Measure	X
Relocate/Add stockpiles or stored materials	X
Relocate or add toilets	X
Relocate vehicle storage and/or fueling locations	X
Relocate areas for waste storage	X
Relocate water storage and/or water transfer location	X
Changes to access points (entrance/exits)	X
Change type or location of erosion or sediment control BMPs	X
Changes to schedule or segments covered under the General Permit	X
Changes in construction materials	X
<i>1 Any field changes not identified for field location or field determination by QSP must be approved by QSD.</i>	

1.5 RETENTION OF RECORDS

Paper or electronic records of documents required by this SWPPP shall be retained for a minimum of three years from the State Water Board Notice of Termination approval date. These records shall be available at the Site until construction is complete. Records assisting in the determination of compliance with the General Permit shall be made available within a reasonable time, to the RWQCB, SWRCB, or U.S. Environmental Protection Agency (EPA) upon request. Requests by the RWQCB for retention of records for a period longer than three years shall be adhered to.

1.6 REQUIRED NONCOMPLIANCE REPORTING

If a General Permit discharge violation occurs the QSP shall immediately notify the LRP. The LRP shall include information on the violation with the Annual Report. Corrective measures will be implemented immediately following identification of the discharge or written notice of non-compliance from the RWQCB. Discharges and corrective actions must be documented and include the following items:

- The date, time, location, nature of operation and type of unauthorized discharge.
- The cause or nature of the notice or order.
- The BMPs deployed before the discharge event, or prior to receiving notice or order.
- The date of deployment and type of BMPs deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent recurrence.

1.7 ANNUAL REPORT

The General Permit requires that permittees prepare, certify, and electronically submit an Annual Report no later than September 1st of each year for all sites active for at least three months within the previous reporting year (July 1 – June 30). Reporting requirements are identified in Section XVI of the General Permit. Annual Reports will be filed in SMARTS and in accordance with information required by the on-line forms.

All stormwater sampling results from Risk Type 3 LUPs and sampling results that exceed a NAL (see Section 2.4) for Risk Type 2 LUPs must be uploaded to SMARTS as an ad hoc report to the Annual Report within 10 days of the conclusion of the storm event.

1.8 CHANGES TO PERMIT COVERAGE

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when: a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, shall be logged at the front of the SWPPP and certification of SWPPP amendments are to be kept in Appendix C. Updated PRDs submitted electronically via SMARTS can be found in Appendix D.

1.9 NOTICE OF TERMINATION

A Notice of Termination (NOT) must be submitted electronically by the LRP via SMARTS to terminate coverage under the General Permit. The NOT must include a final Site Map and representative photographs of the project site that demonstrate final stabilization has been achieved.

Termination requirements are different depending on the complexity of the LUP. A NOT may be filed for a LUP when:

- Potential for construction-related stormwater pollution no longer exists;
- All elements of the SWPPP have been completed;
- Construction materials and waste have been disposed of properly;
- The site is in compliance with all local stormwater management requirements;
- Final stabilization requirements have been met, consisting of [select one of the following criteria]:
 - Re-establish uniform coverage equaling 70% of the pre-construction vegetative conditions; where preconstruction vegetation covers less than 100 % of the surface, such as in arid areas, the 70% coverage criteria is adjusted as follows: if the preconstruction vegetation covers 50% of the ground surface, 70% of 50% (.70 X .50=.35) would require 35% total uniform surface coverage.
 - Where no vegetation is present prior to constructions, return the site to its original line and grade and/or compacted to achieve stabilization.
 - Equivalent stabilization measures have been employed. These measures include, but are not limited to, erosion control blankets, reinforced channel liners, fiber matrices, etc.

The NOT shall be submitted within 90 days of completion of construction. The RWQCB will consider a construction site complete when the conditions of the General Permit, Attachment A, Section C have been met.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Description

The Project site comprises approximately 1.5 acres and is located along an agricultural farm road between Veritas Rd and Sedan Ave near Manteca, California. The project site is located approximately 2.7 miles west of Highway 99 and 0.25 miles south of the nearest residential development in Manteca, CA. The project site is located approximately 3.5 miles north of the Stanislaus River and 3.75 miles east of the San Joaquin River. The project's overall location map, as well as site maps showing the beginning and ending of the project are included in Appendix A.

	Starting Coordinates	Ending Coordinates
@ Veritas Rd through Agricultural Field	37.750361, -121.201797	37.761200, -121.201947

2.1.2 Existing Conditions

As of the initial date of this SWPPP, the project site is an existing dirt farm road or agricultural field. There are no known historic sources of contamination.

2.1.3 Existing Drainage

The project site is bordered by agricultural fields and rural residencies. The elevation of the project site ranges from 36-45 feet above mean sea level (msl). Surface drainage at the site currently flows to the to the road edges or into the agricultural fields which do not discharge to a waterbody. Stormwater is conveyed via surface runoff. Stormwater discharges from the site are not considered direct discharges to a waterbody. Existing site topography, drainage patterns, and stormwater conveyance systems are shown on the construction plan set. The project does not discharge to a water body.

2.1.4 Geology and Groundwater

The site is underlain by loamy coarse sand according to the USDA-NRCS web soil survey. Groundwater occurs beneath the site at approximately 6-10 feet below ground surface.

2.1.5 Project Description

Project grading will occur on approximately 1.5 acres of the project, which comprises approximately 100% of the total area. The limits of excavation and grading are shown on the construction plan set and generally are shown on the BMP site maps in Appendix A. Excavation/grading/trenching will include various locations of soil stockpiling for backfill uses. Construction activities will not be phased and will progress in the standard stages of construction. Limited clearing and grubbing will take place, structure construction will commence, followed by pipe alignment trenching and installation. Backfilling and stabilization will take place.

2.1.6 Developed Condition

Final site BMPs conditions will consist of dirt road and shoulder replacement and pavement crossing repair. Final conditions will a return to pre-construction conditions.

- Re-establish uniform coverage equaling 70% of the pre-construction vegetative conditions; where preconstruction vegetation covers less than 100 % of the surface, such as in arid areas, the 70% coverage criteria is adjusted as follows: if the preconstruction vegetation covers 50% of the ground surface, 70% of 50% (.70 X .50=.35) would require 35% total uniform surface coverage.

- Where no vegetation is present prior to constructions, return the site to its original line and grade and/or compacted to achieve stabilization.
- Equivalent stabilization measures have been employed. These measures include, but are not limited to, erosion control blankets, reinforced channel liners, fiber matrices, etc.

2.2 PERMITS AND GOVERNING DOCUMENTS

In addition to the General Permit, the following documents have been taken into account while preparing this SWPPP:

- RWQCB requirements, Basin Plan requirements
- Contract Documents
- Air Quality Regulations and Permits

2.3 STORMWATER RUN-ON FROM OFF-SITE AREAS

There is no anticipated offsite run-on to this construction site due to existing site topography.

2.4 FINDINGS OF THE LUP TYPE DETERMINATION

A LUP risk type determination has been performed and the project has been classified as a Type 1 LUP.

The risk type was determined through the use of General Permit Attachment A.1 and General Permit Attachment 1, if applicable (i.e., K, LS provided in SMARTS, a site specific analysis). Erosivity values were calculated via the low erosivity calculator at <https://www.epa.gov/npdes/rainfall-erosivity-factor-calculator-small-construction-sites>. The risk type is based on project duration, location, proximity to impaired receiving waters and soil conditions. A copy of the risk type determination submitted on SMARTS with the PRDs is included in Appendix B.

Using Attachment A.1 of the General Permit, the site was categorized as a Type 1 LUP based on the following criteria:

- Does 70 percent or more of the construction activity occurs on a paved surface? [N]
 - Will these areas be returned to preconstruction conditions or equivalent protection at the end of construction activities each day? [n/a]
- Does 30 percent or more of construction activities occur within the non-paved shoulders or land immediately adjacent to paved shoulders. Or does construction occur on unpaved improved roads including their shoulders or land adjacent to them? [Y]
 - Will disturbed areas be returned to preconstruction conditions or equivalent protection at the end of construction activities each day? [Y]
 - Will areas where established vegetation was disturbed during construction be stabilized by the end of the project? Where required, will adequate temporary BMPs be installed and maintained until vegetation is established? [Y]
- Based on the Sediment Risk Based on Appendix 1 Risk Factor Worksheet, the sediment risk was LOW: <15 tons/acre
- Determine receiving water risk:
 - Is the project area or project section area located within a Sediment Sensitive Watershed? [N]
 - Is the project area or section located within the flood plain or flood prone area (riparian zone) of a Sensitive Receiving Water Body? [n/a]
- Are type determination values either
 - Low sediment risk, low receiving water risk?

Type 1 LUPs are subject to the narrative effluent limitations specified in the General Permit, but not numeric effluent standards. The narrative effluent limitations require that stormwater and authorized non-

stormwater discharges not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R sections 117.3 and 302.4. Additionally, discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-stormwater through the use of controls, structures, and best management practices. This SWPPP has been prepared to address Risk Type 1 requirements (General Permit Attachment A).

Table 2.3 and Table 2.4 summarize the sediment and receiving water risk factors and document the sources of information used to derive the factors.

Table 2.3 Summary of Sediment Risk

RUSLE Factor	Value	Method for establishing value
R	66.19	USEPA Erosivity Calculator
K	0.28	SMARTS GIS database
LS	0.19	SMARTS GIS database
Total Predicted Sediment Loss (tons/acre)		3.52
Overall Sediment Risk Low Sediment Risk < 15 tons/ acre Medium Sediment Risk >= 15 and < 75 tons/acre High Sediment Risk >= 75 tons/acre		<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

The project does not run off.

Table 2.4 Summary of Receiving Water Risk

Overall Receiving Water Risk (determined through SMARTS GIS database)	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
---	--

2.5 CONSTRUCTION SCHEDULE

The overall construction schedule, as well as the start and end dates for each segment are provided in Appendix E. Modification or extension of the schedule (start and end dates) may affect risk type determination and permit requirements. The QSD will be made aware of schedule changes during construction in order to address potential impact to the SWPPP.

2.6 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Appendix F includes a list of construction activities and associated materials that are anticipated to be used onsite. These activities and associated materials will or could potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the Best Management Practices for the project. Location of anticipated pollutants and associated BMPs are show on the Site Maps in Appendix A.

Additionally, proper measures shall be taken to ensure that trench spoils or any other soils disturbed during construction activities that are contaminated are not discharged with stormwater or non-stormwater discharges into storm drains or water bodies (except pursuant to a NPDES Permit). If contaminated soils are found on site, and the responsible party cannot be identified or fails to take action, soils will be

sampled to determine proper handling and protect public safety. The appropriate local, State, and federal agencies along with the appropriate RWQCB shall be notified when contaminated soils are observed.

For sampling requirements for non-visible pollutants associated with construction activity please refer to Section 7.7.1. For a full and complete list of onsite pollutants, refer to the Safety Data Sheets (SDS), which are retained onsite at the construction trailer.

2.7 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges consist of discharges which do not originate from precipitation events. The General Permit provides allowances for specified non-stormwater discharges that do not cause erosion or carry other pollutants.

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited. Non-stormwater discharges that are applicable for this project site are listed in Table 2.5 below.

Table 2.5 Authorized Non-Stormwater Discharges

Authorized Non-Stormwater Discharges	Applicable to Project
Fire Hydrant Flushing	N
Irrigation of Vegetation for Erosion Control	Y
Pipe Flushing and Testing	Y
Water for Dust Control	Y
Street Cleaning	Y
Dewatering	Y
Uncontaminated Groundwater from Dewatering	Y

These authorized non-stormwater discharges will be managed with the stormwater and non-stormwater BMPs described in Section 3 of this SWPPP and will be minimized. Additionally, the non-stormwater discharges not applicable to this project are still allowable granted they do not contact potential pollutant sources.

Activities at this site that may result in unauthorized non-stormwater discharges include:

- Vehicle/Equipment Cleaning, Fueling, and Maintenance Operations
- Vehicle/Equipment Wash water including Concrete Washout Water
- Wash water from Cleaning Painting Equipment
- Concrete cutting/coring operation slurries, PCC grinding or AC grinding operations
- Slurries from Concrete or Mortar Mixing operations
- Slurries from Drilling or Boring operations
- Blast residue from High-Pressure Washing
- Dust Control runoff or dust control palliatives
- Liquid waste, Sanitary/Septic wastes, etc.
- Chemical leaks and/or spills of any kind including but not limited to petroleum, paints, curing compounds, etc.

Steps will be taken, including the implementation of appropriate BMPs, to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on-site.

Discharges of construction materials and wastes, such as fuel or paint, resulting from dumping, spills, or direct contact with stormwater are prohibited.

2.8 REQUIRED SITE MAP INFORMATION

The LUP's Site Maps show the project location; geographic features; locations of storm drain inlets that receive runoff from the project, surface water boundaries, geographic features, construction site perimeter, general topography, and other requirements identified in General Permit Attachment A are located in Appendix A. Table 2.6 identifies Map or Sheet Nos. where required elements are illustrated.

Table 2.6 Site Map Information

Included on Site Map/Plan Sheet No. ⁽¹⁾	Required Element
Cover	The project's surrounding area (vicinity)
Cover, site plan	LUP segments
BMP Sheets	Construction site boundaries
n/a	Storm drain inlets that receive runoff from the project
TBD	Discharge locations
TBD	Sampling locations (if applicable)
BMP Sheets	Locations of erosion control BMPs
BMP Sheets	Locations of sediment control BMPs
n/a	Locations of sensitive habitats, watercourses, or other features that are not to be disturbed
Staging Area	Waste storage areas
Staging Area	Vehicle storage areas
Staging Area, BMP Sheets	Material storage areas
BMP Sheets	Entrance and Exits
Staging Area, BMP Sheets	Fueling Locations

Notes: (1) Indicate maps or drawings that information is included on (i.e., site maps, drainage plans, grading plans, progress maps, etc.)

Section 3 Best Management Practices

3.1 SCHEDULE FOR BMP IMPLEMENTATION

BMPs will be implemented as per the schedule indicated in Table 3.1.

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
Erosion Control	EC-1, Scheduling	Prior to construction	Entirety of Project
	EC-2, Preservation of Existing Vegetation	Start of construction	Entirety of Project
	EC-7, Geotextiles and Mats	During construction	As necessary with other BMPs
	EC-9, Earth Dike & Drainage Swales	Per construction plans	Final Stabilization
	EC-15, Soil Preparation Roughening EC-16, Non-Vegetated Stabilization	During construction	Temporary Stabilization
Sediment Control	SE-1, Silt Fence SE-5, Fiber Rolls	During Construction; Post-Mass Grading	Entirety of Project
	SE-3, Sediment Trap SE-4, Check Dams SE-6, Gravel Berm Bags SE-8, Sandbag Barriers	During Construction	Entirety of Project
	SE-7, Street Sweeping	During Construction	Entirety of Project
	SE-10, Storm Drain Inlet Protection	During Construction	Entirety of Project
Tracking Control	TC-1, Entrance/Exit Controls	Prior to construction	Entirety of Project
Wind Erosion	WE-1, Wind Erosion Control	Start of construction	Entirety of Project
Non-Stormwater Controls	NS-1, Water Conservation Practices NS-6, Illicit Connection/Discharge NS-7, Potable Water/Irrigation	During Construction	Entirety of Project
	NS-2, Dewatering Operations	During Construction	As Necessary
	NS-3, Paving and Grinding Operations	During Construction	As Necessary
	NS-8, Vehicle and Equipment Cleaning NS-9, Vehicle and Equipment Fueling NS-10, Vehicle and Equipment Maintenance	During Construction	Entirety of Project
	NS-12, Concrete Curing NS-13, Concrete Finishing	During Construction	As Necessary

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
Materials and Waste Management	WM-1, Material Delivery and Storage	During Construction	Entirety of Project
	WM-2, Material Use		
	WM-4, Spill Prevention and Control		
	WM-5, Solid Waste Management		
	WM-3, Stockpile Management	During Construction	As Necessary
	WM-6, Hazardous Waste Management		
	WM-7, Contaminated Soil Management		
	WM-8, Concrete Waste Management		
	WM-9, Sanitary-Septic Waste Management		
	WM-10, Liquid Waste Management		

3.2 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required by the General Permit to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the Site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control, and wind erosion control.

3.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles.

This construction project will implement the following practices to provide effective temporary and final erosion control during construction:

1. Preserve existing vegetation where required and when feasible.
2. The area of soil disturbing operations shall be controlled such that the Contractor is able to implement erosion control BMPs quickly and effectively.
3. Stabilize non-active areas within 14 days of cessation of construction activities or sooner if stipulated by local requirements.
4. Control erosion in concentrated flow paths by applying erosion control blankets, check dams, erosion control seeding or alternate methods.
5. Prior to the completion of construction, apply permanent erosion control to remaining disturbed soil areas.

Sufficient erosion control materials shall be maintained onsite to allow implementation in conformance with this SWPPP.

The following erosion control BMP selection table indicates the BMPs that shall be implemented to control erosion on the construction site. These temporary erosion control BMPs shall be implemented in conformance with the following guidelines and as outlined in the BMP Factsheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3.2 Erosion Control BMPs

CASQA Fact Sheet	BMP Name	Considered	BMP Used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
EC-1	Scheduling	✓	✓		
EC-2	Preservation of Existing Vegetation	✓	✓		
EC-3	Hydraulic Mulch	✓ ⁽¹⁾		✓	Not applicable
EC-4	Hydroseed	✓ ⁽¹⁾		✓	
EC-5	Soil Binders	✓ ⁽¹⁾		✓	
EC-6	Straw Mulch	✓ ⁽¹⁾		✓	
EC-7	Geotextiles and Mats	✓ ⁽¹⁾	✓		
EC-8	Wood Mulching	✓ ⁽¹⁾		✓	Not applicable
EC-9	Earth Dike and Drainage Swales	✓ ⁽²⁾	✓		
EC-10	Velocity Dissipation Devices			✓	Not applicable
EC-11	Slope Drains			✓	
EC-12	Stream Bank Stabilization			✓	
EC-14	Compost Blankets	✓ ⁽¹⁾		✓	
EC-15	Soil Preparation-Roughening		✓		
EC-16	Non-Vegetated Stabilization	✓ ⁽¹⁾	✓		
WE-1	Wind Erosion Control	✓	✓		
<p>⁽¹⁾ Optional BMP to meet the General Permit, Attachment A, Section J minimum BMP requirement: providing effective soil cover for inactive areas, all finished slopes, and utility backfill.</p> <p>⁽²⁾ All run-on and runoff from the construction site shall be managed for Type 2 and 3 LUPs. Run-on from offsite shall be directed away from all disturbed areas, diversion of offsite flows may require design/analysis by a licensed civil engineer and/or additional environmental permitting. Run-on and runoff controls are not required for Type 1 LUPs unless the evaluation of quantity and quality of run-on and runoff deems them necessary or visual inspections show that the site requires such controls.</p>					

These temporary erosion control BMPs shall be implemented in conformance with the following guidelines and as outlined in the BMP fact sheets provided in Appendix G. If there is a conflict between documents, the Site Maps will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Maps prevail over standard details included in the Site Maps. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Scheduling

The contractor shall sequence construction activities with the installation of both soil stabilization and sediment control measure BMPs to reduce the discharge of sediment and pollutants to storm drain facilities or watercourses. The contractor shall create a schedule detailed enough to show major activities sequences with the implementation of construction site BMPs. Scheduling will be used as much as practicable to reduce areas of in-active soil disturbance per BMP detail EC-1.

Preservation of Existing Vegetation

The contractor shall not disturb or destroy any vegetation or habitat unless absolutely necessary for the performance of the Work. The Contractor shall inform onsite personnel of the work limits and not to disturb vegetation outside those limits, including travel to and from the project site. The protection and preservation of such vegetation shall serve to control erosion and filter out sediment.

Geotextiles and Mats

The Contractor will use plastic covers to cover exposed soil and stockpiled material areas. Covers will be placed over stockpiles prior to forecast storm events and anchored to prevent damage by wind. Plastic covers will be used in conjunction with sandbags or fiber rolls to cover all stockpiles within 48 hours of stockpiling material or before a forecasted storm event, whichever occurs first. Plastic sheeting will also be used under equipment to catch drips if the equipment is not in use.

Earth Dike and Drainage Swales

Dikes and swales may be implemented as part of the engineered project design. If the Contractor proposes the use of dikes or swales as a temporary measure, the dike and/or swale shall be designed and stamped by a licensed CA Civil Engineer.

Soil Preparation-Roughening

In areas of high traffic (travel banks, dirt roads) and bank slopes equipment will be utilized to compact and track walk surfaces that require stabilization but not a seed mixture or other impervious treatment. The slope compaction will aid in final stabilization and prevent sediment erosion runoff into surrounding agricultural fields. The roughing and compaction will also reduce the potential of over-seeding the slope, introducing seed product to the adjacent agricultural fields or require watering during drought conditions.

Non-Vegetated Stabilization

Non-Vegetative Stabilization is to be used in conjunction with Soil Preparation Roughening. In addition to Soil Preparation Roughening, the Contractor shall use impervious concrete surfaces and rock slope stabilization (rip rap per construction plans) to prevent sediment erosion and potential pollutant run-off after construction is complete. No non-native chemical binders will be used other than concrete without Owner approval.

Wind Erosion Control

The water will be applied using water trucks. Wind Erosion Control and Water Conservation Practices BMPs will be implemented to provide dust control and prevent discharges from dust control activities and water supply equipment. Water application rates will be minimized as necessary to prevent runoff and ponding and water equipment leaks will be repaired immediately.

3.2.2 Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

The following sediment control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Sediment control BMPs are provided in Appendix G.

Table 3.3 Temporary Sediment Control BMPs

CASQA Fact Sheet	BMP Name	Considered	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
SE-1	Silt Fence	✓ ⁽¹⁾⁽²⁾	✓		
SE-2	Sediment Basin			✓	Not applicable
SE-3	Sediment Trap		✓		
SE-4	Check Dams		✓		
SE-5	Fiber Rolls	✓ ⁽¹⁾⁽²⁾	✓		
SE-6	Gravel Bag Berm	✓ ⁽²⁾	✓		
SE-7	Street Sweeping	✓	✓		
SE-8	Sandbag Barrier		✓		
SE-9	Straw Bale Barrier			✓	Not applicable
SE-10	Storm Drain Inlet Protection	✓ ⁽²⁾	✓		
SE-11	ATS			✓	Not applicable
SE-12	Manufactured Linear Sediment Controls			✓	
SE-13	Compost Sock and Berm	✓ ⁽²⁾		✓	
SE-14	Biofilter Bags	✓ ⁽²⁾		✓	
TC-1	Stabilized Construction Entrance and Exit	✓ ⁽¹⁾	✓		
TC-2	Stabilized Construction Roadway			✓	Not applicable
TC-3	Entrance Outlet Tire Wash			✓	

⁽¹⁾ Optional BMP to meet the General Permit, Attachment A, Section J minimum BMP requirement: establish and maintain effective perimeter controls as needed, and implement effective BMPs for all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.

⁽²⁾ Risk Type 2 and 3 shall provide linear sediment control along toe of slope, face of slope, and at the grade breaks of exposed slope.

The following sediment control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. These temporary sediment control BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Silt Fence

The contractor shall use silt fence as specified in the Maps and by the QSP. Silt fences shall be installed per the BMP guidance sheet and shall not contribute to erosion/pollutant discharges. Repair silt fences within 24 hours of discovering damage. Remove and properly disposed of accumulated sediment with 24 hrs.

Sediment Trap/Check Dams

The Contractor shall use check dams or sediment traps in locations where fiber rolls are not proven effective to control run-off in concentrated drainage paths. The devices shall be constructed and installed per the BMP guidance sheet and shall not contribute to erosion/pollutant discharges. Repair devices and remove accumulated sediment within 24 hours of discovering damage/build-up.

Fiber Rolls

The Contractor shall install fiber rolls downstream of the drainage perimeter as needed where shown on the Site Maps. Obstruction including rocks, clods, and debris greater than one inch in diameter will be removed from the ground before placing fiber rolls. Repair fiber rolls within 24 hrs. of discovering damage.

Gravel Bag Berm, Sandbag Barrier

Bags will be used as a linear sediment barrier for stockpiled materials; bags must be placed in a single layer and placed end to end to eliminate gaps. Bags will be placed along the down gradient side of any parked vehicles and equipment thereby diverting and filtering the rain runoff water around the vehicle and equipment in the event of imminent rain. Temporary bags shall be maintained to provide for adequate sediment holding capacity. Sediment deposits shall be removed when the deposit reaches one third of the temporary bag barrier height. Removed sediment shall be deposited within the project in such a way that the sediment is not subject to erosion by wind or water, or as directed by the QSD/P, Owner and/or Engineer.

Street Sweeping

The Contractor shall use hand or mechanical methods such as vacuuming to perform street sweeping where noticeable tracking of material from the job site onto adjacent streets occurs. Street sweeping shall start at the beginning of construction activities and continue daily and on as needed basis until the completion of the project, or as directed by the Owner or QSD/P. Road sweeping and vacuuming will occur during soil hauling and as necessary to keep streets clear of tracked material and debris. Washing of sediment tracked onto streets into storm drains will not occur.

Storm Drain/Culvert Inlet Protection

Inlet protection will be used at all inlets within the project limits. Temporary devices constructed around storm drain inlets improve the quality of water being discharged to inlets or catch basins by ponding sediment-laden runoff and increasing settling time. Inlet protection shall be placed in a manner that does not cause ponding or pose a threat to pedestrian or traffic safety. Approximate locations of inlets are shown on the Site Maps and the Contractor shall inspect exact locations and protect them prior to commencing work. After construction, the contractor shall remove this BMP from all locations where implemented. This is appropriate for small drainage areas only. This BMP will be used where sediment-laden surface runoff may enter an inlet, where drainage areas have not been permanently stabilized and prior to a rain event.

Stabilized Construction Entrance and Exit

A stabilized construction entrance/exit will be constructed and maintained at construction site entrances and exits. The site entrance/exit will be stabilized to reduce tracking of sediment as a result of construction traffic. The entrance shall be designated and graded to prevent runoff from leaving the site. Stabilization material will be 3-inch minus aggregate over filter fabric. The entrance shall be flared where meets the existing road to provide an adequate turning radius. A site entrance/exit shall only be installed to reduce tracking of sediment during dirt-hauling activities that extend over a one-week time period.

3.3 NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1 Non-Stormwater Controls

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit, are prohibited. Non-stormwater discharges for which a separate NPDES permit is required by the RWQCB are prohibited unless coverage under the separate NPDES permit has been obtained for the discharge. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.7 of this SWPPP.

The following non-stormwater control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Non-stormwater BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

FOR BIDDING
PURPOSES ONLY

Table 3.4 Temporary Non-Stormwater BMPs

CASQA Fact Sheet	BMP Name	Considered	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
NS-1	Water Conservation Practices	✓ ⁽¹⁾	✓		
NS-2	Dewatering Operation	✓ ⁽¹⁾	✓		
NS-3	Paving and Grinding Operation		✓		
NS-4	Temporary Stream Crossing			✓	Not applicable
NS-5	Clear Water Diversion			✓	
NS-6	Illicit Connection/Discharge	✓	✓		
NS-7	Potable Water/Irrigation	✓ ⁽¹⁾	✓		
NS-8	Vehicle and Equipment Cleaning	✓ ⁽¹⁾	✓		
NS-9	Vehicle and Equipment Fueling	✓ ⁽¹⁾	✓		
NS-10	Vehicle and Equipment Maintenance	✓ ⁽¹⁾	✓		
NS-11	Pile Driving Operation			✓	Not applicable
NS-12	Concrete Curing		✓		
NS-13	Concrete Finishing		✓		
NS-14	Material and Equipment Use Over Water			✓	Not applicable
NS-15	Demolition Removal Adjacent to Water			✓	
NS-16	Temporary Batch Plants			✓	

⁽¹⁾ Optional BMP to meet the General Permit Attachment A, Section J minimum BMP requirements for good housekeeping and non-stormwater management.

Water Conservation Practices

The Contractor shall implement water conservation practices when water is used on the project site. The Contractor shall make sure that any water leakage is repaired promptly, and all water equipment will be kept in good working condition. Vehicles and equipment will not be washed on site. Water will not be used to clean construction areas and authorization must be obtained before washing anything at the job site with water that could possibly discharge into a storm drain system or watercourse. Discharges must be reported immediately. Water should be directed from the job site to areas where it can infiltrate into the ground. Direct water from off-site sources around the job site if practicable.

Dewatering Operation

Water shall not be released/discharged from the Project site without testing and specific authorization from the Owner and/or governing agencies.

Paving and Grinding Operation

The Contractor shall perform some paving, grinding, sealing, and sawcutting operations throughout the project site. Do not allow water or slurry during sawcutting or grinding of existing PCC or AC to enter storm drains or water courses, cover drain inlets prior to these operations. Whenever precipitation is forecasted, limit paving, sawcutting, and grinding to places where runoff can be captured. Residue from sawcutting or grinding operations shall be picked up by means of a vacuum. Noticeable tracking and fines shall be removed to prevent sediment and grindings from entering drainage systems and watercourses. Drip protection will be placed under paving equipment when not in use. Paving equipment will be staged on level ground and drip protection will be free of rips and holes and will be bermed.

Illicit Connection/Discharge

The site will be inspected before the project commences and regularly during the project for illicit connections or illegal dumping or discharge. If any are found, they will be reported to the QSD/P and/or Owner at the time of discovery. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

Potable Water/Irrigation

Potable water will be used for dust control purposes. Irrigated areas within the construction limits will be inspected for excess watering. Watering times and schedules will be adjusted to ensure that the appropriate amount of water is being used and to minimize runoff.

Vehicle and Equipment Cleaning

Due to the nature of the project vehicle and equipment cleaning or washing at the job site will not be allowed except what is necessary to control vehicle tracking or hazardous waste using NS-8. Clean or wash vehicles and equipment in a structure equipped with disposal facilities. You may wash vehicles in an outside area if the area is, paved with asphalt concrete, HMA, or PCC, surrounded by a containment berm, and equipped with a sump to collect and dispose of wash water.

Vehicle and Equipment Fueling

Construction vehicles will be fueled offsite when possible. When necessary, NS-9 will be used on all vehicles that cannot be fueled offsite. If fueling or maintenance must be done onsite, activities must be performed on level ground in areas protected from stormwater run-on and runoff.

Vehicle and Equipment Maintenance

Most construction vehicles will be stored offsite but NS-10 will be utilized for all equipment that must be stored onsite. Plastic Sheeting will be placed under equipment that is not in use.

Concrete Curing

The Contractor shall not overspray chemical curing compound. Minimize the drift by spraying as close to the concrete as possible. Cover drainage inlets before applying the curing compound. Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture while curing concrete.

Concrete Finishing

Collect and dispose of water and solid waste from high-pressure water blasting. Cover drainage inlets within 50 feet before sandblasting. Minimize drift of dust and blast material by keeping the nozzle close to the surface of the concrete. The blast residue may contain hazardous material. Inspect concrete finishing containment structures for damage before each day of use and before predicted precipitation. Remove liquid and solid waste from containment structures after each work shift.

3.3.2 Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing and using construction materials to prevent the release of those materials into stormwater discharges. The amount and type of construction materials to be utilized at the Site will depend upon the type of construction and the length of the construction period. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization.

Waste management consist of implementing procedural and structural BMPs for handling, storing and ensuring proper disposal of wastes to prevent the release of those wastes into stormwater discharges.

Materials and waste management pollution control BMPs shall be implemented to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site. The primary mechanisms for stormwater contact that shall be addressed include:

- Direct contact with precipitation;
- Contact with stormwater run-on and runoff;
- Wind dispersion of loose materials;
- Direct discharge to the storm drain system through spills or dumping; and
- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

A list of construction activities is provided in Section 2.6. The following Materials and Waste Management BMP selection table indicates the BMPs that shall be implemented to handle materials and control construction site wastes associated with these construction activities. Material management BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3.5 Temporary Materials Management BMPs

CASQA Fact Sheet	BMP Name	Considered	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
WM-01	Material Delivery and Storage	✓ ⁽¹⁾	✓		
WM-02	Material Use	✓ ⁽¹⁾	✓		
WM-03	Stockpile Management	✓ ⁽¹⁾	✓		
WM-04	Spill Prevention and Control	✓ ⁽¹⁾	✓		
WM-05	Solid Waste Management	✓ ⁽¹⁾	✓		
WM-06	Hazardous Waste Management	✓ ⁽¹⁾	✓		
WM-07	Contaminated Soil Management		✓		
WM-08	Concrete Waste Management	✓ ⁽¹⁾	✓		
WM-09	Sanitary-Septic Waste Management	✓ ⁽¹⁾	✓		
WM-10	Liquid Waste Management	✓ ⁽¹⁾	✓		

⁽¹⁾ Optional BMP to meet the General Permit Attachment A, Section J minimum BMP requirements for good housekeeping, non-stormwater discharges, and waste management.

Material Delivery and Storage

The Contractor shall establish an onsite construction yard for this project, and shall utilize the yard for storage of materials. Secondary containment shall be provided for any hazardous chemicals as required by the General Permit and other Federal and State regulations. Construction materials shall be brought onsite when needed to complete construction operations. Employees and subcontractors shall be trained on proper material delivery and storage practices. The contractor shall implement material delivery and storage primarily during unloading and handling of materials onsite.

Material Use

The contractor shall use materials in accordance with the Manufacturer’s specifications to avoid misuse. The Contractor shall mix and prepare a proper amount of material to avoid excess at the end of each work shift. Drip pans, safety data sheets, a material inventory, emergency contact numbers, spill kits, and absorbent pads shall be kept onsite and employed for any spills that occur.

Stockpile Management

Implement water pollution control practices within 48 hours of stockpiling material or before a forecasted storm event, whichever occurs first. If stockpiles are being used, do not allow soil, sediment, or other debris to enter storm drains, open drainages, and watercourses. Active and inactive soil stockpiles and

stockpiles must be, covered with plastic tarpaulins and surrounded with a linear sediment barrier, such as gravel bags.

Spill Prevention and Control

Throughout the project limits the contractor will implement spill and leak prevention procedures for chemicals and hazardous substances when encountered on the jobsite. The project foreman will keep a spill and clean up kit in his truck at all times while onsite to allow for quick clean-up of all spills or leaks. Material and waste storage areas clean will be kept clean, well-organized, and equipped with enough cleanup supplies for the material being stored. As soon as it is safe, contain and clean up spills of petroleum materials and sanitary and septic waste substances listed under 40 CFR, Parts 110, 117, and 302.

Solid Waste Management

Throughout project, the contractor will load solid wastes directly into trucks and/or waste disposal containers for off-site disposal weekly. Waste disposal containers will be covered at the end of every business day and during rain events. There will be watertight, closed-lid dumpsters to contain the solid waste generated by work activities. Dumpsters and trash receptacles will be placed in locations where workers eat lunch. When refuse reaches the fill line, the dumpsters shall be emptied. Dumpster will not be allowed to be washed out at the job site.

Hazardous Waste Management

Throughout the project limits, should the contractor encounter hazardous waste during the course of the project, WM-6 practices will be implemented.

Contaminated Soil Management

Throughout the project limits, should the contractor encounter contaminated soil(s) during the course of the project, WM-7 practices will be implemented.

Concrete Waste Management

The contractor will implement concrete waste management in the construction project yard and multiple areas throughout the construction project area. The temporary concrete washout will be furnished, maintained, and removed as necessary. The contractor will use portable temporary concrete washouts as a water pollution control practice for any concrete waste that is produced. All concrete washouts will be properly marked, covered before any rain event, and will be maintained properly. Employees, subcontractors, and suppliers shall be fully educated on the concrete waste management techniques outlined in the following practices and procedures: PCC and AC wastes shall not be allowed to enter storm drains or watercourses. Concrete pours or operations that will generate concrete slurries will not be conducted during or immediately prior to rainfall events.

Sanitary-Septic Waste Management

Contractor shall not bury or discharge wastewater from a sanitary or septic system within the highway. Place a portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines. Portable toilets shall be inspected daily and maintained weekly.

Liquid Waste Management

The contractor shall implement the Liquid Waste Management BMP when liquid wastes are anticipated to prevent it from entering the storm drain and receiving waters. Hold liquid waste in structurally sound, leak-proof containers, such as roll-off bins or portable tanks. Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills, and leaks. Store containers at least 50 feet from moving vehicles and equipment. All liquid wastes shall be stored in covered storage areas and within leak proof containers. Liquid wastes shall be properly collected and disposed of offsite.

3.4 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

This site is not located in an area subject to a Phase I or Phase II Municipal Separate Storm Sewer System (MS4) permit approved Stormwater Management Plan. The project site will be returned to pre-construction stabilization.

A plan for the post construction funding and maintenance of these BMPs has been developed to address at minimum five years following construction. The post construction BMPs that are described above shall be funded and maintained by the homeowners or street owner when not on PID property and by PID on their property. If required, post construction funding and maintenance will be submitted with the NOT.

FOR BIDDING
PURPOSES ONLY

Section 4 BMP Inspection and Maintenance

4.1 BMP INSPECTION AND MAINTENANCE

The General Permit requires daily inspections of BMPs, along with photographs and inspections before, during, and after qualifying rain events. Daily visual inspections are not recorded; however, photographs taken before, during, and after rain events must be retained with the SWPPP and submitted through the SWRCB's SMARTS website once every three rain events. Additionally, rain event inspection shall be recorded on the *Visual Inspection Field Log Sheet* found in Appendix M. The inspection checklist includes the necessary information covered in Section 7.6. Completed forms shall be kept in Appendix L.

Daily inspections shall ensure that appropriate BMPs are being implemented where active construction is occurring, areas of excavations are closed and road surfaces are cleaned of excavated materials and land areas disturbed are returned to pre-construction conditions or an equivalent protection at the end of each working day (if applicable). BMPs shall be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions shall be implemented within 72 hours of identified deficiencies and associated amendments to the SWPPP shall be prepared by the QSD. Inspections shall continue after construction until the final stabilization measures have been met. A list of qualified inspection personnel can be found Appendix H. Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP fact sheets in Appendix G.

FOR BIDDING
PURPOSES ONLY

Section 5 Training

To promote stormwater management awareness specific for this project, periodic training of job-site personnel shall be included as part of routine project meetings (i.e., daily/weekly tailgate safety meetings), or task specific trainings as needed.

The QSP shall be responsible for providing this information at the meetings, and subsequently completing the training logs shown in Appendix H, which identifies the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting. Tasks may be delegated to trained employees by the QSP provided adequate supervision and oversight is provided. Training shall correspond to the specific task delegated including: SWPPP implementation; BMP inspection and maintenance; and record keeping. Documentation of training activities (formal and informal) is retained in Appendix H.

FOR BIDDING
PURPOSES ONLY

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

The QSP shall have primary responsibility and significant authority for the implementation, maintenance and inspection/monitoring of SWPPP requirements. The QSP will be available at all times throughout the duration of the project. Duties of the QSP include but are not limited to:

- Implementing all elements of the General Permit and SWPPP, including but not limited to:
 - Ensuring all BMPs are implemented, inspected, and properly maintained;
 - Performing non-stormwater and stormwater visual observations;
 - Performing sampling and analysis, as required;
 - Performing routine inspections and observations; and
 - Implementing non-stormwater management, and materials and waste management activities such as: monitoring discharges; general Site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems.
- The QSP may delegate these inspections and activities to an appropriately trained employee, but shall ensure adequacy and adequate deployment.
- Ensuring elimination of unauthorized discharges.
- The QSPs shall be assigned authority by the LRP to mobilize crews in order to make immediate repairs to the control measures.
- Coordinate with the Contractor(s) to ensure that all of the necessary corrections/repairs are made immediately and that the project complies with the SWPPP, General Permit, and approved plans at all times.
- Notifying the LRP or Authorized Signatory immediately of off-site discharges or other noncompliance events.

6.2 CONTRACTOR LIST

The list of contractors and site personnel with potential for ground disturbance or pollutant discharges are located in Appendix I.

Section 7 Construction Site Monitoring and Reporting Program

7.1 Purpose

This Construction Site Monitoring Program (CSMP) was developed to address the following objectives:

1. To demonstrate that the site is in compliance with the Discharge Prohibitions of the General Permit;
2. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
3. To determine whether immediate corrective actions, additional BMP implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges;
4. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

7.2 Applicability of Permit Requirements

This project has been determined to be a Type 1 LUP. The General Permit identifies the following types of monitoring as being applicable for a Type 1 LUP.

- Daily visual inspections of BMPs, not required to be recorded or submitted;
- Photographic monitoring of the site related to storm events, submitted via SMARTS; and
- Sampling and analysis of construction site runoff for non-visible pollutants, when applicable.

7.3 Weather and Rain Event Tracking

7.3.1 Weather Tracking

The QSP should consult the National Oceanographic and Atmospheric Administration (NOAA) for the weather forecasts daily. These forecasts can be obtained at <http://www.weather.gov/>. Weather reports should be printed and maintained with the SWPPP in Appendix K.

7.3.2 Rain Gauges

The Contractor shall install 1 rain gauge on the project site. Locate the gauge in an open area away from obstructions such as trees or overhangs. Mount the gauge on a post at a height of three to five feet with the gauge extending several inches beyond the post. Make sure that the top of the gauge is level. Make sure the post is not in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge(s) shall be read daily during normal site scheduled hours. The rain gauge should be read at approximately the same time every day and the date and time of each reading recorded. An example rain gauge log sheet is provided in Appendix M. Retain rain gauge readings in Appendix K. Follow the rain gauge instructions to obtain accurate measurements.

Once the rain gauge reading has been recorded, accumulated rain shall be emptied and the gauge reset. For comparison with the site rain gauge, the nearest appropriate governmental rain gauge(s) is located at the Stockton Municipal Airport.

7.4 Monitoring Locations

Monitoring locations are shown on the Site Maps in Appendix A. Monitoring locations are described in Sections 7.6 and 7.7.

Whenever changes in the construction site might affect the appropriateness of sampling locations, the sampling locations shall be revised accordingly. All such revisions shall be implemented as soon as feasible and the SWPPP amended. Temporary changes that result in a one-time additional sampling location do not require a SWPPP amendment.

7.5 Safety and Monitoring Exemptions

Safety practices for sample collection will be in accordance with the State of California, Department of Transportation “Construction Site Monitoring Program Guidance Manual” (Aug 2013). A summary of the safety requirements that apply to sampling personnel is provided below.

- Appropriate Construction Site Clothing – Pants, Boots
- PPE – Hard Hat, High Visibility Reflective Vest, Safety Glasses

This project is not required to collect samples or conduct visual observations (inspections) under the following conditions:

- During dangerous weather conditions such as flooding and electrical storms.
- Outside of scheduled site business hours.

Scheduled site business hours are generally Monday – Friday 0700-1700, excluding standard holidays and scheduled non-operational times.

If monitoring (visual monitoring or sample collection) of the site is unsafe because of the dangerous conditions noted above then the QSP shall document the conditions for why an exception to performing the monitoring was necessary. The exemption documentation shall be filed in Appendix L.

7.6 Visual Monitoring

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the site are required to observe stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7.1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Section 7.6.3.

Table 7.1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
<i>Visual Observations</i>	
Site BMP Inspections	Daily
<i>Rain Event Triggered Inspections (For Type 2 and Type 3 LUPs)</i>	
Site Inspections Prior to a Rain Event [trigger specified in Section 7.6.2.1]	Within 48 hours of predicted rainfall
BMP Inspections During an Extended Storm Event	Every 24-hour period of a rain event ²
Site Inspections Following a Rain Event	Within 48 hours of a rain event
¹ Inspections are required during scheduled site operating hours ² Inspections are required during scheduled site operating hours, regardless of the amount of precipitation on any given day.	

7.6.1 Routine Observations and Inspections

Routine site inspections and visual monitoring are necessary to ensure that the project is in compliance with the requirements of the General Permit.

7.6.1.1 Daily Site BMP Inspections

Daily Site BMP inspections are not recorded. The intent of these inspections is to verify:

- Appropriate BMPs for stormwater and non-stormwater are being implemented in areas where active construction is occurring (including staging areas);
- Project excavations are closed, with properly protected spoils, and road surfaces are cleaned of excavated material;
- Construction materials, such as chemicals, are removed from the site or stored in protective storage containers at the end of every construction day; and
- Land areas disturbed during construction are returned to preconstruction conditions or an equivalent protection is used at the end of each workday to eliminate or minimize erosion and the possible discharge of sediment or other pollutants during a rain event.

Inspections will continue until adequate permanent stabilization is established and, in areas where re-vegetation is chosen, until minimum vegetative coverage is established in accordance with General Permit Attachment A, Section C.1. Inspections may be discontinued in inactive construction areas where soil-disturbing activities are completed and final soil stabilization is achieved.

Completed areas of the LUP that do not yet stabilized as per General Permit Attachment A, Section C.1, will be inspected daily by the contractor to verify that BMPs are adequate and maintained.

7.6.2 Rain-Event Triggered Observations and Inspections

Pre-, During-, and Post-Storm visual observations inspections are not required for Type 1 LUPs. However, photographic documentation of the site is required for all sites during Pre-Storm, During Storm, and Post-Storm inspections, which is to be submitted to the SWRCB via SMARTS website every third storm.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

The construction materials, wastes, or activities, as identified in Section 2, are potential sources of non-visible pollutants to stormwater discharges from the project. Storage, use, and operational locations are shown on the Site Maps in Appendix A.

There are no known existing site features that are potential sources of non-visible pollutants to stormwater discharges from the project. There are no proposed soil amendments for the project that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil and will be used on the project site.

7.7.1.1 *Sampling Schedule*

Samples for the potential non-visible pollutant(s) and a sufficiently large, unaffected background sample shall be collected during the first two hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during the site's scheduled hours and shall be collected regardless of the time of year and phase of the construction.

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2 *Sampling Locations*

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use; accessibility for sampling, and personnel safety. There are no planned non-visible pollutant sampling locations shown on the Site Maps in Appendix A or identified in Tables 7.5 through 7.9. As locations are identified, the tables below will be utilized.

Table 7.5 Non-Visible Pollutant Sample Locations – Contractors’ Yard

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude

Table 7.6 Non-Visible Pollutant Sample Locations – Soil Amendment Areas

Sample Location Number	Sample Location	Sample Location Latitude and Longitude

Table 7.7 Non-Visible Pollutant Sample Locations – Areas of Historical Contamination

Sample Location Number	Sample Location	Sample Location Latitude and Longitude

Table 7.8 Non-Visible Pollutant Sample Locations – Background (Unaffected Sample)

Sample Location Number	Sample Location	Sample Location Latitude and Longitude

7.7.1.3 Monitoring Preparation

Non-visible pollutant samples will be collected by:

- Contractor Yes No
- Consultant Yes No
- Laboratory Yes No

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and *Effluent Sampling Field Log Sheets* and Chain of Custody (CoC) forms, which are provided in Appendix M.

7.7.1.4 Analytical Constituents

Table 7.10 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.10 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Adhesives		COD, Phenols, SVOCs
Asphalt Paving		VOCs
Cleaning	Acids	pH
	Bleaches	Residual Chlorine
	Solvents	VOCs, SVOCs
	Detergents	MBAS
	TSP	Phosphate
Concrete	Sealants	SVOC, VOCs, pH, Al, Ca, Va, Zn
	Curing Compounds	VOCs, SVOCs, pH
	Ash, Sand, Slag	pH, Al, Ca, Va, Zn
Framing/Carpentry	Treated Wood	Cu, Cr, As, Zn
	Untreated Wood	BOD
	Particle Board	Formaldehyde
Grading/Earthwork	Soils, Contaminated Soil	pH, Turbidity, BOD, known soil contaminants constituents
Liquid Waste		Constituents specific to materials onsite
Painting	Resins	COD, SVOC
	Thinner	COD, VOCs
	Paint Strippers	VOCs, SVOCs, metals
	Lacquers, varnishes, enamels	COD, VOCs, SVOCs,
	Sealants	COD
	Adhesives	Phenols, SVOCs
Plumbing	Solder, Flux, Pipe fittings	Cu, Pb, Sn, Zn
Sanitary Waste	Portable Toilets	BOD, Total/Fecal Coliform
Vehicle/Equipment Use	Fuels, Oils, Greases	PCBs, Fuel
	Batteries	Sulfuric Acid, Pb, pH

7.7.1.5 *Sample Collection*

Samples of discharge shall be collected at the designated non-visible pollutant sampling locations shown on the Site Maps in Appendix A or in the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table, "Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants" provided in Section 7.7.1.6. Only the QSP, or personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.1.6 *Sample Analysis*

Samples shall be analyzed using the current standard analytical methods identified by the analytical laboratory as indicated by the SWRCB and USEPA. If a sample analytical method must deviate from current SWRCB and USEPA requirements, the QSP shall fill in Table 7.11. Samples will be analyzed by the laboratory below or another ELAP accredited facility.

Laboratory Name:	Fruit Growers Laboratory, Inc.
Street Address:	2500 Stagecoach
City, State Zip:	Stockton, CA 95215
Telephone Number:	(209) 942-0182
ELAP Certification Number:	1563

Samples will be delivered to the laboratory by:

Contractor or Contractor retained personnel	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
LRP or LRP retained personnel	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
Laboratory personnel	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
Shipped	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

Table 7.11 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Reporting Limit	Maximum Holding Time
pH	Litmus paper or test kits	40 ml	PTFE, plastic, glass	None	9>x>6	15 min
Oil & Grease	EPA 1664A	1 L	Glass amber	HCl	5 mg/L	28 d
Total Suspended Solids	SM 2540-D	500 ml	1 L Poly	None	1 mg/L	7 d
Total Cyanide	SM 4500-CN C, D, or E	250 ml	PTFE, plastic,	NaOH*	0.005 mg/L	14 d
Ammonia (as N)	SM 4500-NH3 B+ C or E	50 ml	125 ml Poly	H2SO4	0.02 mg/L	28 d
Dissolved Ag, Al, As, Cu, Hg, Pb, Se	EPA 200.8	500 ml	PTFE, plastic, glass	HNO3	0.005 mg/L	180 d
Dissolved Fe, Mg, Zn	EPA 200.7	500 ml	PTFE, plastic, glass	HNO3	0.005 mg/L	180 d
Dissolved Hg	EPA 245.1	500 ml	PTFE, plastic, glass	HNO3	0.005 mg/L	180 d
Chemical Oxygen Demand	SM 5220C	10 ml	125 Poly	H2SO4	50 mg/L	28 d
Chlorpyrifos & Diazinon	EPA 8141B	1 L	Glass amber	None	0.7; 2.0 µg/L	7 d
Organochlorine Pesticides	EPA 8081	1 L	Glass amber	None	0.05 – 5 µg/L	7 d
Total Organic Carbon	EPA 9060A	1 L	Glass amber	H2SO4	0.05 mg/L	14 d
Notes:						
*Cyanide add NaOH to pH>12; metals add HNO3 if pH<2; reporting limit can vary with the laboratory within range limits						

7.7.1.7 *Data Evaluation and Reporting*

The QSP shall complete an evaluation of the water quality sample analytical results.

Runoff/downgradient results shall be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

The General Permit prohibits stormwater discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the RWQCB and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4.

Results of non-visible pollutant monitoring shall be reported in the Annual Report.

7.7.2 *Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges*

Sampling and analysis of runoff for pH and turbidity is not required for Risk Type 1 LUPs.

7.7.3 *Sampling and Analysis Plan for pH, Turbidity, and SSC in Receiving Water*

This project is not subject to Receiving Water Monitoring.

7.7.4 *Sampling and Analysis Plan for Other Pollutants Required by the RWQCB*

The RWQCB has not specified monitoring for additional pollutants.

7.7.5 *Training of Sampling Personnel*

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring program (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).

Training records of designated contractor sampling personnel are provided in Appendix H. The stormwater sampler(s) and alternate(s) have received the following stormwater sampling training:

Name	Training
------	----------

The stormwater sampler(s) and alternates have the following stormwater sampling experience:

Name	Experience
------	------------

7.7.6 *Sample Collection and Handling*

7.7.6.1 *Sample Collection*

Samples shall be collected at the designated sampling locations shown on the Site Maps (Appendix A) and listed in the preceding sections. Samples shall be collected, maintained and shipped in accordance with the SWAMP 2008 Quality Assurance Program Plan (QAPrP).

Grab samples shall be collected and preserved in accordance with the methods identified in preceding sections.

To maintain sample integrity and prevent cross-contamination, sample collection personnel shall follow the protocols below.

- Collect samples (for laboratory analysis) only in analytical laboratory-provided sample containers;
- Wear clean, powder-free nitrile gloves when collecting samples;
- Change gloves whenever something not known to be clean has been touched;
- Change gloves between sites;
- Decontaminate all equipment (i.e. bucket, tubing) prior to sample collection using a trisodium phosphate water wash, distilled water rinse, and final rinse with distilled water. (Dispose of wash and rinse water appropriately, i.e., do not discharge to storm drain or receiving water). Do not decontaminate laboratory provided sample containers;
- Do not smoke during sampling events;
- Never sample near a running vehicle;
- Do not park vehicles in the immediate sample collection area (even nonrunning vehicles);
- Do not eat or drink during sample collection; and
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab sampling is to collect a sample that represents the entire runoff stream. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

- For small streams and flow paths, simply dip the bottle facing upstream until full.
- For larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle. Once again making sure that the opening of the bottle is facing upstream as to avoid any contamination by the sampler.
- For larger streams that cannot be safely waded, pole-samplers may be needed to safely access the representative flow.
- Avoid collecting samples from ponded, sluggish or stagnant water.
- Avoid collecting samples directly downstream from a bridge as the samples can be affected by the bridge structure or runoff from the road surface.

Note, that depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the stream, but filled indirectly from the collection container.

7.7.6.2 *Sample Handling*

Turbidity and pH measurements must be conducted immediately. Do not store turbidity or pH samples for later measurement.

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap sample containers;
- Complete sample container labels;
- Sealed containers in a re-sealable storage bag;
- Place sample containers into an ice-chilled cooler;
- Document sample information on the *Effluent Sampling Field Log Sheet* (Appendix M); and
- Complete the CoC.

All samples for laboratory analysis must be maintained between 0-6 degrees Celsius during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well packaged to prevent breakage and secure cooler lids with packaging tape.

7.7.6.3 *Sample Documentation Procedures*

All original data documented on sample bottle identification labels, *Effluent Sampling Field Log Sheet* (Appendix M), and CoCs shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

Duplicate samples shall be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples shall be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

Sample Bottle Identification Labels: Sampling personnel shall attach an identification label to each sample bottle. Sample identification shall uniquely identify each sample location.

Field Log Sheets: Sampling personnel shall complete the *Effluent Sampling Field Log Sheet* (Appendix M) and *Receiving Water Sampling Field Log Sheet* (Appendix M) for each sampling event, as appropriate.

Chain of Custody: Sampling personnel shall complete the CoC (Appendix M) for each sampling event for which samples are collected for laboratory analysis. The sampler will sign the CoC (Appendix M) when the sample(s) is turned over to the testing laboratory or courier.

7.7 **Active Treatment System Monitoring**

An Active Treatment System (ATS) will not be deployed on the site. This project does not require a project specific Sampling and Analysis Plan for an ATS because deployment of an ATS is not planned.

7.8 **Bioassessment Monitoring**

This project is not subject to bioassessment monitoring because it is not a Type 3 LUP.

7.9 **Watershed Monitoring Option**

This project is not participating in a watershed monitoring option.

7.10 Quality Assurance and Quality Control

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Field logs;
- Clean sampling techniques;
- CoCs;
- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.10.1 Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log include the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the field log. A Visual Inspection Field Log, and an Effluent Sampling Field Log Sheet are included in Appendix M.

7.10.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. As discussed in Section 7.7.7, adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.10.3 Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

- Proper labeling of samples;
- Use of CoC forms for all samples; and
- Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in Appendix M.

7.10.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this project:

- Field Duplicates at a frequency of 5 percent or 1 duplicate minimum per sampling event (Required for all sampling plans with field measurements or laboratory analysis)
- Equipment Blanks at a frequency of 1 duplicate minimum per sampling event (Only needed if equipment used to collect samples could add the pollutants to sample)
- Field Blanks at a frequency of 1 duplicate minimum per sampling event (Only required if sampling method calls for field blanks)
- Travel Blanks at a frequency of 1 duplicate minimum per sampling event

(Required for sampling plans that include VOC laboratory analysis)

7.10.4.1 *Field Duplicates*

Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.10.4.2 *Equipment Blanks*

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks are typically collected when:

- New equipment is used;
- Equipment that has been cleaned after use at a contaminated site;
- Equipment that is not dedicated for surface water sampling is used; or
- Whenever a new lot of filters is used when sampling metals.

7.10.4.3 *Field Blanks*

Field blanks assess potential sample contamination levels that occur during field sampling activities. Deionized water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.10.4.4 *Travel Blanks*

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. Deionized water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.10.5 *Data Verification*

After results are received from the analytical laboratory, the QSP shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports.
Make sure all requested analyses were performed and all samples are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values and follow up with the laboratory.
Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP should especially note data that is an order of magnitude or more different than similar locations, or is inconsistent with previous data from the same location.
- Check laboratory QA/QC results.
U.S. EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When

QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results.

- Check the data set for outlier values and, accordingly, confirm results and re-analyze samples where appropriate.

Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent; Follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.11 Records Retention

All records of stormwater monitoring information and copies of reports (including Annual Reports) must be retained for a period of at least three years from date of submittal or longer if required by the RWQCB. Results of visual monitoring, field measurements, and laboratory analyses must be kept in the SWPPP along with CoCs, and other documentation related to the monitoring.

Records are to be kept onsite while construction is ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation;
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements;
- The date and approximate time of field measurements and laboratory analyses;
- The individual(s) who performed the laboratory analyses;
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used;
- Rain gauge readings from site inspections;
- QA/QC records and results;
- Calibration records;
- Visual observation and sample collection exemption records;
- The records of any corrective actions and follow-up activities that resulted from analytical results, visual observations, or inspections

Section 8 References

CASQA 2019. *Construction BMP Handbook*. Available online at: www.casqa.org

Project Plans and Specifications dated June 2023, prepared by Provost & Pritchard Consulting Group.

State Water Resources Control Board (2009). Order 2009-0009-DWQ, NPDES General Permit No. CAS000002: *National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

State Water Resources Control Board (2010). Order 2010-0014-DWQ, NPDES General Permit No. CAS000002: *National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

State Water Resources Control Board (2012). Order 2012-0006-DWQ, NPDES General Permit No. CAS000002: *National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

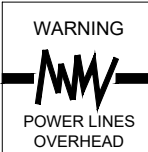
FOR BIDDING
PURPOSES ONLY

Appendix A: Site Maps

FOR BIDDING
PURPOSES ONLY



Know what's below.
Call before you dig.



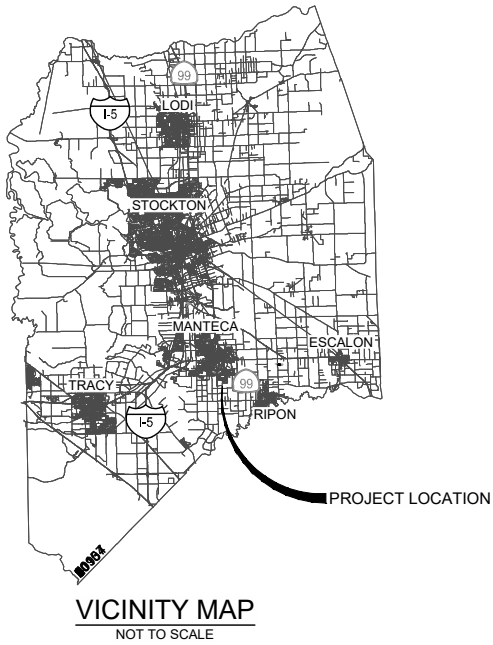
STORMWATER POLLUTION PREVENTION PLANS BMP SITE MAPS

LATERAL X-W CONNECTION SOUTH SAN JOAQUIN IRRIGATION DISTRICT

SAN JOAQUIN COUNTY, CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD
WDID NO. 5S39C401406

SWPPP PREPARED BY:
PROVOST AND PRITCHARD CONSULTING GROUP
455 W FIR AVE
CLOVIS, CA 93611
PH: (559) 449-2700



SITE MAP
NOT TO SCALE

PROJECT CONTACTS

- OWNER**
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
FORREST KILLINGSWORTH, ENGINEERING DEPARTMENT MANAGER
PO BOX 747
RIPON CA 95366
(209) 249-4620
- PROJECT ENGINEER**
ED CAMINATA
PROVOST AND PRITCHARD CONSULTING GROUP
4701 SISK RD, SUITE 102
MODESTO, CA 95356
(209) 809-2300
- QSD SWPPP PREPARER**
GRETCHEN HEISDORF
PROVOST AND PRITCHARD CONSULTING GROUP
455 W FIR AVENUE
CLOVIS, CA 93611
(559) 449-2700
- QSP SWPPP INSPECTOR**
ED CAMINATA
PROVOST AND PRITCHARD CONSULTING GROUP
4701 SISK RD, SUITE 102
MODESTO, CA 95356
(209) 809-2300

GENERAL WATER POLLUTION CONTROL NOTES

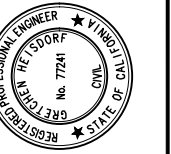
- THE INFORMATION ON THESE DRAWINGS ARE INTENDED TO BE USED AS A GUIDELINE FOR CONTRACTORS AND SUBCONTRACTORS TO INSTALL STORM WATER POLLUTION CONTROL DEVICES AT THE LOCATIONS SHOWN. THESE DRAWINGS ARE TO SHOW THE LOCATIONS FOR EROSION, SEDIMENT, NON-STORM WATER MANAGEMENT AND WASTE MANAGEMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs). THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE NARRATIVE SECTIONS OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
- FIELD CONDITIONS MAY NECESSITATE MODIFICATIONS TO THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER, QUALIFIED SWPPP DEVELOPER (QSD) AND THE QUALIFIED SWPPP PRACTITIONER (QSP) ON ANY UPDATE TO THESE DRAWINGS BASED ON THE CONDITIONS THAT DIFFER FROM THIS DRAWING SET.
- THE CONTRACTOR SHALL REFER TO THE CALIFORNIA STORM WATER QUALITY ASSOCIATION STORM WATER QUALITY CONSTRUCTION HANDBOOK, DECEMBER 2019 EDITION (OR MOST CURRENT VERSION) FOR SITE BEST MANAGEMENT PRACTICES (BMPs). COPIES OF THE BMPs ARE PROVIDED IN THE SWPPP APPENDIX. ALL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
- THE CONTRACTOR SHALL SELECT ADDITIONAL ON-SITE SAMPLING LOCATIONS FOR NON-VISIBLE POLLUTANTS AT LOCATIONS NEAR VEHICLE AND EQUIPMENT MAINTENANCE AREAS AND MATERIAL STORAGE AREAS. SAMPLING WILL BE REQUIRED AS SPECIFIED IN THE SECTION 7 OF THE SWPPP. SEE SECTION 7 FOR ADDITIONAL REQUIREMENTS.
- THE CONTRACTOR SHALL PROVIDE A SECONDARY CONTAINMENT PERIMETER AROUND WASTE CONTAINMENT, MATERIAL STORAGE, AND VEHICLE AND EQUIPMENT (FUELING, MAINTENANCE AND STORAGE) AREAS TO CONTAIN LEAKS AND SPILLS AND PREVENT CONTAMINANTS FROM CONTACTING STORM FLOWS.
- TRACKING CONTROL SHALL BE PROVIDED AT ALL CONSTRUCTION SITE ENTRANCES AND EXITS. THE CONTRACTOR SHALL COORDINATE THE MODIFICATION OF THESE DRAWINGS TO SHOW ACTUAL ENTRANCE/ EXITS USED.
- THE CONTRACTOR SHALL IMPLEMENT ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES FOR ALL TRENCHING AND STOCKPILING ACTIVITIES. SPOIL PILES SHALL BE PROTECTED WITH EROSION & SEDIMENT CONTROL BMPs. THE CONTRACTOR SHALL IMPLEMENT DEWATERING OPERATIONS PER NS-2 AS NECESSARY.
- TEMPORARY SOIL STABILIZATION MEASURES WILL BE IMPLEMENTED FOR ALL DISTURBED SOIL AREAS (DSA) WITHIN 14 DAYS OF INACTIVITY.
- PERMANENT EROSION CONTROL SHALL BE INSTALLED IN AREAS THAT ARE SUBSTANTIALLY COMPLETE. SEDIMENT CONTROL BMPs SHALL BE REMOVED AFTER SOIL IS STABILIZED AND WHEN PERMANENT EROSION CONTROL IS COMPLETE, AS APPROVED BY THE INSPECTOR.
- THE STORM WATER POLLUTION PREVENTION CONTROL MEASURES SHOWN IN THESE DRAWINGS ARE SUGGESTED BEST MANAGEMENT PRACTICES (BMPs). DIFFERENT CONTROL MEASURES MAY BE NECESSARY TO SATISFY THE REQUIREMENTS OF THE GENERAL PERMIT, BASED ON ACTUAL CONSTRUCTION ACTIVITIES AND FIELD CONDITIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THESE BMP SM DRAWINGS AND MAKING ANY NECESSARY CHANGES DURING CONSTRUCTION TO MAINTAIN COMPLIANCE WITH THE GENERAL PERMIT. THE REVISED DRAWINGS NEED TO BE REVIEWED AND AMENDED BY THE PROJECT'S QUALIFIED SWPPP DEVELOPER (QSD). THE QSD SHALL RECORD ALL BMP SM DRAWING AMENDMENTS IN THE APPENDICES SECTION OF THE SWPPP.
- THESE BMP SM DRAWINGS HAVE BEEN COMPLETED BY THE OWNER'S QSD.
- BMPs SHOULD BE USED TO SHORTEN SLOPE DISTANCES ON STEEP SLOPES, EXAMPLE AS INDICATED IN TABLE 1.

TABLE 1 - MAXIMUM SLOPE DISTANCE	
SLOPE (H:V)	MAXIMUM SLOPE DISTANCE
4:1 OR FLATTER	10 FT
4:1 TO 2:1	15 FT
2:1 OR GREATER	20 FT

SHEET INDEX	
SHEET NO.	DESCRIPTION
STORMWATER POLLUTION PREVENTION PLAN	
1	COVER
2	LEGEND AND ABBREVIATIONS
3	NOTES & GENERIC STAGING AREA
4	SHEET INDEX
5	BMP SITE MAP STA 10+00-20+00
6	BMP SITE MAP STA 30+00-40+00
7	DETAILS

COPYRIGHT 2023 BY PROVOST & PRITCHARD CONSULTING GROUP, INC. ALL RIGHTS RESERVED. THE INFORMATION ON THESE DRAWINGS ARE INTENDED TO BE USED AS A GUIDELINE FOR CONTRACTORS AND SUBCONTRACTORS TO INSTALL STORM WATER POLLUTION CONTROL DEVICES AT THE LOCATIONS SHOWN. THESE DRAWINGS ARE TO SHOW THE LOCATIONS FOR EROSION, SEDIMENT, NON-STORM WATER MANAGEMENT AND WASTE MANAGEMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs). THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE NARRATIVE SECTIONS OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

FOR SWPPP PURPOSES ONLY
07/19/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
COVER

PROVOST & PRITCHARD
CONSULTING GROUP
An Employee Owned Company
4701 SISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
209.809.2300 FAX 209.809.2290
https://provostandpritchard.com/

DESIGN ENGINEER:
GRETCHEN HEISDORF
LICENSE NO.:
RCE 77241, CASQA 00485
DRAFTED BY: GJF
CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV

ORIGINAL SCALE SHOWN IS ONE
INCH. ADJUST SCALE FOR
REDUCED OR ENLARGED PLANS.
SHEET 1 OF 7

THIS PLAN ACCURATE FOR STORM WATER
POLLUTION CONTROL WORK ONLY

ABBREVIATIONS

Table of abbreviations including AGGREGATE BASE, ASPHALT CONCRETE, ASPHALT-CEMENT PIPE, etc.

LINETYPES

Table of linetypes for existing and new features, including WATER LEVEL, BARRICADE, CONTOUR (DEPRESSION), etc.

HATCHES

Table of hatches for existing and new features, including AGGREGATE, AC PAVEMENT, CONCRETE, etc.

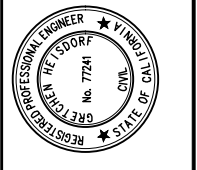
SYMBOLS

Table of symbols for existing and new features, including UTILITY POLE, UTILITY POLE ANCHOR, 2-NOZZLE HYDRANT, etc.

FOR BIDDING PURPOSES ONLY

COPYRIGHT 2023 BY PROVOST & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED.

FOR SWPPP PURPOSES ONLY 07/19/2024

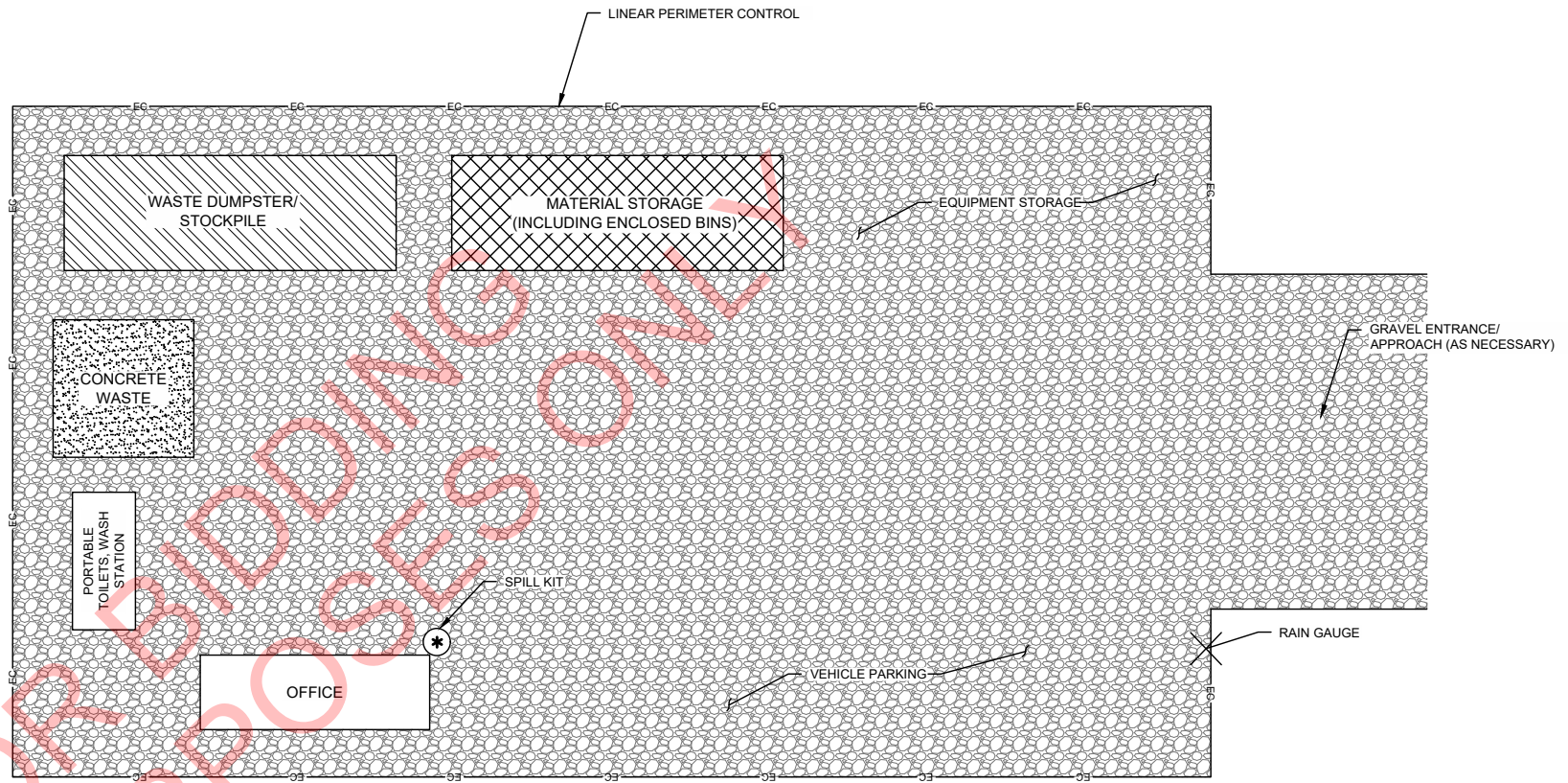


LATERAL X-W CONNECTION SOUTH SAN JOAQUIN IRRIGATION DISTRICT SAN JOAQUIN COUNTY STORMWATER POLLUTION PREVENTION PLAN LEGEND AND ABBREVIATIONS

Project information table including DESIGN ENGINEER (GRETCHEN HEISDORF), LICENSE NO. (RCE 77241), DRAFTED BY (GJF), CHECKED BY (GMH), DATE (07/19/2024), JOB NO. (105522007), PROJECT NO. (105522007), PHASE (ENV), ORIGINAL SCALE (1" = 100'), SHEET (2 OF 7).

NOTES

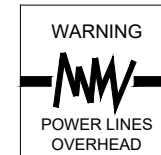
- QSD SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION PLAN SET AND SPECIFICATIONS ISSUED BY THE ENGINEER OF RECORD.
- SWPPP BMP IMPLEMENTATION SHALL MEET THE MINIMUMS REQUIRED BY THE CONSTRUCTION GENERAL PERMIT GENERAL ORDER AND APPLICABLE ATTACHMENTS.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING LICENSED QUALIFIED SWPPP PRACTITIONER (QSP) IN GOOD STANDING.
- CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF ALL STORMWATER AND NON-STORMWATER POLLUTION PREVENTION PRACTICES REGARDLESS OF INCLUSION IN THESE SITE MAPS OR IN THE PROJECT SWPPP.
- CONTRACTOR AND QSP SHALL USE THESE DRAWINGS FOR ANY CHANGES TO THE SWPPP. BMPs MAY BE ALTERED BY QSP AS SITE CONDITIONS DICTATE BUT SHALL NOT BECOME LESS STRINGENT. QSP TO FORWARD REVISIONS/NEW BMP LOCATIONS FOR DEMOLITION TO QSD FOR APPROVAL.
- CONTRACTOR SHALL LIMIT GROUND DISTURBANCES AT ALL TIMES TO THE MAXIMUM EXTENT FEASIBLE TO ACCOMPLISH WORK. ALL GROUND DISTURBANCES REQUIRE EROSION AND SEDIMENT CONTROL MITIGATIONS.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE DUST CONTROL AT ALL TIMES.
- THE CONTRACTOR SHALL HAVE A SECURE ONSITE LOCATION FOR SWPPP AND ENVIRONMENTAL DOCUMENT STORAGE.
- DO NOT BLOCK DRIVEWAYS OR ENTRANCE LOCATIONS WITH ANY BMP ITEMS.
- CONTRACTOR IS RESPONSIBLE FOR ALL STORMWATER AND NON-STORMWATER, VISIBLE AND NON-VISIBLE SAMPLING.
- ALL DEMOLITION SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
- CONTRACTOR SHALL PROVIDE INLET AND/OR CULVERT PROTECTION AT INLETS/CULVERTS WITHIN AND IMMEDIATELY DOWNSTREAM OF PROJECT SITE(S), REGARDLESS OF SPECIFIC INCLUSION ON THESE DRAWINGS.
- PERIMETER LINEAR CONTROLS ARE LIMITED TO FIBER ROLLS, UNLESS OTHERWISE SHOWN OR APPROVED BY THE QSD.
- TRACKOUT ONTO PUBLIC ROADS IS PROHIBITED AND MUST BE CLEANED IMMEDIATELY VIA HAND OR MECHANICAL MEANS. GRAVEL TRACKOUT IN ACCORDANCE WITH CASQA BMP TC-1 IS REQUIRED AT ALL EXIT LOCATIONS TO THE PROJECT AREA(S) TO PUBLIC ROADS PER THE SWPPP REGARDLESS OF SPECIFIC INCLUSION IN THESE DRAWINGS.
- BULK MATERIAL STORAGE WILL BE IN THE STAGING AREA(S) OR IN OTHER OWNER APPROVED LOCATIONS. ALL MATERIAL STORAGE WILL BE IN ACCORDANCE WITH CASQA BMPs WM-1 AND WM-3.
- SOIL/MATERIAL STOCKPILES WILL BE COVERED WITH VISQUEEN AND LINEAR CONTROLS INSTALLED PER CASQA BMP WM-3.
- ALL EXCESS ERODIBLE OR NON-FINAL STATE CONSTRUCTION MATERIALS SHALL BE REMOVED FROM THE SITE OR HOUSED IN WATERTIGHT ENCLOSURES, INCLUDING SOIL/OVERBURDEN AND DEBRIS.
- CONCRETE DEMOLITION, INSTALLATION, AND/OR WASTES REQUIRE CASQA BMPs WM-8, WM-3, NS-12, AND NS-13 REGARDLESS OF SPECIFIC INCLUSIONS ON THESE DRAWINGS. MOBILE CONCRETE WASHOUTS ARE ACCEPTABLE & TO BE LOCATED BY THE CONTRACTOR. WASHOUTS WILL BE CLEANED/CLEARED OF WASTE CONCRETE PRIOR TO OVERTOPPING. LIQUID DECANT IS CONSIDERED A WASTE PRODUCT AND MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. IT CAN NOT BE USED FOR DUST CONTROL.
- ALL CHEMICAL ADDITIVES (CURING COMPOUNDS) WILL NOT BE APPLIED WITHIN 48 HOURS OF A PREDICTED RAIN EVENT UNLESS THE AFFECTED AREA IS FULLY COVERED AND SEALED FROM EXPOSURE TO PRECIPITATION. EPOXY USE WILL NOT OCCUR WITHIN 48 HOURS OF A PREDICTED RAIN EVENT UNLESS THE AFFECTED AREA IS FULLY COVERED AND SEALED FROM EXPOSURE TO PRECIPITATION.
- TREATED LUMBER PRODUCTS, METAL PRODUCTS, PLASTICS, PAINT, EPOXY, AND OTHER MATERIALS SHALL BE USED IN SUCH A MANNER AS TO NOT INTRODUCE POLLUTANTS TO ANY DISCHARGE. ANY WASTES OR SPILLS SHALL BE CLEANED IMMEDIATELY.
- VEHICLES & EQUIPMENT SHALL BE STORED IN THE STAGING AREA WHEN NOT IN USE & OVERNIGHT. WHILE IN USE, VEHICLES & EQUIPMENT SHALL BE MONITORED TO PREVENT SPILLS OR LEAKS. VEHICLES & EQUIPMENT, WHILE STORED, SHALL BE MONITORED AT START & END OF DAY FOR SPILLS OR LEAKS.
- PORTABLE TOILETS/SANITARY STATIONS AND WASH STATIONS SHALL BE LOCATED ON A FLAT SURFACE WITHIN SECONDARY CONTAINMENT.
- FUELING SPILL KITS WILL BE MAINTAINED ON THE FUELING TRUCK AND A SPILL KIT WILL BE KEPT ONSITE AT THE ACTIVE CONSTRUCTION AREA(S) DURING WORK HOURS.
- SAMPLING AND MONITORING MAY TAKE PLACE IN VARIOUS LOCATIONS TO BE DETERMINED BY THE QSP WITHIN THE PROJECT AREA(S) TO ENSURE CONSTRUCTION ACTIVITIES ARE NOT CAUSING PROJECT SITE DISCHARGES. SAMPLING SHALL BE IN ACCORDANCE WITH SECTION 7 OF THE SWPPP AND SAMPLING SHALL INCLUDE ALL APPLICABLE CONSTITUENTS BASED ON CONSTRUCTION ACTIVITIES. THE QSP WILL PROVIDE A MAP TO THE QSD OF ALL PROPOSED SAMPLING LOCATIONS.
- NO MATERIALS OR CONSTRUCTION EQUIPMENT SHALL BE STORED ONSITE THROUGH THE PRE-DETERMINED SITE SHUTDOWNS FOR WEATHER UNLESS IT IS STORED IN AN ENCLOSED, WEATHERPROOF ENCLOSURE.
- INTERIM STABILIZATION MEASURES DURING WEATHER RELATED SITE SHUTDOWNS WILL INCLUDE IMPERVIOUS COVERS, ENCLOSED STORAGE, NON-SEEDED TACKIFIER USES, ETC. ALL INTERIM STABILIZATION MEASURES MUST BE APPROVED BY THE OWNER, QSD, AND LANDSCAPE ARCHITECT.
- FINAL STABILIZATION IS REQUIRED PRIOR TO A NOTICE OF TERMINATION BEING APPLIED FOR. FINAL STABILIZATION IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL. STABILIZATION WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND FINAL LANDSCAPE PLANS AS APPLICABLE.
- BMP GUIDANCE SHEETS ARE AVAILABLE FROM WWW.CASQA.COM.



GENERIC STAGING AREA
NTS

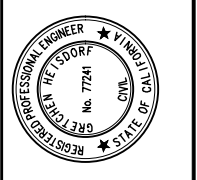
NOTES

- ALL EQUIPMENT SHALL BE STORED ON AN IMPERVIOUS SURFACE WITH ADEQUATE SECONDARY CONTAINMENT.
- ALL FUELING SHALL INCLUDE THE USE OF DRIP PANS AND RAGS REGARDLESS OF LOCATION. A SPILL KIT SHALL BE IN THE IMMEDIATE VICINITY DURING FUELING.
- STAGING AREA(S) WILL INCLUDE, BUT WILL NOT BE LIMITED TO, PVIOUS CONSTRUCTED SURFACES (GRAVEL OR HARD PACKED EARTH), LINEAR PERIMETER CONTROLS, VEHICLE AND EQUIPMENT CLEANING, FUELING, AND MAINTENANCE CONTROLS (INCLUDING IMPERVIOUS SURFACING), WASTE MANAGEMENT CONTROLS, CONCRETE WASTE MANAGEMENT CONTROLS, HAZARDOUS/NON-HAZARDOUS CHEMICAL/MATERIAL CONTAINMENT CONTROLS, SEDIMENT AND EROSION CONTROLS, AND SANITARY, WASH WATER, AND LIQUID WASTE CONTROLS.
- LOCATE RAIN GAUGE IN AN OPEN AREA WITH EASY ACCESS FOR MEASUREMENT READING AND GAUGE MAINTENANCE.
- IF PROJECT OFFICE IS LOCATED IN THE STAGING AREA, MAINTAIN APPROPRIATE SWPPP AND ENVIRONMENTAL DOCUMENTATION INSIDE.

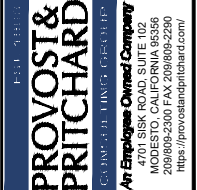


COPYRIGHT 2023 BY PROVIDENT & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED.
The firm of Provost & Pritchard Engineering Group, Inc. expressly disclaims any liability for the use of these drawings, specifications or copies in any form or manner whatsoever, nor are they to be used for any purpose other than that for which they were prepared, and without the prior written consent of Provost & Pritchard Engineering Group, Inc. In the event of unauthorized reuse of these plans by a third party, the firm and its employees shall be held liable for any damages, including but not limited to, reasonable attorneys' fees and costs of litigation. Provost & Pritchard Engineering Group, Inc. is an Equal Opportunity Employer. No person shall be discriminated against on the basis of race, sex, religion, or ethnicity in the employment process. Provost & Pritchard Engineering Group, Inc. is a legal business associate with California and other states.

FOR SWPPP PURPOSES ONLY
07/19/2024



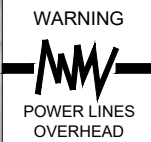
LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
NOTES & GENERIC STAGING AREA



DESIGN ENGINEER: GRETCHEN HEISDORF
LICENSE NO.: RCE 77241, CASQA 00485
DRAFTED BY: GJF CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET **3** OF 7



Know what's below.
Call before you dig.



RIVERSIDE LHC LTD
APN 226-140-040

RIVERSIDE LHC LTD
APN 226-120-110

SILAGI, RANDALL, L TR ETAL
APN 226-120-220

VAN VUREN, SHERWOOD & VAN VUREN, JOYCE A TR
APN 226-120-210

VAN LAAR, JAMES & LYNDA TR
APN 226-120-200

VAN ELDEREN, DANIEL & JUDITH TR ETAL
APN 226-120-190

VAN LAAR, JAMES & LYNDA TR
APN 226-120-260

VAN LAAR, JAMES & LYNDA TR
APN 226-120-260

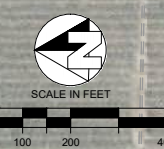
BROCCHINI, JANNA ETAL
APN 226-130-350

BIANCHI, ROGER J ETAL
APN 226-130-340

SEDAN AVE

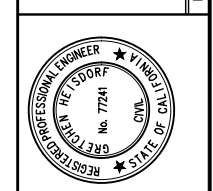
ALICE AVE

E VERITAS RD



COPYRIGHT 2023 BY PROVOST & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED. The firm of Provost & Pritchard Engineering Group, Inc. expressly disclaims any and all liability for the use of the information contained in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever, nor are they to be used in any way for any project other than that specifically intended and approved by the firm of Provost & Pritchard Engineering Group, Inc. In the event of unauthorized reuse of these plans by a third party, the firm of Provost & Pritchard Engineering Group, Inc. shall not be held liable for any damages, including reasonable attorneys' fees, and the user shall be held liable for any damages, including reasonable attorneys' fees, resulting from such reuse. Engineering Group, Inc.'s legal fees associated with defending and enforcing these rights.

FOR SWPPP PURPOSES ONLY
07/19/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
SHEET INDEX

PROVOST & PRITCHARD
ENGINEERING GROUP, INC.
An Employee Owned Company
4701 SISK ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
208/899-2300 FAX 208/899-2290
https://provostandpritchard.com/

DESIGN ENGINEER: GRETCHEN HEISDORF
LICENSE NO: RCE 77241, CASQA 00485
DRAFTED BY: GJF CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 4 OF 7

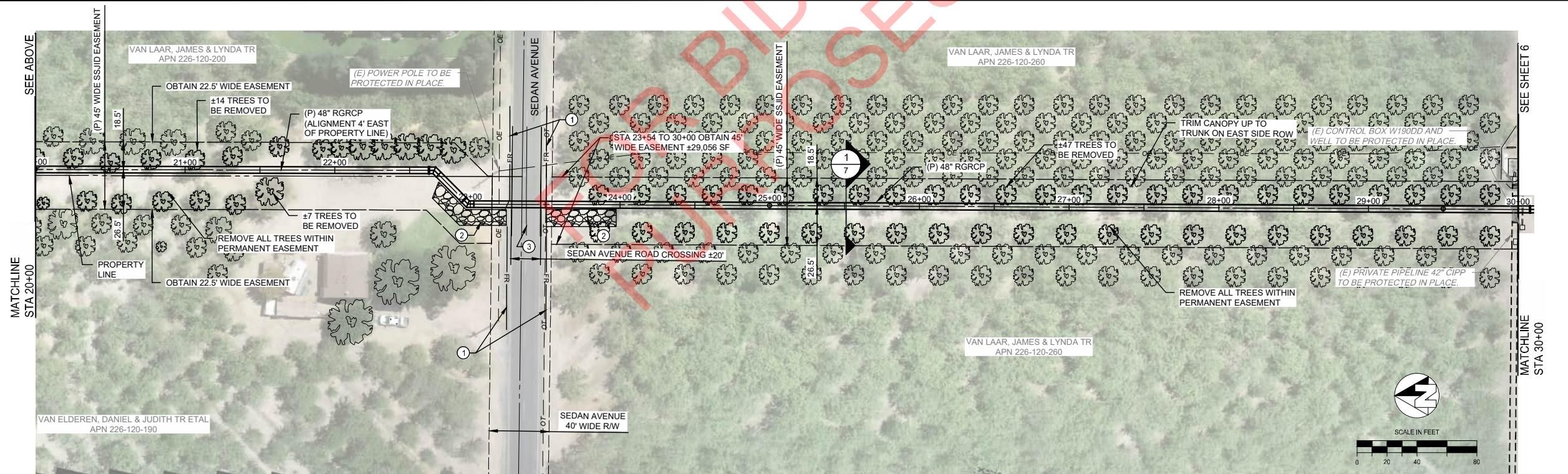
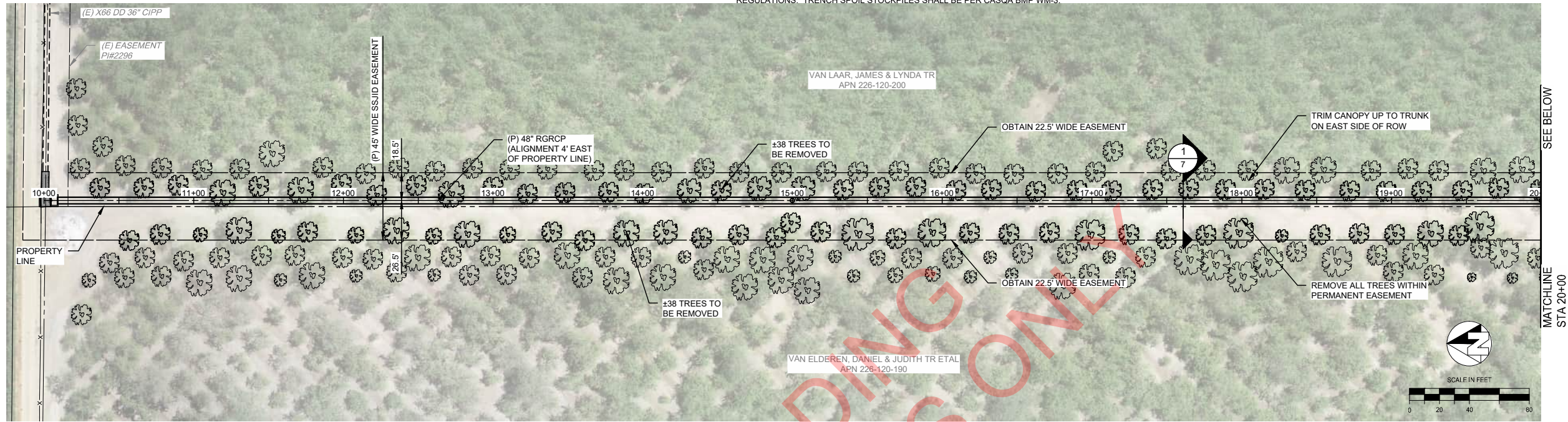
7/19/2024 3:03 PM G:\south san joaquin 164-10551\05522007-ww\inertia\300 CAD\340 sheet set\SWPPP\4 SHEET INDEX.dwg -Gretchen Heisdorf



NOTES

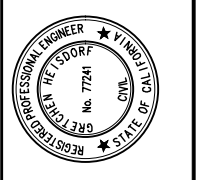
1. LINEAR CONTROLS TO PREVENT RUNOFF SHALL BE INSTALLED BASED ON SITE ACTIVITIES AND ACTUAL SITE TOPOGRAPHY. DEPICTED LOCATION SHOWN IS AN APPROXIMATE.
2. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
3. CONTRACTOR STAGING AREA TO BE FIELD DETERMINED. FUELING SPILL KITS WILL BE MAINTAINED ONSITE AT ALL TIMES. A SPILL KIT WILL BE KEPT ONSITE AT THE ACTIVE CONSTRUCTION AREA(S) DURING WORK HOURS AND IN THE STAGING AREA AT ALL TIMES.
4. ALL VEHICLES & EQUIPMENT WILL BE FUELED ON AN IMPERVIOUS BERMED SURFACE TO PREVENT PETROLEUM PRODUCTS FROM POLLUTING THE GROUND/BARE SOIL.
5. VEHICLES & EQUIPMENT, WHILE STORED, SHALL BE MONITORED AT START & END OF DAY FOR SPILLS OR LEAKS. ALL VEHICLES & EQUIPMENT WILL BE PARKED ON AN IMPERVIOUS BERMED SURFACE TO PREVENT PETROLEUM PRODUCTS FROM POLLUTING THE GROUND/BARE SOIL.
6. ALL GENERAL SITE WASTE AND DEBRIS WILL BE CONTAINED IN A FULLY ENCLOSED AND WATERTIGHT TRASH CAN OR DUMPSTER.
7. ALL SOLID, NOT AERIALY TRANSPORTABLE WASTE STOCKPILES SHALL BE IN ACCORDANCE WITH CASQA BMP GUIDANCE SHEETS.
8. ALL SOLVENTS, CLEANERS, AND OTHER PRODUCTS SHALL BE STORED IN WATERTIGHT CONTAINERS OR COVERED WITH IMPERVIOUS MATERIALS TO PREVENT POLLUTANT TRANSPORT PER CASQA WM-2 & WM-6.
9. ANY MATERIAL SPILL/LEAK SHALL BE CLEANED IMMEDIATELY TO PREVENT POLLUTANT TRANSPORT.
10. ALL LIQUID AND SOLID CONCRETE WASTE SHALL BE HANDLED IN SUCH A WAY TO PREVENT EXPOSURE TO PRECIPITATION OR CONTACT WITH BARE SOIL PER CASQA BMP WM-3 & WM-8.
11. EXCAVATED/REMOVED MATERIAL FROM TRENCHED ROAD AREAS SHALL BE DISPOSED OF PER LOCAL, STATE, AND FEDERAL REGULATIONS. TRENCH SPOIL STOCKPILES SHALL BE PER CASQA BMP WM-3.

LEGEND	
①	INSTALL FIBER ROLLS IN ACCORDANCE WITH CASQA BMP SE-5.
②	INSTALL TRACKOUT DEVICE IN ACCORDANCE WITH CASQA BMP TC-1.
③	CLEAN PUBLIC STREETS IN ACCORDANCE WITH CASQA BMP SE-7.

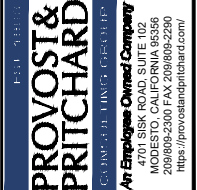


COPYRIGHT 2023 BY PROVOST & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED. The firm of Provost & Pritchard Engineering Group, Inc. expressly warrants that the information contained herein is true and correct to the best of its knowledge and belief. This information is provided for the use of the client and is not to be used for any other purpose without the written consent of Provost & Pritchard Engineering Group, Inc. The firm and its employees shall not be held liable for any damages, including consequential damages, arising from the use of this information. The firm and its employees shall not be held liable for any damages, including consequential damages, arising from the use of this information. The firm and its employees shall not be held liable for any damages, including consequential damages, arising from the use of this information.

FOR SWPPP PURPOSES ONLY
07/19/2024



LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
BMP SITE MAP STA 10+00-20+00

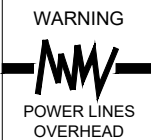


DESIGN ENGINEER: GRETCHEN HEISDORF
LICENSE NO: RCE 77241, CASQA 00485
DRAFTED BY: GJF CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 5 OF 7

7/19/2024 3:06 PM g:\south san joaquin 14-10551\05522007\w\m\m\14-10551\05522007 sheet swwppp\6 BMP SITE MAP STA 10+00-20+00.dwg -Greg Feaver



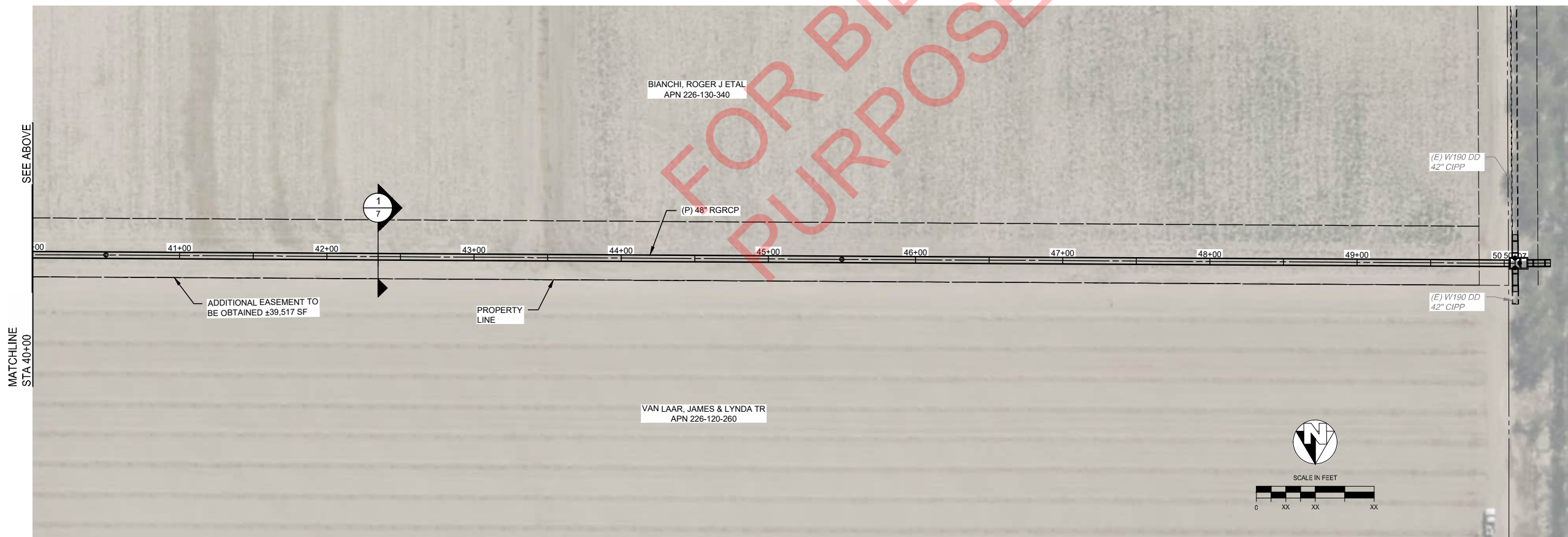
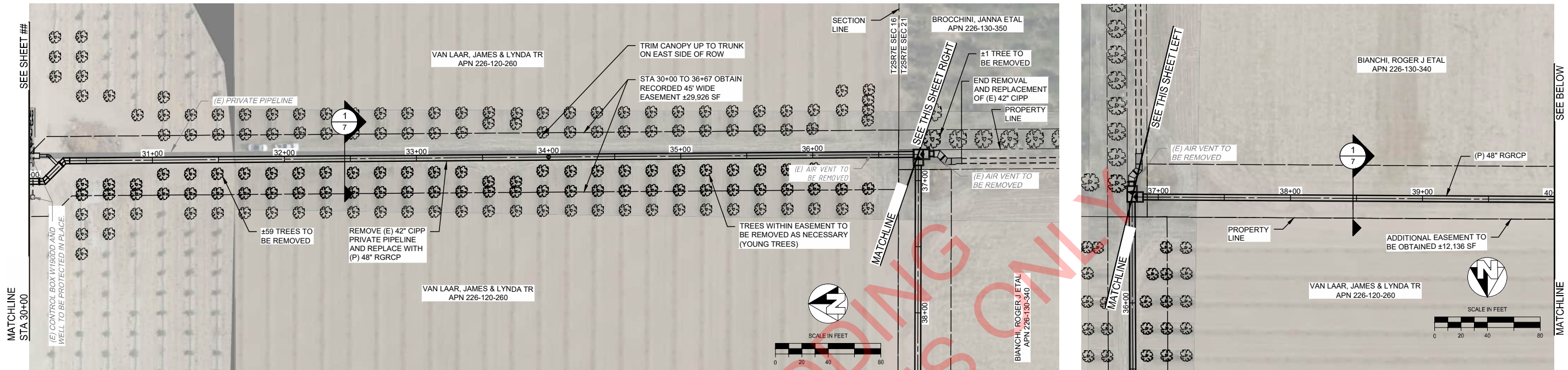
Know what's below.
Call before you dig.



NOTES

1. LINEAR CONTROLS TO PREVENT RUNOFF SHALL BE INSTALLED BASED ON SITE ACTIVITIES AND ACTUAL SITE TOPOGRAPHY. DEPICTED LOCATION SHOWN IS AN APPROXIMATE.
2. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
3. CONTRACTOR STAGING AREA TO BE FIELD DETERMINED. FUELING SPILL KITS WILL BE MAINTAINED ONSITE AT ALL TIMES. A SPILL KIT WILL BE KEPT ONSITE AT THE ACTIVE CONSTRUCTION AREA(S) DURING WORK HOURS AND IN THE STAGING AREA AT ALL TIMES.
4. ALL VEHICLES & EQUIPMENT WILL BE FUELED ON AN IMPERVIOUS BERMED SURFACE TO PREVENT PETROLEUM PRODUCTS FROM POLLUTING THE GROUND/BARE SOIL.
5. VEHICLES & EQUIPMENT, WHILE STORED, SHALL BE MONITORED AT START & END OF DAY FOR SPILLS OR LEAKS. ALL VEHICLES & EQUIPMENT WILL BE PARKED ON AN IMPERVIOUS BERMED SURFACE TO PREVENT PETROLEUM PRODUCTS FROM POLLUTING THE GROUND/BARE SOIL.
6. ALL GENERAL SITE WASTE AND DEBRIS WILL BE CONTAINED IN A FULLY ENCLOSED AND WATERTIGHT TRASH CAN OR DUMPSTER.
7. ALL SOLID, NOT AERIALY TRANSPORTABLE WASTE STOCKPILES SHALL BE IN ACCORDANCE WITH CASQA BMP GUIDANCE SHEETS.
8. ALL SOLVENTS, CLEANERS, AND OTHER PRODUCTS SHALL BE STORED IN WATERTIGHT CONTAINERS OR COVERED WITH IMPERVIOUS MATERIALS TO PREVENT POLLUTANT TRANSPORT PER CASQA WM-2 & WM-6.
9. ANY MATERIAL SPILL/LEAK SHALL BE CLEANED IMMEDIATELY TO PREVENT POLLUTANT TRANSPORT.
10. ALL LIQUID AND SOLID CONCRETE WASTE SHALL BE HANDLED IN SUCH A WAY TO PREVENT EXPOSURE TO PRECIPITATION OR CONTACT WITH BARE SOIL PER CASQA BMP WM-3 & WM-8.
11. EXCAVATED/REMOVED MATERIAL FROM TRENCHED ROAD AREAS SHALL BE DISPOSED OF PER LOCAL, STATE, AND FEDERAL REGULATIONS. TRENCH SPOIL STOCKPILES SHALL BE PER CASQA BMP WM-3.

LEGEND	
①	INSTALL FIBER ROLLS IN ACCORDANCE WITH CASQA BMP SE-5.
②	INSTALL TRACKOUT DEVICE IN ACCORDANCE WITH CASQA BMP TC-1.
③	CLEAN PUBLIC STREETS IN ACCORDANCE WITH CASQA BMP SE-7.

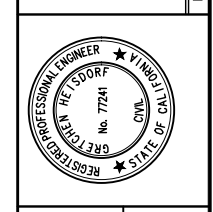


COPYRIGHT 2024 BY PROVEST & PRITCHARD ENGINEERING GROUP, INC. ALL RIGHTS RESERVED. The firm of Provest & Pritchard Engineering Group, Inc. expressly disclaims any liability for errors or omissions in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever, nor are they to be used for any purpose other than that specifically intended by the engineer and/or architect. Provest & Pritchard Engineering Group, Inc. is not responsible for any and all claims, damages, losses, or expenses, including reasonable attorneys' fees, arising out of or from the use of these plans by a third party. The firm of Provest & Pritchard Engineering Group, Inc. is a professional engineering firm and is not a contractor. Provest & Pritchard Engineering Group, Inc.'s legal fees associated with defending and enforcing these rights.

FOR SWPPP PURPOSES ONLY
07/19/2024

No. BY DATE

REVISION

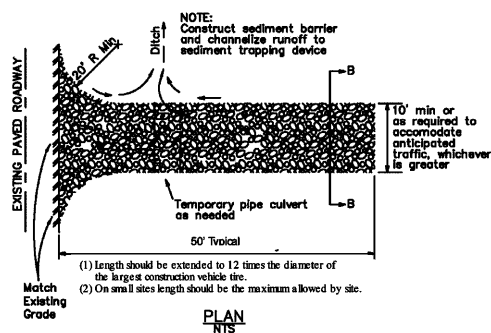
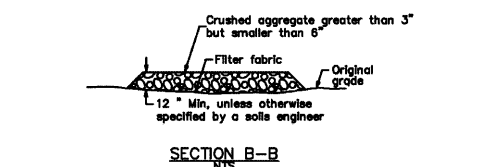


LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
BMP SITE MAP STA 30+00-40+00

PROVEST & PRITCHARD
An Employee Owned Company
4701 SISKIYOU ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
208-899-2300 FAX 208-899-2290
https://provestandpritchard.com/

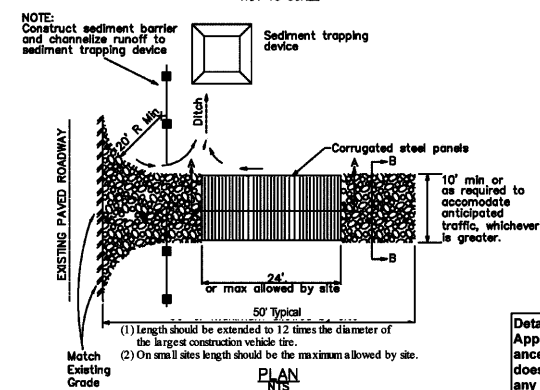
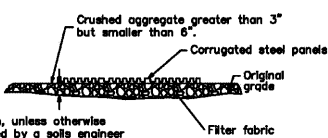
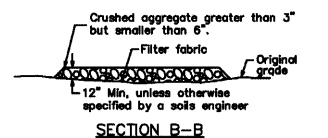
DESIGN ENGINEER: GRETCHEN HEISDORF
LICENSE NO: RCE 77241, CASQA 00485
DRAFTED BY: GJF
CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 6 OF 7

Stabilized Construction Entrance/Exit TC-1



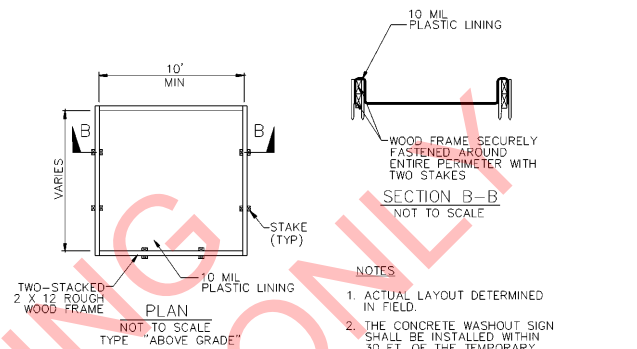
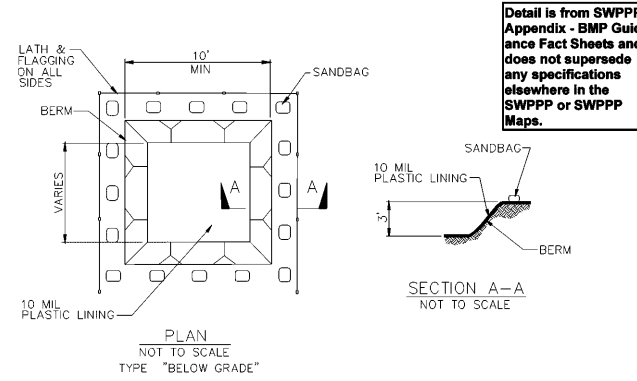
Detail is from SWPPP Appendix - BMP Guidance Fact Sheets and does not supersede any specifications elsewhere in the SWPPP or SWPPP Maps.

Stabilized Construction Entrance/Exit TC-1

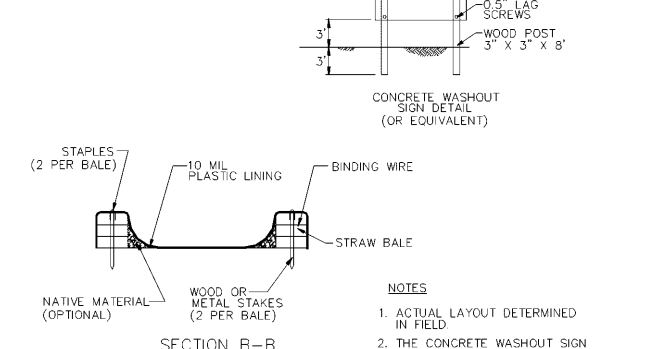
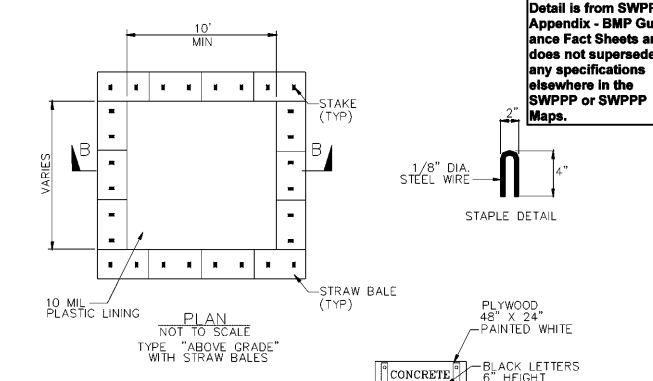


Detail is from SWPPP Appendix - BMP Guidance Fact Sheets and does not supersede any specifications elsewhere in the SWPPP or SWPPP Maps.

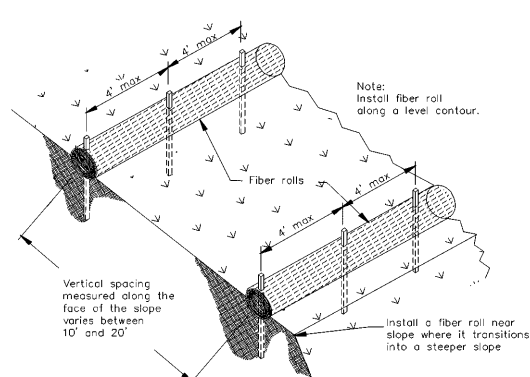
Concrete Waste Management WM-8



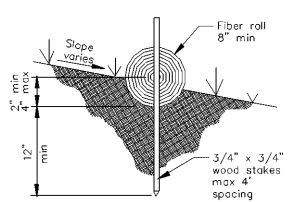
Concrete Waste Management WM-8



Fiber Rolls SE-5



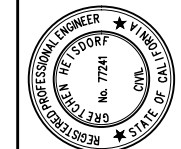
TYPICAL FIBER ROLL INSTALLATION N.T.S.



ENTRENCHMENT DETAIL N.T.S.

Detail is from SWPPP Appendix - BMP Guidance Fact Sheets and does not supersede any specifications elsewhere in the SWPPP or SWPPP Maps.

FOR SWPPP PURPOSES ONLY
07/19/2024

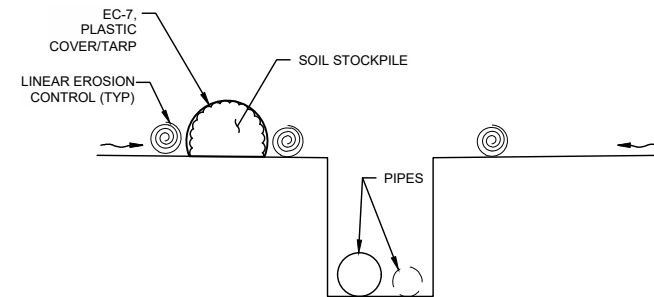


LATERAL X-W CONNECTION
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
SAN JOAQUIN COUNTY
STORMWATER POLLUTION PREVENTION PLAN
DETAILS

PROVOST & PRITCHARD
An Employee Owned Company
4701 SISKIYOU ROAD, SUITE 102
MODESTO, CALIFORNIA 95356
208-899-2300 FAX 208-899-2290
https://provostandpritchard.com/

DESIGN ENGINEER: GRETCHEN HEISDORF
LICENSE NO: RCE 77241, CASQA 00485
DRAFTED BY: GJF CHECKED BY: GMH
DATE: 07/19/2024
JOB NO: 105522007
PROJECT NO: 105522007
PHASE: ENV
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 7 OF 7

- NOTES
1. STOCKPILE PLACEMENT TO BE DETERMINED BY CONTRACTOR IN FIELD. DIAGRAM FOR VISUAL PURPOSES ONLY. CONTRACTOR TO STORE EQUIPMENT IN SAME AREA AS STOCKPILE MATERIAL AND SHALL EMPLOY NS-8, 9 & 10 AS APPROPRIATE.
 2. LINEAR EROSION CONTROLS ARE LIMITED DUE TO ENDANGERED SPECIES. CHECK WITH CONSTRUCTION REPRESENTATIVE FOR APPROVED MATERIALS.



TYPICAL TRENCH CROSS SECTION NTS

1/7

Appendix B: Permit Registration Document(s)

Permit Registration Documents included in this Appendix

Y/N	Permit Registration Document
Y	Notice of Intent
Y	Risk Type Determination Documentation
n/a	ATS Design Documents
Y	Site Maps, see Appendix A

FOR BIDDING
PURPOSES ONLY

State Water Resources Control Board

Approved Date: July 28, 2023

Forrest Killingsworth
South San Joaquin Irrigation District
PO Box 747
Ripon CA 95366

RECEIPT OF YOUR NOTICE OF INTENT (NOI)

The State Water Resources Control Board (State Water Board) has received and processed your NOI to comply with the terms of the General Permit to Discharge Storm Water Associated with Construction Activity. Accordingly, you are required to comply with the permit requirements.

The Waste Discharger Identification (WDID) number is: **5S39C401406**. Please use this number in any future communication regarding this permit.

	SITE DESCRIPTION
OWNER:	South San Joaquin Irrigation District
DEVELOPER:	South San Joaquin Irrigation District
SITE INFORMATION:	Lateral W X Connection Alice Road and Sedan Ave Manteca
TOTAL DISTURBED ACRES:	1.5
START DATE:	July 15, 2023
COMPLETION DATE:	August 25, 2025
COUNTY:	San Joaquin

When the Owner changes , a new NOI, site map, and fee must be submitted by the new Owner. As the previous owner, you are required to submit a Notice of Termination (NOT) to the local Regional Water Board stating you no longer own or operate the Site and coverage under the General Permit is not required. Unless notified, you will continue and are responsible to pay the annual fee invoiced each July.

If you have any questions regarding permit requirements, please contact your Regional Water Board at 916-464-3291 . Please visit the storm water web site at http://www.waterboards.ca.gov/water_issues/programs/stormwater/ to obtain an NOT and other storm water related information and forms.

Sincerely,

Storm Water Section
Division of Water Quality



State Water Resources Control Board
NOTICE OF INTENT
 GENERAL PERMIT TO DISCHARGE STORM WATER
 ASSOCIATED WITH CONSTRUCTION ACTIVITY
 (WQ ORDER No. 2009-0009-DWQ)



WDID: 5S39C401406

Property Owner Information

Type: Special District

Name: South San Joaquin Irrigation District
 Address: PO Box 747
 Address 2: _____
 City/State/Zip: Ripon CA 95366

Contact Name: Forrest Killingsworth
 Title: Engineering Department Manager
 Phone Number: 209-249-4620
 Email Address: fkillingsworth@ssjid.com

Contractor/Developer Information

Name: South San Joaquin Irrigation District
 Address: PO Box 747
 Address 2: _____
 City/State/Zip: Ripon CA 95366

Contact Name: Forrest Killingsworth
 Title: Engineering Department Manager
 Phone Number: 209-249-4620
 Email Address: fkillingsworth@ssjid.com

Construction Site Information

Contact Name: Forrest Killingsworth Title: Engineering Department Manager
 Site Name: Lateral W X Connection
 Address: Alice Road and Sedan Ave
 City/State/Zip: Manteca CA 95337 Site Phone #: 209-249-4620
 County: San Joaquin Email Address: fkillingsworth@ssjid.com
 Latitude: 37.75764 Longitude: -121.201934 Construction Start: July 15, 2023
 Total Size of Construction Area: 1.5 Acres Complete Grading: August 01, 2025
 Total Area to be Disturbed: 1.5 Acres Final Stabilization: August 25, 2025

Type of Construction: _____ *Below Ground*Other: Irrigation Pipeline

Receiving Water: _____

Qualified SWPPP Developer: Gretchen Heisdorf

RWQCB Jurisdiction: Region 5S - Sacramento

Phone: 916-464-3291

Email: r5s_stormwater@waterboards.ca.gov

Certification

Certification #: 00485

Name: Forrest Killingsworth

Date: June 28, 2023

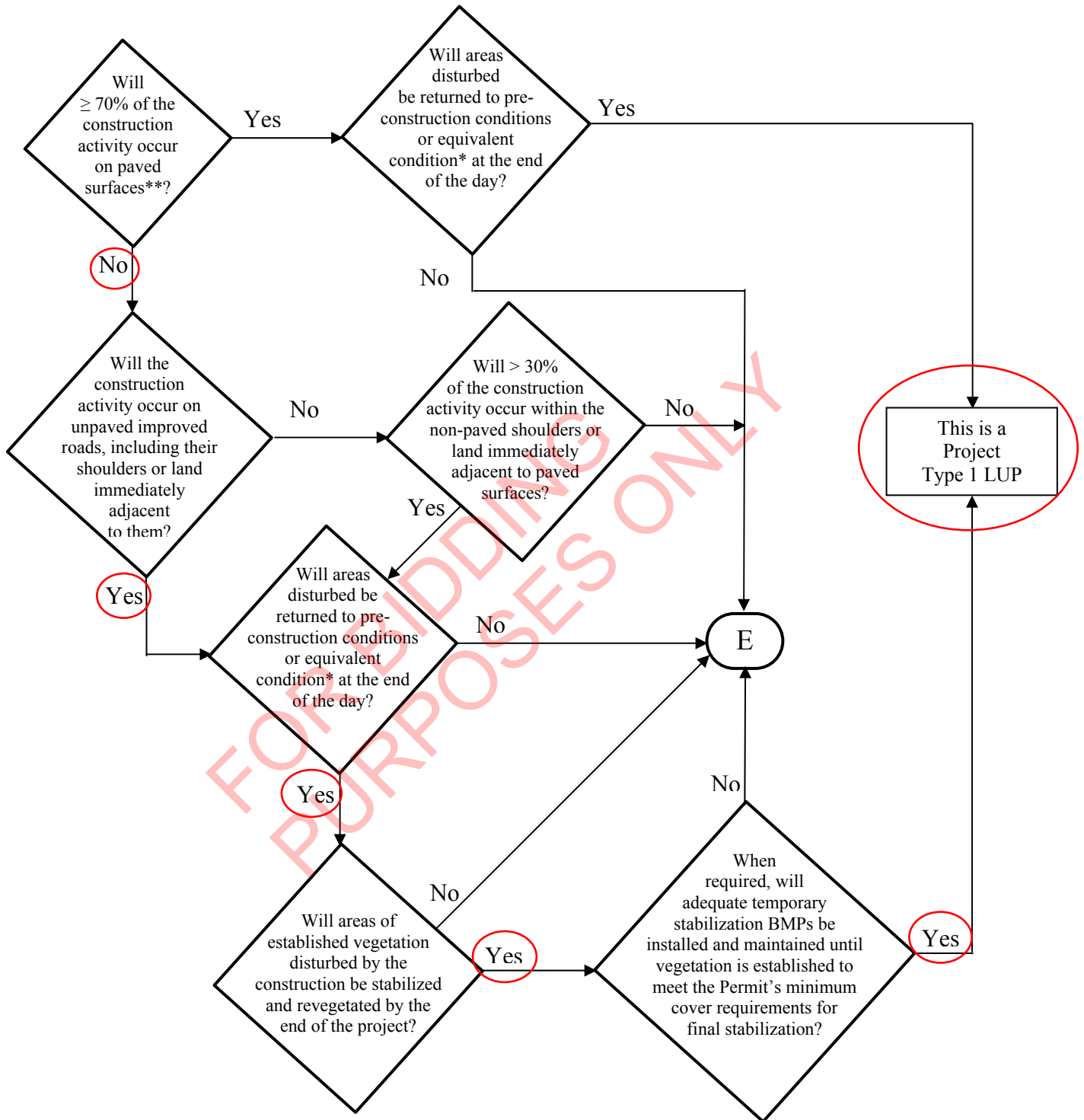
Title: Engineering Department Manager

		Combined Risk Level Matrix		
		<u>Sediment Risk</u>		
<u>Receiving Water Risk</u>	Low	Low	Medium	High
	Low	Level 1	Level 2	
High	Level 2		Level 3	

Project Sediment Risk: **Low**
 Project RW Risk: **Low**
 Project Combined Risk: **Level 1**

FOR BIDDING PURPOSES ONLY

ATTACHMENT A.1 LUP Project Area or Project Section Area Type Determination



*See Definition of Terms

** Or: "Will < 30% of the soil disturbance occur on unpaved surfaces?"

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	R Factor Value		66.189
6	B) K Factor (weighted average, by area, for all site soils)		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	K Factor Value		0.28
10	C) LS Factor (weighted average, by area, for all slopes)		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	LS Factor Value		0.19
14			
15	Watershed Erosion Estimate (=RxKxLS) in tons/acre		3.5212548
16	Site Sediment Risk Factor		Low
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

● Click the "Calculate R Factor" button below to calculate an R Factor for your small construction project.

Calculate R Factor

Facility Information

Start Date: 07/17/2023	Latitude: 37.7576
End Date: 07/16/2024	Longitude: -121.2019

Calculation Results

Rainfall erosivity factor (R Factor) = **32.99**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an [area where EPA is the permitting authority \(pdf\)](#), you must submit a Notice of Intent (NOI) through the [NPDES eReporting Tool \(NeT\)](#). Otherwise, you must seek coverage under your state's CGP.

FOR BIDDING
PURPOSES ONLY

● Click the "Calculate R Factor" button below to calculate an R Factor for your small construction project.

Calculate R Factor

Facility Information

Start Date: 07/17/2024	Latitude: 37.7576
End Date: 07/16/2025	Longitude: -121.2019

Calculation Results

Rainfall erosivity factor (R Factor) = **32.99**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an [area where EPA is the permitting authority \(pdf\)](#), you must submit a Notice of Intent (NOI) through the [NPDES eReporting Tool \(NeT\)](#). Otherwise, you must seek coverage under your state's CGP.

FOR BIDDING
PURPOSES ONLY



Click the "Calculate R Factor" button below to calculate an R Factor for your small construction project.

Calculate R Factor

Facility Information

Start Date: 07/17/2025	Latitude: 37.7576
End Date: 08/31/2025	Longitude: -121.2019

Calculation Results

Rainfall erosivity factor (R Factor) = **0.209**

A rainfall erosivity factor of less than 5.0 has been calculated for your site and period of construction. If you are located in an [area where EPA is the permitting authority \(pdf\)](#), you can submit a LEW through EPA's [NPDES eReporting Tool \(NeT\)](#). Otherwise, contact your state permitting authority to determine if you are eligible for a waiver from NPDES permitting requirements.

If you submitted a LEW through EPA's NeT and your construction activity ultimately extends past the project completion date you specified above, you must recalculate the R factor using the original start date and a new project completion date. If the recalculated R factor is still less than 5.0, you must submit a modification to your LEW through NeT before the end of the original construction period. If the new R factor is 5.0 or greater, you must submit a Notice of Intent (NOI) instead to be covered by the Construction General Permit (CGP) before the original project completion date.

FOR BIDDING PURPOSES ONLY

SSJID WX Pipeline

LS Value: 0.19



K Value: 0.28



Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed waterbody impaired by sediment (For help with impaired waterbodies please visit the link below) or has a USEPA approved TMDL implementation plan for sediment ?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	No	Low
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml		
Region 1 Basin Plan Region 2 Basin Plan Region 3 Basin Plan Region 4 Basin Plan Region 5 Basin Plan Region 6 Basin Plan Region 7 Basin Plan Region 8 Basin Plan Region 9 Basin Plan		

FOR BIDDING PURPOSES ONLY

SSJID WX Pipeline

Receiving Water Risk: Low



FOR BIDDING
PURPOSES ONLY

Appendix C: SWPPP Amendment Certifications

FOR BIDDING
PURPOSES ONLY

SWPPP Amendment No.

Project Name: _____

WDID Number _____

**Qualified SWPPP Developer's Certification of the
Stormwater Pollution Prevention Plan Amendment**

“This Stormwater Pollution Prevention Plan and attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Order No. 2009-009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below.”

_____ QSD Signature	_____ Date	_____ QSD Certificate Number
_____ QSD Name	_____ Title and Affiliation	_____ Telephone Number

FOR BIDDING
PURPOSES ONLY

Appendix D: Submitted Changes to PRDs

FOR BIDDING
PURPOSES ONLY

Log of Updated PRDs

When a portion of a LUP changes or when a phase within a multi-phase project is completed, the total acreage covered by the General Permit may be reduced. To reduce coverage, the following shall be filed via SMARTS:

- Revised NOI indicating the new project size;
- Revised site map(s) showing the acreage of the project completed;
- Acreage currently under construction, acreage sold, transferred, or added and acreage currently stabilized;
- SWPPP revisions, as appropriate; and
- Certification that any new LRPs have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address (if known) of the new LRP.

If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

Updated PRDs submitted electronically via SMARTS can be found in this Appendix.

This appendix includes all of the following updated PRDs (check all that apply):

- Revised Notice of Intent (NOI)
- Revised Site Map(s)
- Revised Risk Type Determination
- New landowner's information (name, address, phone number, e-mail address)
- New signed certification statement

Legally Responsible Person

Signature of Authorized Representative of Legally Responsible Person or Approved Signatory

Date

Name of Authorized Representative of Legally Responsible Person or Approved Signatory

Telephone Number

Appendix E: Construction Schedule

FOR BIDDING
PURPOSES ONLY

Appendix F: Construction Activities, Materials Used, and Associated Pollutants

Table G POLLUTANTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES

General Work Activity/ Products with Potential Stormwater Pollutants	Specific Work Activity/Products with Potential Stormwater Pollutants	Pollutant Categories
Adhesives	<ul style="list-style-type: none"> • Adhesives, glues, resins, epoxy synthetics, PVC cement • Caulks, sealers, putty, sealing agents and • Coal tars (naphtha, pitch) 	Oil and Grease, Synthetic Organics ¹
Asphalt paving/curbs	<ul style="list-style-type: none"> • Hot and cold mix asphalt 	Oil and Grease
Cleaners	<ul style="list-style-type: none"> • Polishes (metal, ceramic, tile) • Etching agents • Cleaners, ammonia, lye, caustic sodas, bleaching agents and chromate salts 	Metals, Synthetic Organics
Concrete / Masonry	<ul style="list-style-type: none"> • Cement and brick dust • Colored chalks • Concrete curing compounds • Glazing compounds • Surfaces cleaners • Saw cut slurries • Tile cutting 	Metals, Synthetic Organics
Framing/Carpentry	<ul style="list-style-type: none"> • Sawdust, particle board dust, and treated woods • Saw cut slurries 	Metals, Synthetic Organics
Liquid waste	<ul style="list-style-type: none"> • Wash waters • Irrigation line testing/flushing 	Metals, Synthetic Organics
Painting	<ul style="list-style-type: none"> • Paint thinners, acetone, methyl ethyl ketone, stripper paints, lacquers, varnish, enamels, turpentine, gum spirit, solvents, dyes, stripping pigments and sanding 	Metals, Synthetic Organics
Planting / Vegetation Management	<ul style="list-style-type: none"> • Vegetation removal 	Nutrients, Metals, Synthetic Organics
Plumbing	<ul style="list-style-type: none"> • Solder (lead, tin), flux (zinc chloride), pipe fitting • Galvanized metal in nails, fences, and electric wiring 	Metals, Synthetic Organics
Sanitary waste	<ul style="list-style-type: none"> • Portable toilets • Disturbance of existing sewer lines. 	Nutrients
Solid waste	<ul style="list-style-type: none"> • Litter, trash and debris • Vegetation 	Gross Pollutants
Utility line testing and flushing	<ul style="list-style-type: none"> • Hydrostatic test water • Pipe flushing 	Synthetic Organics
Vehicle and equipment use	<ul style="list-style-type: none"> • Equipment operation, maintenance, washing, fueling 	Oil and Grease

¹ Synthetic Organics are defined in Table 1.2 of the CASQA *Stormwater BMP Handbook Portal: Construction* as adhesives, cleaners, sealants, solvents, etc. These are generally categorized as VOCs or SVOCs.

**Appendix G: Construction BMP Handbook Fact
Sheets**

FOR BIDDING
PURPOSES ONLY

Section 3

Erosion and Sediment Control BMPs

3.1 Erosion Control

[Erosion control](#) is any [source control](#) practice that protects the soil surface and prevents soil particles from being detached by rainfall, flowing water, or wind. Erosion control is different than sediment control, which captures or filters soil particles after they have been detached. Erosion control consists of using project scheduling, training, and planning (the most effective means of retaining sediment on-site) to reduce soil or [vegetation](#) disturbance (particularly during the rainy season), prevent or reduce erosion potential by diverting or controlling drainage, and prepare and stabilize disturbed soil areas. Erosion control [BMPs](#) that can be used to fulfill these objectives are shown in Table 3-1. Several additional BMPs such as Check Dams (SE-4) and Fiber Rolls (SE-5) can be used for erosion control by reducing slope length or steepness as well as for [sediment control](#) (i.e., perimeter control or retention of [sediment](#)). These BMPs are included in this handbook as sediment control BMPs and are shown in Table 3-2.

All [inactive](#) soil disturbed areas on the project site, and most [active areas](#) prior to the onset of rain, must be protected from erosion. Soil disturbed areas may include relatively flat areas as well as slopes. Typically, steep slopes and large exposed areas require the most robust erosion controls; flatter slopes and smaller areas still require protection, but less costly materials may be appropriate for these areas, allowing savings to be directed to the more robust BMPs for steep slopes and large exposed areas. Additional guidance on the selection of temporary slope stabilization methods is provided in Appendix F. To be effective, erosion control BMPs for slopes at disturbed areas must be protected from concentrated flows.

Some erosion control BMPs can be used effectively to temporarily prevent erosion by concentrated flows. These BMPs, used alone or in combination, prevent erosion by intercepting, diverting, conveying, and discharging concentrated flows in a manner that prevents soil detachment and transport. Temporary concentrated flow conveyance controls may be required

Table 3-1 Erosion Control BMPs

BMP#	BMP Name
EC-1	Scheduling ⁶
EC-2	Preservation of Existing ⁶
EC-3	Hydraulic Mulch ^{1, 5, 6}
EC-4	Hydroseeding ^{1, 5, 6}
EC-5	Soil Binders ^{1, 5, 6}
EC-6	Straw Mulch ^{1, 5}
EC-7	Geotextiles & Mats ^{1, 5, 6}
EC-8	Wood Mulching ^{4, 6}
EC-9	Earth Dikes and Drainage Swales ⁶
EC-10	Velocity Dissipation Devices ^{4, 5}
EC-11	Slope Drains ⁴
EC-12	Streambank Stabilization ⁴
EC-13	Reserved ²
EC-14	Compost Blankets ^{3, 5}
EC-15	Soil Preparation / Roughening ³
EC-16	Non-Vegetative Stabilization ^{3, 5}

1) BMP fact sheet updated in 2009
 2) BMP fact sheet removed in 2009 (formerly PAM)
 3) New BMP fact sheet added in 2009
 4) BMP fact sheet updated in 2011
 5) BMP fact sheet updated in 2012
 6) BMP fact sheet updated in 2019

to direct run-on around or through the project in a non-erodible fashion. Temporary concentrated flow conveyance controls include the following BMPs:

- EC-9, Earth Dikes and Drainage Swales
- EC-10, Velocity Dissipation Devices
- EC-11, Slope Drains

3.2 Sediment Control

Sediment control is any practice that traps soil particles after they have been detached and moved by rain, flowing water, or wind. Sediment control measures are usually passive systems that rely on filtering or settling the particles out of the water or wind that is transporting them.

Sediment control practices include the BMPs listed in Table 3-2.

Sediment control BMPs include those practices that intercept and slow or detain the flow of [stormwater](#) to allow sediment to settle and be trapped. Sediment control practices can consist of installing linear sediment barriers (e.g., [silt fences](#), [gravel bag berms](#), or [fiber rolls](#)) and constructing [check dams](#), a [sediment trap](#), or [sediment basin](#) to retain sediment on-site. Linear sediment barriers are typically placed below the toe of exposed and erodible slopes, down-slope of exposed soil areas, around soil stockpiles, and at other appropriate locations along the site perimeter. They should be placed along the contour, not up and down a slope as this can concentrate flow and increase erosion. As mentioned in Section 3.1, some BMPs are dual-purpose, such as fiber rolls and check dams. By reducing effective slope length, these BMPs reduce erosion as well as promote [sedimentation](#).

Sediment control BMPs are most effective when used in conjunction with erosion control BMPs.

The combination of erosion control and sediment control is the most effective means to prevent sediment from leaving the project site and potentially entering [storm drains](#) or [receiving waters](#). The [General Permit](#) requires that sediment controls be established and maintained at all sites and requires the combined use with erosion controls to protect disturbed areas at most sites.

Table 3-2 Temporary Sediment Control BMPs

BMP#	BMP Name
SE-1	Silt Fence ^{1, 4}
SE-2	Sediment Basin ^{1, 3, 6}
SE-3	Sediment Trap ³
SE-4	Check Dam ^{1, 4}
SE-5	Fiber Rolls ^{1, 4}
SE-6	Gravel Bag Berm ^{1, 3}
SE-7	Street Sweeping and Vacuuming ³
SE-8	Sandbag Barrier ^{1, 4}
SE-9	Straw Bale Barrier ³
SE-10	Storm Drain Inlet Protection ^{1, 4}
SE-11	Active Treatment Systems ¹
SE-12	Manufactured Linear Sediment Controls ^{2, 4, 5}
SE-13	Compost Socks and Berms ^{2, 4}
SE-14	Biofilter Bags ^{2, 4}
1) BMP fact sheet updated in 2009 2) New BMP fact sheet added in 2009 3) BMP fact sheet updated in 2011 4) BMP fact sheet updated in 2012 5) BMP fact sheet renamed from Temporary Silt Dike in 2012 6) BMP fact sheet updated in 2015 7) BMP fact sheet updated in 2019	

3.3 Wind Erosion Control

[Wind erosion control](#) consists of applying water or other dust palliatives to prevent or minimize dust nuisance, reducing soil-moving activities during high winds, and installing erosion control BMPs for temporary wind control. Wind erosion control BMPs are shown in Table 3-3.

Other BMPs that control wind erosion are EC-1 through EC-8, and EC-14 through EC-16, shown in Section 3.1 of this handbook. Be advised that some of the dust palliatives/chemical dust suppression agents may have potential water quality impacts. A sampling and analysis protocol to test for stormwater contamination from exposure to such compounds is required in the SWPPP.

Table 3-3 Wind Erosion Control BMPs

BMP#	BMP Name
WE-1	Wind Erosion Control ^{1, 2}
1) BMP fact sheet updated in 2009	
2) BMP fact sheet updated in 2011	

3.4 Tracking Control BMPs

[Tracking control](#) consists of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. Tracking control BMPs are shown in Table 3-4. Street Sweeping and Vacuuming (SE-7) is also a tracking control practice. All sites must have a stabilized construction entrance and implement controls to prevent off-site tracking of sediment or other loose construction-related materials. These controls should be inspected daily.

Attention to control of tracking sediment off-site is essential, as dirty streets and roads near a construction site create a nuisance to the public and can generate complaints to elected officials and regulators. These complaints often result in immediate inspections and regulatory actions.

Table 3-4 Temporary Tracking Control BMPs

BMP #	BMP Name
TC-1	Stabilized Construction Entrance/Exit ^{1, 2}
TC-2	Stabilized Construction Roadway ¹
TC-3	Entrance/Outlet Tire Wash ¹
1) BMP fact sheet updated in 2011	
2) BMP fact sheet updated in 2012	

3.5 Erosion and Sediment Control BMP Fact Sheet Format

A BMP fact sheet is a short document that presents detailed information about a particular BMP. Typically each fact sheet contains the information outlined in Figure 3-1. Fact sheets for each of the above activities are provided in Section 3.6.

The fact sheets also contain side bar presentations with information on BMP categories, targeted constituents, removal effectiveness, and potential alternatives.

Example EC-xx Fact Sheet
<u>Description and Purpose</u>
<u>Suitable Applications</u>
<u>Limitations</u>
<u>Implementation</u>
<u>Costs</u>
<u>Inspection and Maintenance</u>

*Figure 3-1
Example Fact Sheet*

JANUARY				
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
		1	2 NTP MOBILIZATION	3
			9	10 Grading
6 Install erosion & sediment control measures	7	8 Land clearing		15
		13	14	16
				22
				23

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Scheduling is the development of a written plan that includes sequencing of construction activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule.

Suitable Applications

Proper sequencing of construction activities to reduce erosion potential should be incorporated into the schedule of every construction project especially during rainy season. Use of other, more costly yet less effective, erosion and sediment control BMPs may often be reduced through proper construction sequencing.

Limitations

- Environmental constraints such as nesting season prohibitions reduce the full capabilities of this BMP.

Implementation

- Avoid rainy periods. Schedule major grading operations during dry months when practical. Allow enough time before rainfall begins to stabilize the soil with vegetation or physical means or to install sediment trapping devices.
- Plan the project and develop a schedule showing each phase of construction. Clearly show how the rainy season relates



to soil disturbing and re-stabilization activities. Incorporate the construction schedule into the SWPPP.

- Include on the schedule, details on the rainy season implementation and deployment of:
 - Erosion control BMPs
 - Sediment control BMPs
 - Tracking control BMPs
 - Wind erosion control BMPs
 - Non-stormwater BMPs
 - Waste management and materials pollution control BMPs
- Include dates for activities that may require non-stormwater discharges such as dewatering, sawcutting, grinding, drilling, boring, crushing, blasting, painting, hydro-demolition, mortar mixing, pavement cleaning, etc.
- Work out the sequencing and timetable for the start and completion of each item such as site clearing and grubbing, grading, excavation, paving, foundation pouring utilities installation, etc., to minimize the active construction area during the rainy season.
 - Sequence trenching activities so that most open portions are closed before new trenching begins.
 - Incorporate staged seeding and re-vegetation of graded slopes as work progresses.
 - Schedule establishment of permanent vegetation during appropriate planting time for specified vegetation.
- Non-active areas should be stabilized as soon as practical after the cessation of soil disturbing activities or one day prior to the onset of precipitation.
- Monitor the weather forecast for rainfall.
- When rainfall is predicted, adjust the construction schedule to allow the implementation of soil stabilization and sediment treatment controls on all disturbed areas prior to the onset of rain.
- Be prepared year-round to deploy erosion control and sediment control BMPs. Erosion may be caused during dry seasons by un-seasonal rainfall, wind, and vehicle tracking. Keep the site stabilized year-round and retain and maintain rainy season sediment trapping devices in operational condition.
- Apply permanent erosion control to areas deemed substantially complete during the project's defined seeding window.
- Avoid soil disturbance during periods with high wind velocities.

Costs

Construction scheduling to reduce erosion may increase other construction costs due to reduced economies of scale in performing site grading. The cost effectiveness of scheduling techniques

should be compared with the other less effective erosion and sedimentation controls to achieve a cost-effective balance.

Inspection and Maintenance

- Verify that work is progressing in accordance with the schedule. If progress deviates, take corrective actions.
- Amend the schedule when changes are warranted.
- Amend the schedule prior to the rainy season to show updated information on the deployment and implementation of construction site BMPs.

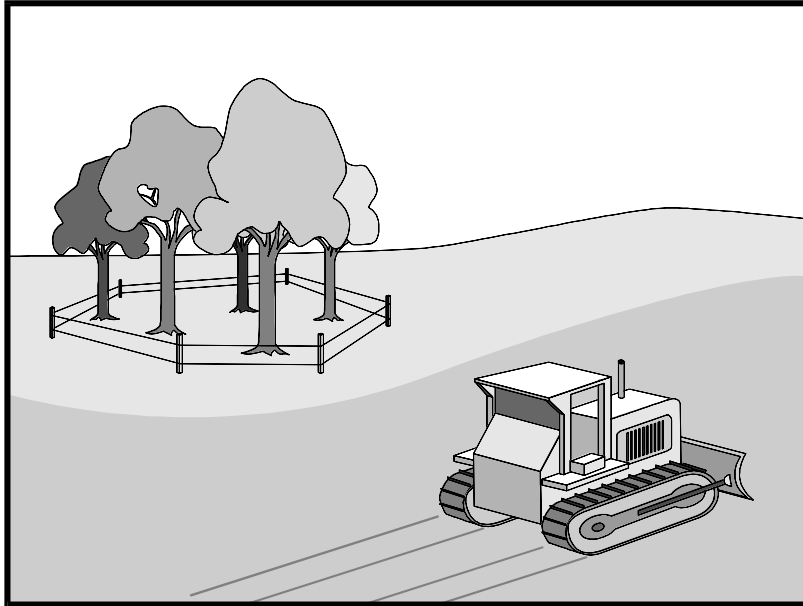
References

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities Developing Pollution Prevention Plans and Best Management Practices (EPA 832-R-92-005), U.S. Environmental Protection Agency, Office of Water, September 1992.

FOR BIDDING
PURPOSES ONLY

Preservation of Existing Vegetation EC-2



Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input type="checkbox"/>
TC	Tracking Control	<input type="checkbox"/>
WE	Wind Erosion Control	<input type="checkbox"/>
NS	Non-Stormwater Management Control	<input type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input type="checkbox"/>
Trash	<input type="checkbox"/>
Metals	<input type="checkbox"/>
Bacteria	<input type="checkbox"/>
Oil and Grease	<input type="checkbox"/>
Organics	<input type="checkbox"/>

Potential Alternatives

None

Description and Purpose

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

Suitable Applications

Preservation of existing vegetation is suitable for use on most projects. Large project sites often provide the greatest opportunity for use of this BMP. Suitable applications include the following:

- Areas within the site where no construction activity occurs or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased.
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, and building sites in wooded areas.
- Areas where local, state, and federal government require preservation, such as vernal pools, wetlands, marshes, certain oak trees, etc. These areas are usually designated on the plans, or in the specifications, permits, or environmental documents.
- Where vegetation designated for ultimate removal can be temporarily preserved and be utilized for erosion control and sediment control.
- Protecting existing vegetation buffers and swales.

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Preservation of Existing Vegetation EC-2

Limitations

- Requires forward planning by the owner/developer, contractor, and design staff.
- Limited opportunities for use when project plans do not incorporate existing vegetation into the site design.
- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactory for the planned development.

Implementation

The best way to prevent erosion is to not disturb the land. In order to reduce the impacts of new development and redevelopment, projects may be designed to avoid disturbing land in sensitive areas of the site (e.g., natural watercourses, steep slopes), and to incorporate unique or desirable existing vegetation into the site's landscaping plan. Clearly marking and leaving a buffer area around these unique areas during construction will help to preserve these areas as well as take advantage of natural erosion prevention and sediment trapping.

Existing vegetation to be preserved on the site must be protected from mechanical and other injury while the land is being developed. The purpose of protecting existing vegetation is to ensure the survival of desirable vegetation for shade, beautification, and erosion control. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. In addition, vegetation helps keep soil from drying rapidly and becoming susceptible to erosion. To effectively save existing vegetation, no disturbances of any kind should be allowed within a defined area around the vegetation. For trees, no construction activity should occur within the drip line of the tree.

Timing

- Provide for preservation of existing vegetation prior to the commencement of clearing and grubbing operations or other soil disturbing activities in areas where no construction activity is planned or will occur at a later date.

Design and Layout

- Mark areas to be preserved with temporary fencing. Include sufficient setback to protect roots.
 - Orange colored plastic mesh fencing works well.
 - Use appropriate fence posts and adequate post spacing and depth to completely support the fence in an upright position.
- Locate temporary roadways, stockpiles, and layout areas to avoid stands of trees, shrubs, and grass.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Maintain existing irrigation systems where feasible. Temporary irrigation may be required.
- Instruct employees and subcontractors to honor protective devices. Prohibit heavy equipment, vehicular traffic, or storage of construction materials within the protected area.

Preservation of Existing Vegetation EC-2

- Consider pruning or mowing vegetation instead of removing it to allow for regrowth.
- If possible, retain vegetation buffer around the site and adjacent waterways.

Costs

There is little cost associated with preserving existing vegetation if properly planned during the project design, and these costs may be offset by aesthetic benefits that enhance property values. During construction, the cost for preserving existing vegetation will likely be less than the cost of applying erosion and sediment controls to the disturbed area. Replacing vegetation inadvertently destroyed during construction can be extremely expensive, sometimes in excess of \$10,000 per tree.

Inspection and Maintenance

During construction, the limits of disturbance should remain clearly marked at all times. Irrigation or maintenance of existing vegetation should be described in the landscaping plan. If damage to protected trees still occurs, maintenance guidelines described below should be followed:

- Verify that protective measures remain in place. Restore damaged protection measures immediately.
- Serious tree injuries shall be attended to by an arborist.
- Damage to the crown, trunk, or root system of a retained tree shall be repaired immediately.
- Trench as far from tree trunks as possible, usually outside of the tree drip line or canopy. Curve trenches around trees to avoid large roots or root concentrations. If roots are encountered, consider tunneling under them. When trenching or tunneling near or under trees to be retained, place tunnels at least 18 in. below the ground surface, and not below the tree center to minimize impact on the roots.
- Do not leave tree roots exposed to air. Cover exposed roots with soil as soon as possible. If soil covering is not practical, protect exposed roots with wet burlap or peat moss until the tunnel or trench is ready for backfill.
- Cleanly remove the ends of damaged roots with a smooth cut.
- Fill trenches and tunnels as soon as possible. Careful filling and tamping will eliminate air spaces in the soil, which can damage roots.
- If bark damage occurs, cut back all loosened bark into the undamaged area, with the cut tapered at the top and bottom and drainage provided at the base of the wood. Limit cutting the undamaged area as much as possible.
- Aerate soil that has been compacted over a trees root zone by punching holes 12 in. deep with an iron bar and moving the bar back and forth until the soil is loosened. Place holes 18 in. apart throughout the area of compacted soil under the tree crown.
- Fertilization:

Preservation of Existing Vegetation EC-2

- Fertilize trees in the late fall or early spring. Although to note, many native species do not require fertilization.
- Apply fertilizer to the soil over the feeder roots and in accordance with label instructions, but never closer than 3 ft to the trunk. Increase the fertilized area by one-fourth of the crown area for conifers that have extended root systems.
- Retain protective measures until all other construction activity is complete to avoid damage during site cleanup and stabilization.

References

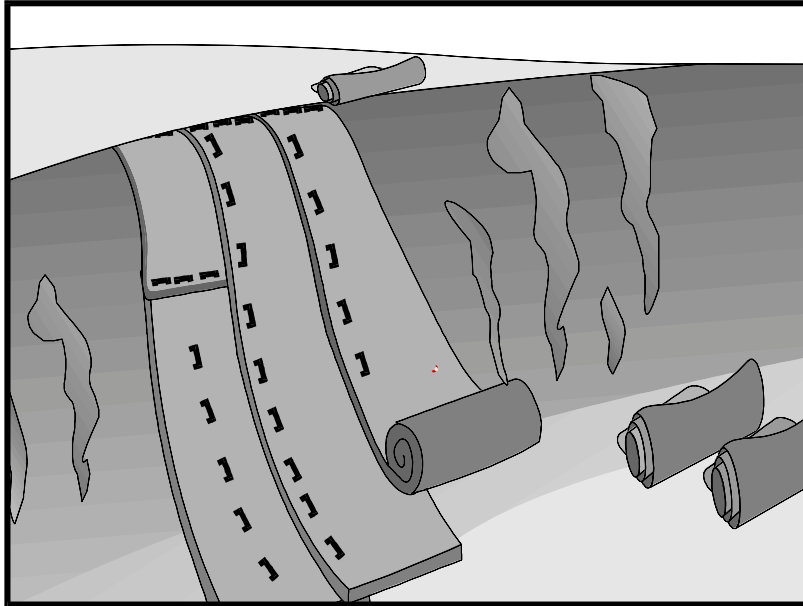
County of Sacramento Tree Preservation Ordinance, September 1981.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for The Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

FOR BIDDING ONLY
PURPOSES ONLY



Description and Purpose

Rolled Erosion Control Products (RECPs), also known as erosion control matting or blankets, can be made of natural or synthetic materials or a combination of the two. RECPs are used to cover the soil surface to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface. Additionally, RECPs may be used to stabilize soils until vegetation is established or to reinforce non-woody surface vegetation.

Suitable Applications

RECPs are typically applied on slopes where erosion hazard is high, and vegetation will be slow to establish. Mattings are also used on stream banks, swales and other drainage channels where moving water at velocities between 3 ft/s and 6 ft/s are likely to cause scour and wash out new vegetation and in areas where the soil surface is disturbed and where existing vegetation has been removed. RECPs may also be used when seeding cannot occur (e.g., late season construction and/or the arrival of an early rain season). RECPs should be considered when the soils are fine grained and potentially erosive. RECPs should be considered in the following situations:

- Steep slopes, generally steeper than 3:1 (H:V).
- Long slopes.
- Slopes where the erosion potential is high.
- Slopes and disturbed soils where mulch must be anchored.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

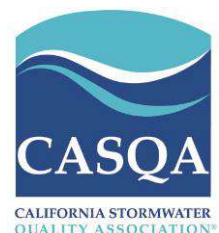
Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- EC-3 Hydraulic Mulch
- EC-4 Hydroseeding

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Disturbed areas where temporary cover is needed, or plants are slow to establish or will not establish.
- Channels with flows exceeding 3.3 ft/s.
- Channels to be vegetated.
- Stockpiles.
- Slopes adjacent to water bodies.

Limitations

- RECP installed costs are generally higher than other erosion control BMPs, limiting their use to areas where other BMPs are ineffective (e.g., channels, steep slopes).
- RECPs may delay seed germination, due to reduction in soil temperature and/or sunlight.
- RECPs are generally not suitable for excessively rocky sites or areas where the final vegetation will be mowed (since staples and netting can catch in mowers). If a staple or pin cannot be driven into the soil because the underlying soil is too hard or rocky, then an alternative BMP should be selected.
- If used for temporary erosion control, RECPs should be removed and disposed of prior to application of permanent soil stabilization measures.
- The use of plastic sheeting should be limited to covering stockpiles or very small graded areas for short periods of time (such as through one imminent storm event) until other measures, such as seeding and mulching, may be installed.
 - Plastic sheeting is easily vandalized, easily torn, photodegradable, and must be disposed of at a landfill.
 - Plastic sheeting results in 100% runoff, which may cause serious erosion problems in the areas receiving the increased flow.
- According to the State Water Board's *CGP Review, Issue #2*, only RECPs that either do not contain plastic netting or contain netting manufactured from 100% biodegradable non-plastic materials, such as jute, sisal, or coir fiber should be used due to plastic pollution and wildlife concerns. If a plastic-netted product is used for temporary stabilization, it must be promptly removed when no longer needed and removed or replaced with non-plastic netted RECPs for final stabilization.
- RECPs may have limitations based on soil type, slope gradient, or channel flow rate; consult the manufacturer for proper selection.
- Not suitable for areas that have foot traffic (tripping hazard) – e.g., pad areas around buildings under construction.
- RECPs that incorporate a plastic netting (e.g. straw blanket typically uses a plastic netting to hold the straw in place) may not be suitable near known wildlife habitat. Wildlife can become trapped in the plastic netting. As per State Water Board guidance, RECPs that

contain plastic netting are discouraged for temporary controls and are not acceptable alternatives for permanent controls. RECPs that do not contain plastic netting or contain netting manufactured from 100% biodegradable non-plastic materials such as jute, sisal, or coir fiber should be used.

- RECPs may have limitations in extremely windy climates; they are susceptible to wind damage and displacement. However, when RECPs are properly trenched at the top and bottom and stapled in accordance with the manufacturer's recommendations, problems with wind can be minimized.

Implementation

Material Selection

- Natural RECPs have been found to be effective where re-vegetation will be provided by re-seeding. The choice of material should be based on the size of area, side slopes, surface conditions such as hardness, moisture, weed growth, and availability of materials.
- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.
- The following natural and synthetic RECPs are commonly used:

Geotextiles

- Material can be a woven or a non-woven polypropylene fabric with minimum thickness of 0.06 in., minimum width of 12 ft and should have minimum tensile strength of 150 lbs (warp), 80 lbs (fill) in conformance with the requirements in ASTM Designation: D 4632. The permittivity of the fabric should be approximately 0.07 sec^{-1} in conformance with the requirements in ASTM Designation: D4491. The fabric should have an ultraviolet (UV) stability of 70 percent in conformance with the requirements in ASTM designation: D4355. Geotextile blankets must be secured in place with wire staples or sandbags and by keying into tops of slopes to prevent infiltration of surface waters under geotextile. Staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
- Geotextiles may be reused if they are suitable for the use intended.

Plastic Covers

- Generally plastic sheeting should only be used as stockpile covering or for very small graded areas for short periods of time (such as through one imminent storm event). If plastic sheeting must be used, choose a plastic that will withstand photo degradation.
- Plastic sheeting should have a minimum thickness of 6 mils and must be keyed in at the top of slope (when used as a temporary slope protection) and firmly held in place with sandbags or other weights placed no more than 10 ft apart. Seams are typically taped or weighted down their entire length, and there should be at least a 12 in. to 24 in. overlap of all seams. Edges should be embedded a minimum of 6 in. in soil (when used as a temporary slope protection).
- All sheeting must be inspected periodically after installation and after significant rainstorms to check for erosion, undermining, and anchorage failure. Any failures must be repaired

immediately. If washout or breakages occur, the material should be re-installed after repairing the damage to the slope.

Erosion Control Blankets/Mats

- Biodegradable RECPs are typically composed of jute fibers, curled wood fibers, straw, coconut fiber, or a combination of these materials. In order for an RECP to be considered 100% biodegradable, the netting, sewing or adhesive system that holds the biodegradable mulch fibers together must also be biodegradable. See typical installation details at the end of this fact sheet.
 - **Jute** is a natural fiber that is made into a yarn that is loosely woven into a biodegradable mesh. The performance of jute as a stand-alone RECP is low. Most other RECPs outperform jute as a temporary erosion control product and therefore jute is not commonly used. It is designed to be used in conjunction with vegetation. The material is supplied in rolled strips, which should be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.
 - **Excelsior** (curled wood fiber) blanket material should consist of machine produced mats of curled wood excelsior with 80 percent of the fiber 6 in. or longer. The excelsior blanket should be of consistent thickness. The wood fiber must be evenly distributed over the entire area of the blanket. The top surface of the blanket should be covered with a photodegradable extruded plastic mesh. The blanket should be smolder resistant without the use of chemical additives and should be non-toxic and non-injurious to plant and animal life. Excelsior blankets should be furnished in rolled strips, a minimum of 48 in. wide, and should have an average weight of 0.8 lb/yd², ±10 percent, at the time of manufacture. Excelsior blankets must be secured in place with wire staples. Staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
 - **Straw blanket** should be machine produced mats of straw with a lightweight biodegradable netting top layer. The straw should be attached to the netting with biodegradable thread or glue strips. The straw blanket should be of consistent thickness. The straw should be evenly distributed over the entire area of the blanket. Straw blanket should be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd². Straw blankets must be secured in place with wire staples. Staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
 - **Wood fiber blanket** is composed of biodegradable fiber mulch with extruded plastic netting held together with adhesives. The material is designed to enhance re-vegetation. The material is furnished in rolled strips, which must be secured to the ground with U-shaped staples or stakes in accordance with manufacturers' recommendations.
 - **Coconut fiber blanket** should be a machine produced mat of 100 percent coconut fiber with biodegradable netting on the top and bottom. The coconut fiber should be attached to the netting with biodegradable thread or glue strips. The coconut fiber blanket should be of consistent thickness. The coconut fiber should be evenly distributed over the entire area of the blanket. Coconut fiber blanket should be furnished in rolled strips with a minimum of 6.5 ft wide, a minimum of 80 ft. long and a minimum of 0.5

lb/yd². Coconut fiber blankets must be secured in place with wire staples. Staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- **Coconut fiber mesh** is a thin permeable membrane made from coconut or corn fiber that is spun into a yarn and woven into a biodegradable mat. It is designed to be used in conjunction with vegetation and typically has longevity of several years. The material is supplied in rolled strips, which must be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.
- **Straw coconut fiber blanket** should be machine produced mats of 70 percent straw and 30 percent coconut fiber with a biodegradable netting top layer and a biodegradable bottom net. The straw and coconut fiber should be attached to the netting with biodegradable thread or glue strips. The straw coconut fiber blanket should be of consistent thickness. The straw and coconut fiber should be evenly distributed over the entire area of the blanket. Straw coconut fiber blanket should be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd². Straw coconut fiber blankets must be secured in place with wire staples. Staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
- Non-biodegradable RECPs are typically composed of polypropylene, polyethylene, nylon or other synthetic fibers. In some cases, a combination of biodegradable and synthetic fibers is used to construct the RECP. Netting used to hold these fibers together is typically non-biodegradable as well. Only biodegradable RECPs can remain on a site applying for a Notice of Termination due to plastic pollution and wild life concerns (State Waterboard, 2016). RECPs containing plastic that are used on a site must be disposed of for final stabilization.
 - **Plastic netting** is a lightweight biaxially oriented netting designed for securing loose mulches like straw or paper to soil surfaces to establish vegetation. The netting is photodegradable. The netting is supplied in rolled strips, which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.
 - **Plastic mesh** is an open weave geotextile that is composed of an extruded synthetic fiber woven into a mesh with an opening size of less than 1/4 in. It is used with re-vegetation or may be used to secure loose fiber such as straw to the ground. The material is supplied in rolled strips, which must be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.
 - **Synthetic fiber with netting** is a mat that is composed of durable synthetic fibers treated to resist chemicals and ultraviolet light. The mat is a dense, three-dimensional mesh of synthetic (typically polyolefin) fibers stitched between two polypropylene nets. The mats are designed to be re-vegetated and provide a permanent composite system of soil, roots, and geomatrix. The material is furnished in rolled strips, which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.
 - **Bonded synthetic fibers** consist of a three-dimensional geometric nylon (or other synthetic) matting. Typically, it has more than 90 percent open area, which facilitates

root growth. It's tough root reinforcing system anchors vegetation and protects against hydraulic lift and shear forces created by high volume discharges. It can be installed over prepared soil, followed by seeding into the mat. Once vegetated, it becomes an invisible composite system of soil, roots, and geomatrix. The material is furnished in rolled strips that must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Combination synthetic and biodegradable RECPs** consist of biodegradable fibers, such as wood fiber or coconut fiber, with a heavy polypropylene net stitched to the top and a high strength continuous filament geomatrix or net stitched to the bottom. The material is designed to enhance re-vegetation. The material is furnished in rolled strips, which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

Site Preparation

- Proper soil preparation is essential to ensure complete contact of the RECP with the soil. Soil Roughening is not recommended in areas where RECPs will be installed.
- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have complete, direct contact with the soil.
- Prepare seedbed by loosening 2 to 3 in. of topsoil.

Seeding/Planting

Seed the area before blanket installation for erosion control and re-vegetation. Seeding after mat installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all areas disturbed during blanket installation must be re-seeded. Where soil filling is specified for turf reinforcement mats (TRMs), seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.

Fertilize and seed in accordance with seeding specifications or other types of landscaping plans. The protective matting can be laid over areas where grass has been planted and the seedlings have emerged. Where vines or other ground covers are to be planted, lay the protective matting first and then plant through matting according to design of planting.

Check Slots

Check slots shall be installed as required by the manufacturer.

Laying and Securing Matting

- Before laying the matting, all check slots should be installed and the seedbed should be friable, made free from clods, rocks, and roots. The surface should be compacted and finished according to the requirements of the manufacturer's recommendations.
- Mechanical or manual lay down equipment should be capable of handling full rolls of fabric and laying the fabric smoothly without wrinkles or folds. The equipment should meet the fabric manufacturer's recommendations or equivalent standards.

Anchoring

- U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats and blankets to the ground surface.
- Wire staples should be made of minimum 11-gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
- Metal stake pins should be 0.188 in. diameter steel with a 1.5 in. steel washer at the head of the pin, and 8 in. in length.
- Wire staples and metal stakes should be driven flush to the soil surface.

Installation on Slopes

Installation should be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Begin at the top of the slope and anchor the blanket in a 6 in. deep by 6 in. wide trench. Backfill trench and tamp earth firmly.
- Unroll blanket down slope in the direction of water flow.
- Overlap the edges of adjacent parallel rolls 2 to 3 in. and staple every 3 ft (or greater, per manufacturer's specifications).
- When blankets must be spliced, place blankets end over end (shingle style) with 6 in. overlap. Staple through overlapped area, approximately 12 in. apart.
- Lay blankets loosely and maintain direct contact with the soil. Do not stretch.
- Staple blankets sufficiently to anchor blanket and maintain contact with the soil. Staples should be placed down the center and staggered with the staples placed along the edges. Steep slopes, 1:1 (H:V) to 2:1 (H:V), require a minimum of 2 staples/yd². Moderate slopes, 2:1 (H:V) to 3:1 (H:V), require a minimum of 1 1/2 staples/yd². Check manufacturer's specifications to determine if a higher density staple pattern is required.

Installation in Channels

Installation should be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Dig initial anchor trench 12 in. deep and 6 in. wide across the channel at the lower end of the project area.
- Excavate intermittent check slots, 6 in. deep and 6 in. wide across the channel at 25 to 30 ft intervals along the channels.
- Cut longitudinal channel anchor trenches 4 in. deep and 4 in. wide along each side of the installation to bury edges of matting, whenever possible extend matting 2 to 3 in. above the crest of the channel side slopes.

- Beginning at the downstream end and in the center of the channel, place the initial end of the first roll in the anchor trench and secure with fastening devices at 12 in. intervals. Note: matting will initially be upside down in anchor trench.
- In the same manner, position adjacent rolls in anchor trench, overlapping the preceding roll a minimum of 3 in.
- Secure these initial ends of mats with anchors at 12 in. intervals, backfill and compact soil.
- Unroll center strip of matting upstream. Stop at next check slot or terminal anchor trench. Unroll adjacent mats upstream in similar fashion, maintaining a 3 in. overlap.
- Fold and secure all rolls of matting snugly into all transverse check slots. Lay mat in the bottom of the slot then fold back against itself. Anchor through both layers of mat at 12 in. intervals, then backfill and compact soil. Continue rolling all mat widths upstream to the next check slot or terminal anchor trench.
- Alternate method for non-critical installations: Place two rows of anchors on 6 in. centers at 25 to 30 ft. intervals in lieu of excavated check slots.
- Staple shingled lap spliced ends a minimum of 12 in. apart on 12 in. intervals.
- Place edges of outside mats in previously excavated longitudinal slots; anchor using prescribed staple pattern, backfill, and compact soil.
- Anchor, fill, and compact upstream end of mat in a 12 in. by 6 in. terminal trench.
- Secure mat to ground surface using U-shaped wire staples, geotextile pins, or wooden stakes.
- Seed and fill turf reinforcement matting with soil, if specified.

Soil Filling (if specified for turf reinforcement mat (TRM))

Installation should be in accordance with the manufacturer's recommendations. Typical installation guidelines are as follows:

- After seeding, spread and lightly rake 1/2-3/4 inches of fine topsoil into the TRM apertures to completely fill TRM thickness. Use backside of rake or other flat implement.
- Alternatively, if allowed by product specifications, spread topsoil using lightweight loader, backhoe, or other power equipment. Avoid sharp turns with equipment.
- Always consult the manufacturer's recommendations for installation.
- Do not drive tracked or heavy equipment over mat.
- Avoid any traffic over matting if loose or wet soil conditions exist.
- Use shovels, rakes, or brooms for fine grading and touch up.
- Smooth out soil filling just exposing top netting of mat.

Temporary Soil Stabilization Removal

- Temporary soil stabilization removed from the site of the work must be disposed of if necessary.

Costs

Installed costs can be relatively high compared to other BMPs. Approximate costs for installed materials are shown below:

Rolled Erosion Control Products		Installed Cost per Acre
Biodegradable	Jute Mesh	\$7,700-\$9,000
	Curled Wood Fiber	\$10,200-\$13,400
	Straw	\$10,200-\$13,400
	Wood Fiber	\$10,200-\$13,400
	Coconut Fiber	\$16,600-\$18,000
	Coconut Fiber Mesh	\$38,400-\$42,200
	Straw Coconut Fiber	\$12,800-\$15,400
Non-Biodegradable	Plastic Netting	\$2,600-\$2,800
	Plastic Mesh	\$3,800-\$4,500
	Synthetic Fiber with Netting	\$43,500-\$51,200
	Bonded Synthetic Fibers	\$57,600-\$70,400
	Combination with Biodegradable	\$38,400-\$46,100

Source: Cost information received from individual product manufacturers solicited by Geosyntec Consultants (2004). Adjusted for inflation (2016 dollars) by Tetra Tech, Inc.

Inspection and Maintenance

- RECPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Areas where erosion is evident shall be repaired and BMPs reapplied as soon as possible. Care should be exercised to minimize the damage to protected areas while making repairs, as any area damaged will require reapplication of BMPs.
- If washout or breakage occurs, re-install the material after repairing the damage to the slope or channel.
- Make sure matting is uniformly in contact with the soil.
- Check that all the lap joints are secure.
- Check that staples are flush with the ground.

References

CGP Review #2, State Water Resources Control Board, 2014. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/training/cgp_review_issue2.pdf.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005

Erosion Control Pilot Study Report, State of California Department of Transportation (Caltrans), June 2000.

Guides for Erosion and Sediment Controls in California, USDA Soils Conservation Service, January 1991.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

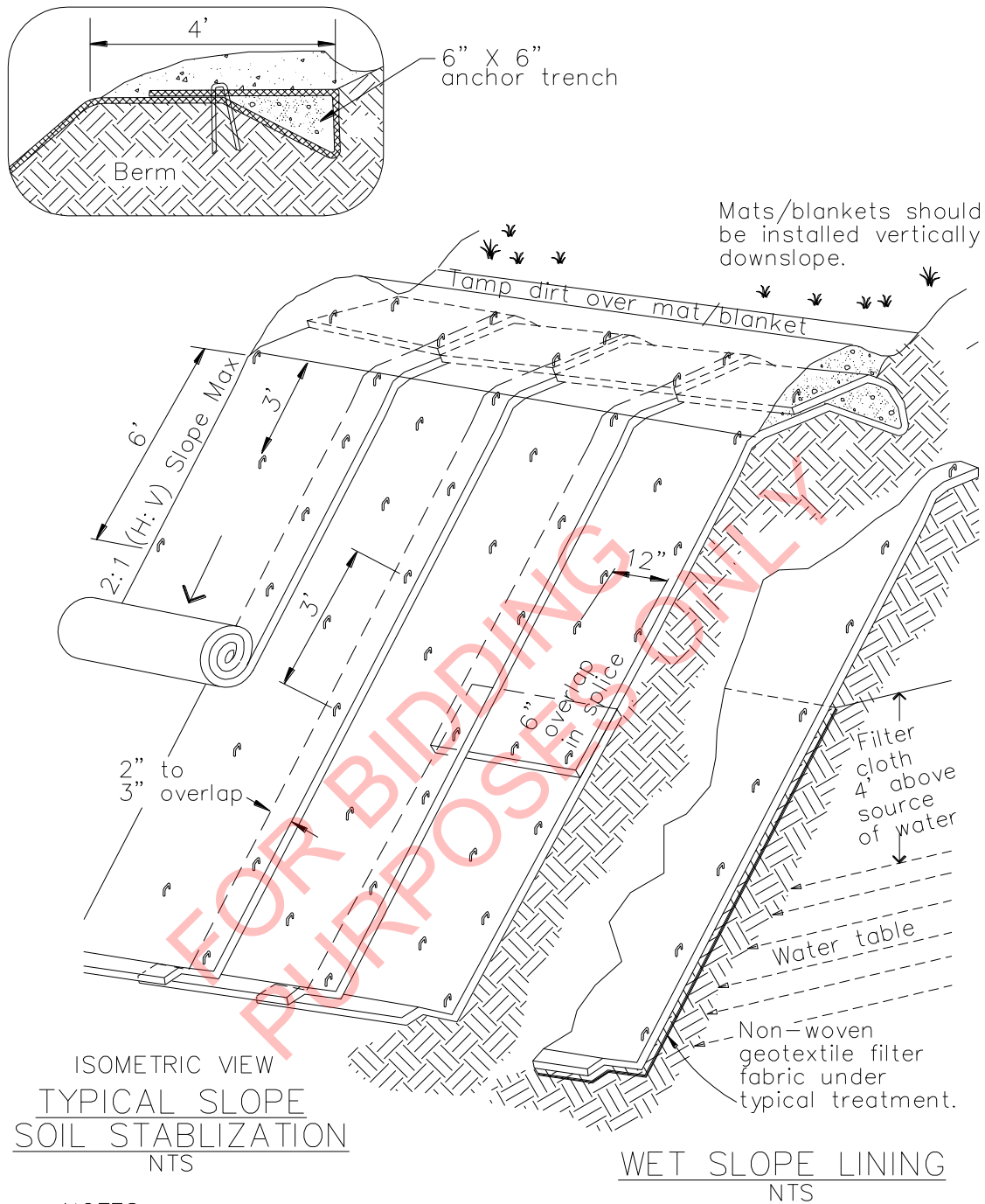
Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Guidance Document: Soil Stabilization for Temporary Slopes, State of California Department of Transportation (Caltrans), November 1999.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for The Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

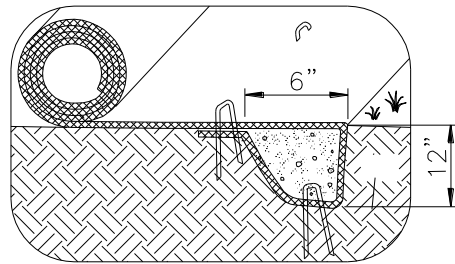
FOR BIDDING ONLY
PURPOSES ONLY



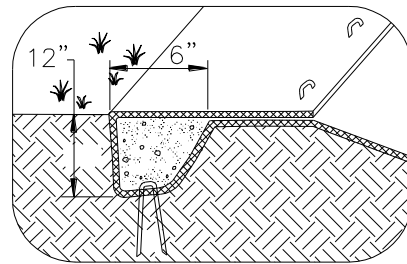
NOTES:

1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations

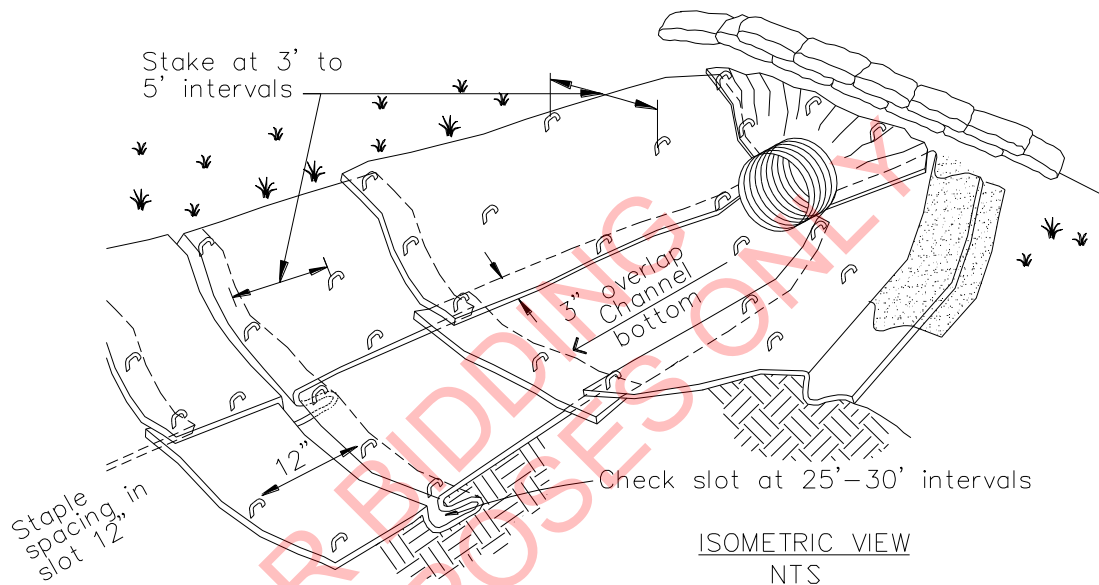
TYPICAL INSTALLATION DETAIL



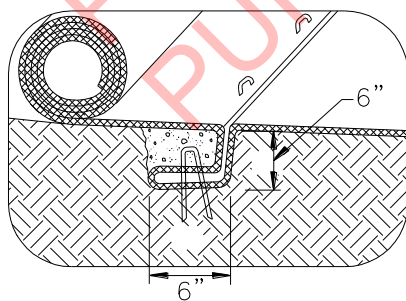
INITIAL CHANNEL ANCHOR TRENCH
NTS



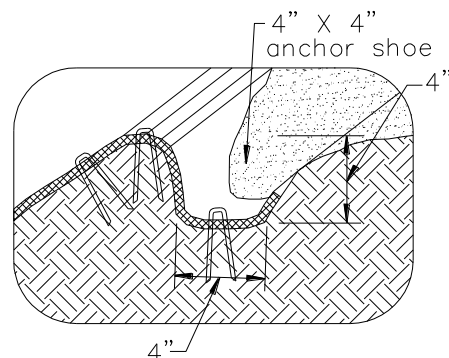
TERMINAL SLOPE AND CHANNEL
ANCHOR TRENCH
NTS



ISOMETRIC VIEW
NTS



INTERMITTENT CHECK SLOT
NTS

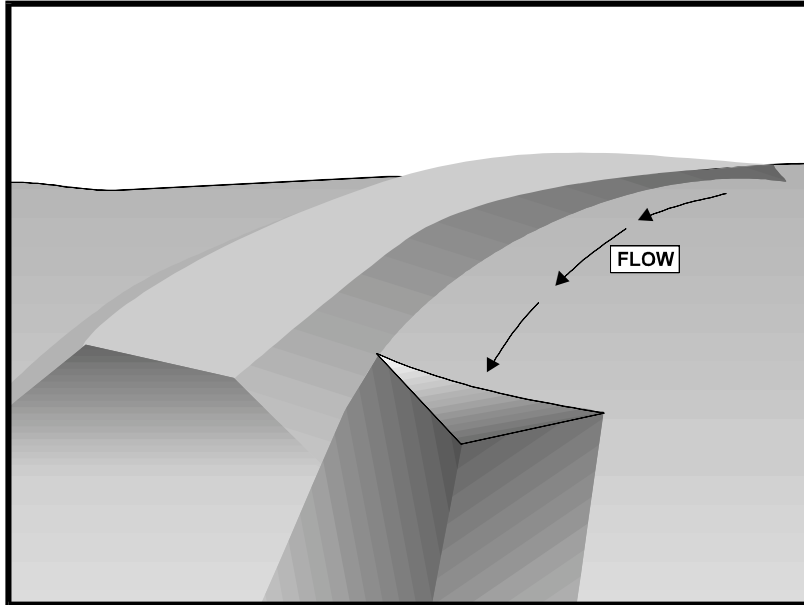


LONGITUDINAL ANCHOR TRENCH
NTS

NOTES:

1. Check slots to be constructed per manufacturers specifications.
2. Staking or stapling layout per manufacturers specifications.
3. Install per manufacturer's recommendations

TYPICAL INSTALLATION DETAIL



Description and Purpose

An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

Suitable Applications

Earth dikes and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area and conveyed to another.

- Earth dikes and drainage swales may be used:
 - To convey surface runoff down sloping land
 - To intercept and divert runoff to avoid sheet flow over sloped surfaces
 - To divert and direct runoff towards a stabilized watercourse, drainage pipe or channel
 - To intercept runoff from paved surfaces
 - To intercept and divert run-on
 - Below steep grades where runoff begins to concentrate

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input type="checkbox"/>
TC	Tracking Control	<input type="checkbox"/>
WE	Wind Erosion Control	<input type="checkbox"/>
NS	Non-Stormwater Management Control	<input type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input type="checkbox"/>

Legend:

- Primary Objective**
- Secondary Objective**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input type="checkbox"/>
Trash	<input type="checkbox"/>
Metals	<input type="checkbox"/>
Bacteria	<input type="checkbox"/>
Oil and Grease	<input type="checkbox"/>
Organics	<input type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Along roadways and facility improvements subject to flood drainage
- At the top of slopes to divert runoff from adjacent or undisturbed slopes
- At bottom and mid slope locations to intercept sheet flow and convey concentrated flows
- Divert sediment laden runoff into sediment basins or traps

Limitations

Dikes should not be used for drainage areas greater than 10 acres or along slopes greater than 10 percent. For larger areas more permanent drainage structures should be built. All drainage structures should be built in compliance with local municipal requirements.

- Earth dikes may create more disturbed area on site and become barriers to construction equipment.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted stormwater may cause downstream flood damage.
- Dikes should not be constructed of soils that may be easily eroded.
- Regrading the site to remove the dike may add additional cost.
- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local floodplain management requirements.
- Earth dikes/drainage swales are not suitable as sediment trapping devices.
- It may be necessary to use other soil stabilization and sediment controls such as check dams, plastics, and blankets, to prevent scour and erosion in newly graded dikes, swales, and ditches.
- Sediment accumulation, scour depressions, and/or persistent non-stormwater discharges can result in areas of standing water suitable for mosquito production in drainage swales.

Implementation

The temporary earth dike is a berm or ridge of compacted soil, located in such a manner as to divert stormwater to a sediment trapping device or a stabilized outlet, thereby reducing the potential for erosion and offsite sedimentation. Earth dikes can also be used to divert runoff from off site and from undisturbed areas away from disturbed areas and to divert sheet flows away from unprotected slopes.

An earth dike does not itself control erosion or remove sediment from runoff. A dike prevents erosion by directing runoff to an erosion control device such as a sediment trap or directing runoff away from an erodible area. Temporary diversion dikes should not adversely impact adjacent properties and must conform to local floodplain management regulations and should not be used in areas with slopes steeper than 10%.

Slopes that are formed during cut and fill operations should be protected from erosion by runoff. A combination of a temporary drainage swale and an earth dike at the top of a slope can divert runoff to a location where it can be brought to the bottom of the slope (see EC-11, Slope Drains). A combination dike and swale is easily constructed by a single pass of a bulldozer or grader and compacted by a second pass of the tracks or wheels over the ridge. Diversion structures should be installed when the site is initially graded and remain in place until post construction BMPs are installed and the slopes are stabilized.

Diversion practices concentrate surface runoff, increasing its velocity and erosive force. Thus, the flow out of the drain or swale must be directed onto a stabilized area or into a grade stabilization structure. If significant erosion will occur, a swale should be stabilized using vegetation, chemical treatment, rock rip-rap, matting, or other physical means of stabilization. Any drain or swale that conveys sediment laden runoff must be diverted into a sediment basin or trap before it is discharged from the site.

General

- Care must be applied to correctly size and locate earth dikes, drainage swales. Excessively steep, unlined dikes, and swales are subject to erosion and gully formation.
- Conveyances should be stabilized.
- Use a lined ditch for high flow velocities.
- Select flow velocity based on careful evaluation of the risks due to erosion of the measure, soil types, overtopping, flow backups, washout, and drainage flow patterns for each project site.
- Compact any fills to prevent unequal settlement.
- Do not divert runoff onto other property without securing written authorization from the property owner.
- When possible, install and utilize permanent dikes, swales, and ditches early in the construction process.
- Provide stabilized outlets.

Earth Dikes

Temporary earth dikes are a practical, inexpensive BMP used to divert stormwater runoff. Temporary diversion dikes should be installed in the following manner:

- All dikes should be compacted by earth moving equipment.
- All dikes should have positive drainage to an outlet.
- All dikes should have 2:1 or flatter side slopes, 18 in. minimum height, and a minimum top width of 24 in. Wide top widths and flat slopes are usually needed at crossings for construction traffic.

- May be covered with hydro mulch, hydroseed, wood mulch, compost blanket, or RECP for stabilization.
- The outlet from the earth dike must function with a minimum of erosion. Runoff should be conveyed to a sediment trapping device such as a Sediment Trap (SE-3) or Sediment Basin (SE-2) when either the dike channel or the drainage area above the dike are not adequately stabilized.
- Temporary stabilization may be achieved using seed and mulching for slopes less than 5% and either rip-rap or sod for slopes in excess of 5%. In either case, stabilization of the earth dike should be completed immediately after construction or prior to the first rain.
- If riprap is used to stabilize the channel formed along the toe of the dike, the following typical specifications apply:

Channel Grade	Riprap Stabilization
0.5-1.0%	4 in. Rock
1.1-2.0%	6 in. Rock
2.1-4.0%	8 in. Rock
4.1-5.0%	8 in. -12 in. Riprap

- The stone riprap, recycled concrete, etc. used for stabilization should be pressed into the soil with construction equipment.
- Filter cloth may be used to cover dikes in use for long periods.
- Construction activity on the earth dike should be kept to a minimum.

Drainage Swales

Drainage swales are only effective if they are properly installed. Swales are more effective than dikes because they tend to be more stable. The combination of a swale with a dike on the downhill side is the most cost-effective diversion.

Standard engineering design criteria for small open channel and closed conveyance systems should be used (see the local drainage design manual). Unless local drainage design criteria state otherwise, drainage swales should be designed as follows:

- No more than 5 acres may drain to a temporary drainage swale.
- Place drainage swales above or below, not on, a cut or fill slope.
- Swale bottom width should be at least 2 ft.
- Depth of the swale should be at least 18 in.
- Side slopes should be 2:1 or flatter.
- Drainage or swales should be laid at a grade of at least 1 %, but not more than 15 %.

- The swale must not be overtopped by the peak discharge from a 10-year storm, irrespective of the design criteria stated above.
- Remove all trees, stumps, obstructions, and other objectionable material from the swale when it is built.
- Compact any fill material along the path of the swale.
- Stabilize all swales immediately. Seed and mulch swales at a slope of less than 5 % and use rip-rap or sod for swales with a slope between 5 and 15 %. For temporary swales, geotextiles and mats (EC-7) may provide immediate stabilization.
- Irrigation may be required to establish sufficient vegetation to prevent erosion.
- Do not operate construction vehicles across a swale unless a stabilized crossing is provided.
- Permanent drainage facilities must be designed by a professional engineer (see the local drainage design criteria for proper design).
- At a minimum, the drainage swale should conform to predevelopment drainage patterns and capacities.
- Construct the drainage swale with a positive grade to a stabilized outlet.
- Provide erosion protection or energy dissipation measures if the flow out of the drainage swale can reach an erosive velocity.

Costs

- Cost ranges from \$19 to \$70 per ft. for both earthwork and stabilization and depends on availability of material, site location, and access (Adjusted for inflation (2016 dollars) by Tetra Tech, Inc.).
- Small dikes: \$3 - \$8/linear ft.; Large dikes: \$3/yd³ (Adjusted for inflation (2016 dollars) by Tetra Tech, Inc.).
- The cost of a drainage swale increases with drainage area and slope. Typical swales for controlling internal erosion are inexpensive, as they are quickly formed during routine earthwork.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect ditches and berms for washouts. Replace lost riprap, damaged linings or soil stabilizers as needed.

- Inspect channel linings, embankments, and beds of ditches and berms for erosion and accumulation of debris and sediment. Remove debris and sediment and repair linings and embankments as needed.
- Temporary conveyances should be completely removed as soon as the surrounding drainage area has been stabilized or at the completion of construction

References

Erosion and Sediment Control Handbook, S.J. Goldman, K. Jackson, T.A. Bursetynsky, P.E., McGraw Hill Book Company, 1986.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Metzger, M.E. 2004. Managing mosquitoes in stormwater treatment devices. University of California Division of Agriculture and Natural Resources, Publication 8125. On-line: <http://anrcatalog.ucdavis.edu/pdf/8125.pdf>

National Association of Home Builders (NAHB). Stormwater Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers. National Association of Home Builders, Washington, D.C., 1995

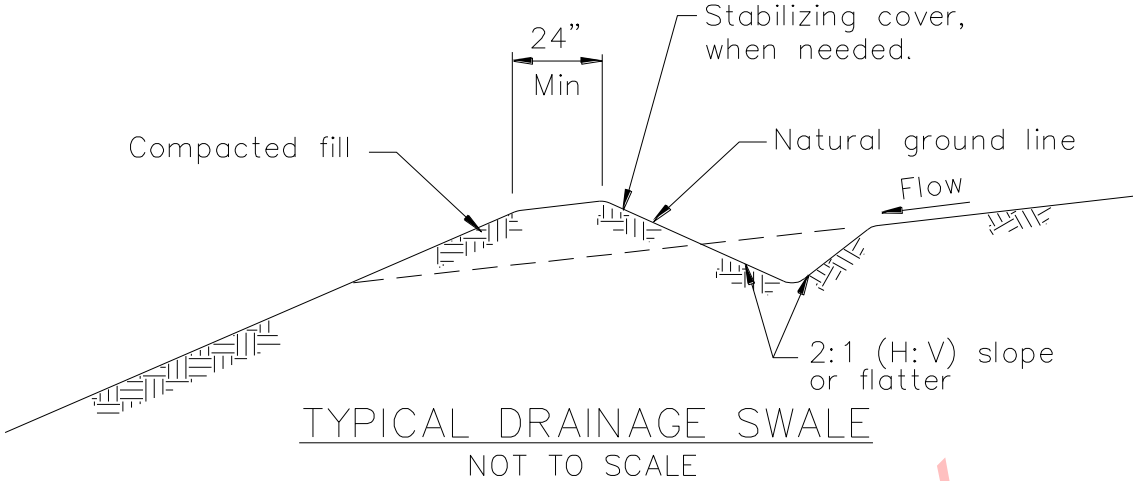
National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Southeastern Wisconsin Regional Planning Commission (SWRPC). Costs of Urban Nonpoint Source Water Pollution Control Measures. Technical Report No. 31. Southeastern Wisconsin Regional Planning Commission, Waukesha, WI. 1991

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

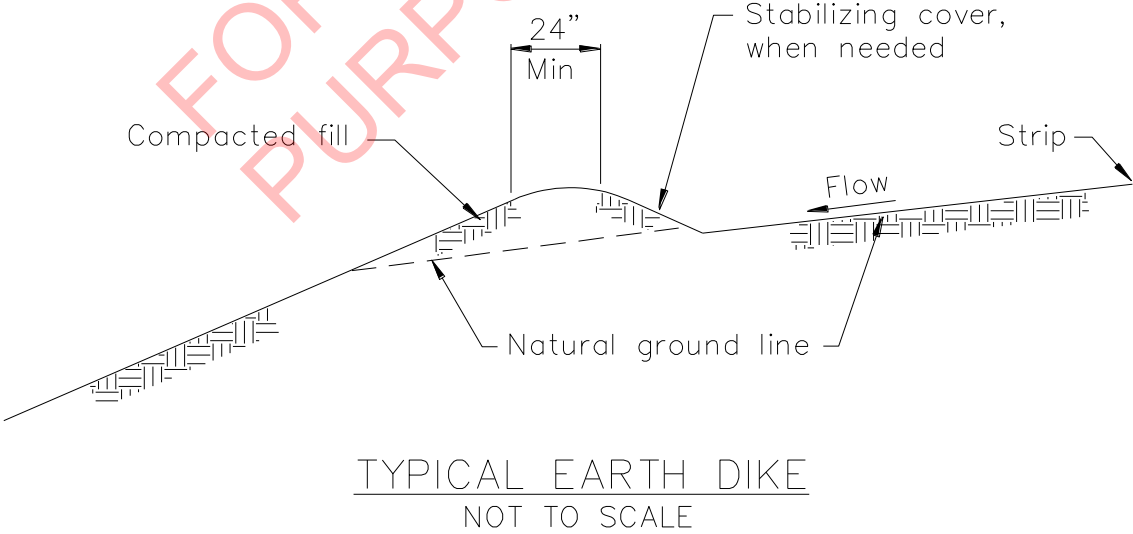
Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.



NOTES:

- 1. Stabilize inlet, outlets and slopes.
- 2. Properly compact the subgrade.





D

Soil Preparation/Roughening involves assessment and preparation of surface soils for BMP installation. This can include soil testing (for seed base, soil characteristics, or nutrients), as well as roughening surface soils by mechanical methods (including sheepsfoot rolling, track walking, scarifying, stair stepping, and imprinting) to prepare soil for additional BMPs, or to break up sheet flow. Soil Preparation can also involve tilling topsoil to prepare a seed bed and/or incorporation of soil amendments, to enhance vegetative establishment.

Suitable Applications

Soil preparation: Soil preparation is essential to proper vegetative establishment. In particular, soil preparation (i.e. tilling, raking, and amendment) is suitable for use in combination with any soil stabilization method, including Rolled Erosion Control Products (RECPs) or sod. Soil preparation should not be confused with roughening.

Roughening: Soil roughening is generally referred to as track walking (sometimes called imprinting) a slope, where treads from heavy equipment run parallel to the contours of the slope and act as mini terraces. Soil preparation is most effective when used in combination with erosion controls. Soil Roughening is suitable for use as a complementary process for controlling erosion on a site. Roughening is not intended to be used as a stand-alone BMP, and should be used with perimeter controls, additional erosion control measures, grade breaks, and vegetative establishment for maximum effectiveness. Roughening is intended to only affect surface soils and should not compromise slope stability or overall compaction. Suitable applications for soil roughening include:

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- EC-3 Hydraulic Mulch
- EC-5 Soil Binders
- EC-7 Geotextiles and Mats

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Along any disturbed slopes, including temporary stockpiles, sediment basins, or compacted soil diversion berms and swales.
- Roughening should be used in combination with hydraulically applied stabilization methods, compost blanket, or straw mulch; but should not be used in combination with RECPs or sod because roughening is intended to leave terraces on the slope.

Limitations

- Preparation and roughening must take place prior to installing other erosion controls (such as hydraulically applied stabilizers) or sediment controls (such as fiber rolls) on the faces of slopes.
- In such cases where slope preparation is minimal, erosion control/revegetation BMPs that do not require extensive soil preparation - such as hydraulic mulching and seeding applications - should be employed.
- Consideration should be given to the type of erosion control BMP that follows surface preparation, as some BMPs are not designed to be installed over various types of tillage/roughening, i.e., RECPs should not be used with soil roughening due to a “bridging” effect, which suspends the blanket above the seed bed.
- Surface roughness has an effect on the amount of mulch material that needs to be applied, which shows up as a general increase in mulch material due to an increase in surface area (Topographic Index -see EC-3 Hydraulic Mulch).

Implementation

- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.

General

A roughened surface can significantly reduce erosion. Based on tests done at the San Diego State Erosion Research Laboratory, various roughening techniques on slopes can result in a 12 - 76% reduction in the erosion rate versus smooth slopes.

Materials

Minimal materials are required unless amendments and/or seed are added to the soil. The majority of soil roughening/preparation can be done with equipment that is on hand at a normal construction site, such as bull dozers and compaction equipment.

Installation Guidelines

Soil Preparation

- Where appropriate or feasible, soil should be prepared to receive the seed by disking or otherwise scarifying the surface to eliminate crust, improve air and water infiltration and create a more favorable environment for germination and growth.
- Based upon soil testing conducted, apply additional soil amendments (e.g., fertilizers, additional seed) to the soil to help with germination. Follow EC-4, Hydroseeding, when selecting and applying seed and fertilizers.

Cut Slope Roughening:

- Stair-step grade or groove the cut slopes that are steeper than 3:1.
- Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock with some subsoil are particularly suited to stair-step grading.
- Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the "step" in toward the vertical wall.
- Do not make individual vertical cuts more than 2 ft. (0.6 m) high in soft materials or more than 3 ft. (0.9 m) high in rocky materials.
- Groove the slope using machinery to create a series of ridges and depressions that run across the slope, on the contour.

Fill Slope Roughening:

- Place on fill slopes with a gradient steeper than 3:1 in lifts not to exceed 8 in. (0.2 m), and make sure each lift is properly compacted.
- Ensure that the face of the slope consists of loose, uncompacted fill 4-6 in. (0.1-0.2 m) deep.
- Use grooving or tracking to roughen the face of the slopes, if necessary.
- Do not blade or scrape the final slope face.

Roughening for Slopes to be Mowed:

- Slopes that require mowing activities should not be steeper than 3:1.
- Roughen these areas to shallow grooves by track walking, scarifying, sheepsfoot rolling, or imprinting.
- Make grooves close together (less than 10 in.), and not less than 1 in. deep, and perpendicular to the direction of runoff (i.e., parallel to the slope contours).
- Excessive roughness is undesirable where mowing is planned.

Roughening with Tracked Machinery:

- Limit roughening with tracked machinery to soils with a sandy textural component to avoid undue compaction of the soil surface.
- Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.
- Seed and mulch roughened areas as soon as possible to obtain optimum seed germination and growth.

Costs

Costs are based on the additional labor of tracking or preparation of the slope plus the cost of any required soil amendment materials.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check the seeded slopes for signs of erosion such as rills and gullies. Fill these areas slightly above the original grade, then reseed and mulch as soon as possible.
- Inspect BMPs weekly during normal operations, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

References

Soil Stabilization BMP Research for Erosion and Sediment Controls: Cost Survey Technical Memorandum, State of California Department of Transportation (Caltrans), July 2007.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

FOR BIDDING
PURPOSES ONLY



Description and Purpose

Non-vegetative stabilization methods are used for temporary or permanent stabilization of areas prone to erosion and should be used only where vegetative options are not feasible; examples include:

- Areas of vehicular or pedestrian traffic such as roads or paths;
- Arid environments where vegetation would not provide timely ground coverage, or would require excessive irrigation;
- Rocky substrate, infertile or droughty soils where vegetation would be difficult to establish; and
- Areas where vegetation will not grow adequately within the construction time frame.

There are several non-vegetative stabilization methods and selection should be based on site-specific conditions.

Decomposed Granite (DG) is a permanent erosion protection method that consists of a layer of stabilized decomposed granite placed over an erodible surface.

Degradable Mulches of various types (see EC-3, EC-6, EC-8) can be used for temporary non-vegetative stabilization; examples include straw mulch, compost, wood chips or hydraulic mulch.

Geotextiles and Mats can be used for temporary non-vegetative stabilization (see EC-7). These BMPs are typically manufactured from degradable or synthetic materials and are

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TR	Tracking Control	
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



designed and specified based on their functional longevity, i.e., how long they will persist and provide erosion protection. All geotextiles and mats should be replaced when they exceed their functional longevity or when permanent stabilization methods are instituted.

Gravel Mulch is a non-degradable erosion control product that is composed of washed and screened coarse to very coarse gravel, 16 mm to 64 mm (0.6" - 2.5"), similar to an AASHTO No. 3 coarse aggregate.

Rock Slope Protection consists of utilizing large rock or rip-rap (4" - 24") to stabilize slopes with a high erosion potential and those subject to scour along waterways.

Soil Binders can be used for temporary non-vegetative stabilization (see EC-5). The key to their use is functional longevity. In most cases, the soil binder will need to be routinely monitored and re-applied to maintain an erosion-resistant coverage.

Suitable Applications

Non-vegetated stabilization methods are suitable for use on disturbed soil areas and on material stockpiles that need to be temporarily or permanently protected from erosion by water and wind. Non-vegetated stabilization should only be utilized when vegetation cannot be established in the required timeframe, due to soil or climactic conditions, or where vegetation may be a potential fire hazard.

Decomposed Granite (DG) and Gravel Mulch are suitable for use in areas where vegetation establishment is difficult, on flat surfaces, trails and pathways, and when used in conjunction with a stabilizer or tackifier, on shallow slopes (i.e., 10:1 [H:V]). DG and gravel can also be used on shallow rocky slopes where vegetation cannot be established for permanent erosion control.

Degradable Mulches can be used to cover and protect soil surfaces from erosion both in temporary and permanent applications. In many cases, the use of mulches by themselves requires routine inspection and re-application. See EC-3 Hydraulic Mulch, EC-6 Straw Mulch, EC-8 Wood Mulch, or EC-14 Compost Blankets for more information.

Geotextiles and Mats can be used as a temporary stand-alone soil stabilization method. Depending on material selection, geotextiles and mats can be a short-term (3 mos – 1 year) or long-term (1-2 years) temporary stabilization method. For more information on geotextiles and mats see EC-7 Geotextiles and Mats.

Rock Slope Protection can be used when the slopes are subject to scour or have a high erosion potential, such as slopes adjacent to flowing waterways or slopes subject to overflow from detention facilities (spillways).

Soil Binders can be used for temporary stabilization of stockpiles and disturbed areas not subject to heavy traffic. See EC-5 Soil Binders for more information.

Limitations

General

- Refer to EC-3, EC-6, EC-8, and EC-14 for limitations on use of mulches. Refer to EC-7 for limitations on use of geotextiles and mats. Refer to EC-5 for limitations on use of Soil Binders.

Decomposed Granite

- Not available in some geographic regions.
- If not tackified, material may be susceptible to erosion even on slight slopes (e.g., 30:1 [H:V]).
- Installed costs may be more expensive than vegetative stabilization methods.

Gravel Mulch

- Availability is limited in some geographic regions.
- If not properly screened and washed, can contain fine material that can erode and/or create dust problems.
- If inadequately sized, material may be susceptible to erosion on sloped areas.
- Pore spaces fill with dirt and debris over time; may provide a growing medium for weeds.

Rock Slope Protection

- Installation is labor intensive.
- Installed costs can be significantly higher than vegetative stabilization methods.
- Rounded stones may not be used on slopes greater than 2:1 [H:V].

Implementation

General

Non-vegetated stabilization should be used in accordance with the following general guidance:

- Should be used in conjunction with other BMPs, including drainage, erosion controls and sediment controls.
- Refer to EC-3, EC-6, EC-8, and EC-14 for implementation details for mulches. Refer to EC-7 for implementation details for geotextiles and mats. Refer to EC-5 for implementation details for soil binders.
- Non-vegetated stabilization measures should be implemented as soon as the disturbance in the areas they are intended to protect has ceased.
- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.

Decomposed Granite Stabilization

- If used for a road or path should be installed on a prepared base.
- Should be mixed with a stabilizer if used for roads or pathways, or on slope applications.
- Though porous it is recommended to prevent standing water on or next to a decomposed granite road or pathway.

Gravel Mulch

- Should be sized based on slope, rainfall, and upgradient run-on conditions. Stone size should be increased as potential for erosion increases (steeper slopes, high intensity rainfall).
- If permanent, a weed control fabric should be placed prior to installation.
- Should be installed at a minimum 2" depth.
- Should completely cover all exposed surfaces.

Rock Slope Protection

- Rock slope protection installation should follow Caltrans Standard Specification 72-2: Rock Slope Protection. Refer to the specification for rock conformity requirements and installation methods.
- When using rock slope protection, rock size and installation method should be specified by an Engineer.
- A geotextile fabric should be placed prior to installation.

Costs

- Costs are highly variable depending not only on technique chosen, but also on materials chosen within specific techniques. In addition, availability of certain materials will vary by region/location, which will also affect the cost. Costs of mulches, geotextiles and mats, and soil binders are presented in their respective fact sheets. Costs for decomposed granite, gravel mulch stabilization and rock slope protection may be higher depending on location and availability of materials. Caltrans has provided an estimate for gravel mulch of \$13 - \$20/yd² in flat areas and \$14 - \$30/yd² on side slopes (adjusted for inflation, 2016 dollars).

Inspection and Maintenance

General

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- For permanent installation, require inspection periodically and after major storm events to look for signs of erosion or damage to the stabilization.
- All damage should be repaired immediately.
- Refer to EC-3, EC-6, EC-8, and EC-14 for inspection and maintenance requirements for mulches. Refer to EC-7 for inspection and maintenance requirements for geotextiles and mats. Refer to EC-5 for inspection and maintenance requirements for soil binders.

Decomposed Granite and Gravel Mulch Stabilization

- Rake out and add decomposed granite or gravel as needed to areas subject to rill erosion. Inspect upgradient drainage controls and repair/modify as necessary.

- Should remain stable under loose surface material. Any significant problem areas should be repaired to restore uniformity to the installation.

References

Arid Zone Forestry: A Guide for Field Technicians. Food and Agriculture Organization of the United Nations, 1989.

Design of Roadside Channels with Flexible Linings, Hydraulic Engineering Circular Number 15, Third Edition, Federal Highway Administration, 2007.

Design Standards for Urban Infrastructure - Soft Landscape Design, Department of Territory and Municipal Services - Australian Capital Territory http://www.tams.act.gov.au/work/standards_and_procedures/design_standards_for_urban_infrastructure

Erosion and Sediment Control Handbook: A Guide for Protection of State Waters through the use of Best Management Practices during Land Disturbing Activities, Tennessee Department of Environment and Conservation, 2002.

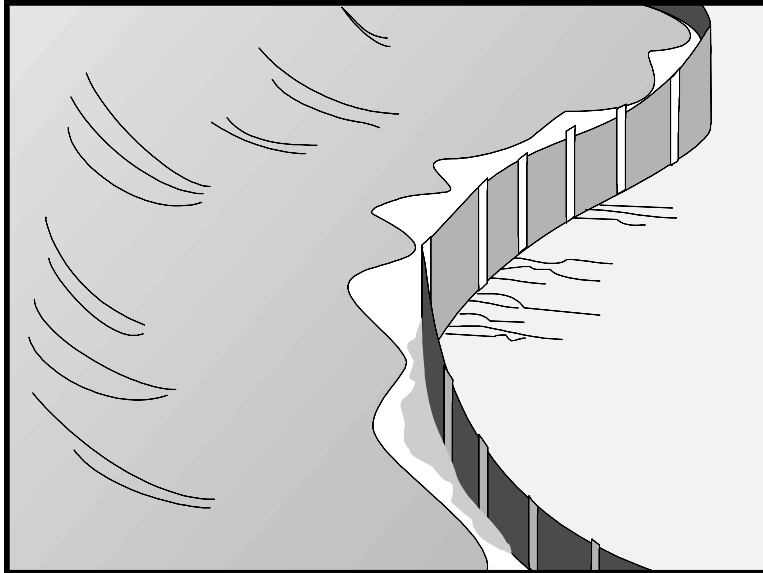
Gravel Mulch, Landscape Architecture Non-Standard Specification 10-2, California Department of Transportation (Caltrans), <http://www.dot.ca.gov/hq/LandArch/roadside/detail-gm.htm>

Maine Erosion and Sediment Control BMPs, DEPLW0588, Maine Department of Environmental Protection: Bureau of Land and Water Quality, 2003.

National Menu of Best Management Practices, US Environmental Protection Agency, 2006.

Standard Specification 72-2: Rock Slope Protection. California Department of Transportation, 2006.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.



Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Description and Purpose

A silt fence is made of a woven geotextile that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains water, promoting sedimentation of coarse sediment behind the fence. Silt fence does not retain soil fine particles like clays or silts.

Suitable Applications

Silt fences are suitable for perimeter control, placed below areas where sheet flows discharge from the site. They could also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion and around inlets within disturbed areas (Storm Drain Inlet Protection, SE-10). Silt fences should not be used in locations where the flow is concentrated. Silt fences should always be used in combination with erosion controls. Suitable applications include:

- At perimeter of a project (although they should not be installed up and down slopes).
- Below the toe or down slope of exposed and erodible slopes.
- Along streams and channels.
- Around temporary spoil areas and stockpiles.

Targeted Constituents

Sediment (coarse sediment)	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-12 Manufactured Linear Sediment Controls
- SE-13 Compost Socks and Berms
- SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

- Around inlets.
- Below other small cleared areas.

Limitations

- Do not use in streams, channels, drain inlets, or anywhere flow is concentrated.
- Do not use in locations where ponded water may cause a flooding hazard.
- Do not use silt fence to divert water flows or place across any contour line.
- Improperly installed fences are subject to failure from undercutting, overtopping, or collapsing.
- Must be trenched and keyed in.
- According to the State Water Board's *CGP Review, Issue #2* (2014), silt fences reinforced with metal or plastic mesh should be avoided due to plastic pollution and wildlife concerns.
- Not intended for use as a substitute for Fiber Rolls (SE-5), when fiber rolls are being used as a slope interruption device.
- Do not use on slopes subject to creeping, slumping, or landslides.



Implementation

General

A silt fence is a temporary sediment barrier consisting of woven geotextile stretched across and attached to supporting posts, trenched-in, and, depending upon the strength of fabric used, supported with plastic or wire mesh fence. Silt fences trap coarse sediment by intercepting and detaining sediment-laden runoff from disturbed areas in order to promote sedimentation behind the fence.

The following layout and installation guidance can improve performance and should be followed:

- Silt fence should be used in combination with erosion controls up-slope in order to provide the most effective sediment control.
- Silt fence alone is not effective at reducing turbidity. (Barrett and Malina, 2004)
- Designers should consider diverting sediment laden water to a temporary sediment basin or trap. (EPA, 2012)
- Use principally in areas where sheet flow occurs.
- Install along a level contour, so water does not pond more than 1.5 ft. at any point along the silt fence.

- Provide sufficient room for runoff to pond behind the fence and to allow sediment removal equipment to pass between the silt fence and toes of slopes or other obstructions. About 1200 ft.² of ponding area should be provided for every acre draining to the fence.
- Efficiency of silt fences is primarily dependent on the detention time of the runoff behind the control. (Barrett and Malina, 2004)
- The drainage area above any fence should not exceed a quarter of an acre. (Rule of Thumb- 100-feet of silt fence per 10,000 ft.² of disturbed area.) (EPA, 2012)
- The maximum length of slope draining to any point along the silt fence should be 100 ft. per ft of silt fence.
- Turn the ends of the filter fence uphill to prevent stormwater from flowing around the fence.
- Leave an undisturbed or stabilized area immediately down slope from the fence where feasible.
- Silt fences should remain in place until the disturbed area draining to the silt fence is permanently stabilized, after which, the silt fence fabric and posts should be removed and properly disposed.
- J-hooks, which have ends turning up the slope to break up long runs of fence and provide multiple storage areas that work like mini-retention areas, may be used to increase the effectiveness of silt fence.
- Be aware of local regulations regarding the type and installation requirements of silt fence, which may differ from those presented in this fact sheet.

Design and Layout

In areas where high winds are anticipated the fence should be supported by a plastic or wire mesh. The geotextile fabric of the silt fence should contain ultraviolet inhibitors and stabilizers to provide longevity equivalent to the project life or replacement schedule.

- Layout in accordance with the attached figures.
- For slopes that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to protect silt fence from rocks (e.g., rockfall netting) ensure the integrity of the silt fence installation.

Standard vs. Heavy Duty Silt Fence

Standard Silt Fence

- Generally applicable in cases where the area draining to fence produces moderate sediment loads.

Heavy Duty Silt Fence

- Heavy duty silt fence usually has 1 or more of the following characteristics, not possessed by standard silt fence.
 - Fabric is reinforced with wire backing or additional support.
 - Posts are spaced closer than pre-manufactured, standard silt fence products.
- Use is generally limited to areas affected by high winds.
- Area draining to fence produces moderate sediment loads.

Materials

Standard Silt Fence

- Silt fence material should be woven geotextile with a minimum width of 36 in. The fabric should conform to the requirements in ASTM designation D6461.
- Wooden stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.
- Staples used to fasten the fence fabric to the stakes should be not less than 1.75 in. long and should be fabricated from 15-gauge or heavier wire. The wire used to fasten the tops of the stakes together when joining two sections of fence should be 9 gauge or heavier wire. Galvanizing of the fastening wire will not be required.

Heavy-Duty Silt Fence

- Some silt fence has a wire backing to provide additional support, and there are products that may use prefabricated plastic holders for the silt fence and use metal posts instead of wood stakes.

Installation Guidelines – Traditional Method

Silt fences are to be constructed on a level contour. Sufficient area should exist behind the fence for ponding to occur without flooding or overtopping the fence.

- A trench should be excavated approximately 6 in. wide and 6 in. deep along the line of the proposed silt fence (trenches should not be excavated wider or deeper than necessary for proper silt fence installation).
- Bottom of the silt fence should be keyed-in a minimum of 12 in.
- Posts should be spaced a maximum of 6 ft. apart and driven securely into the ground a minimum of 18 in. or 12 in. below the bottom of the trench.
- When standard strength geotextile is used, a plastic or wire mesh support fence should be fastened securely to the upslope side of posts using heavy-duty wire staples at least 1 in. long. The mesh should extend into the trench.

- When extra-strength geotextile and closer post spacing are used, the mesh support fence may be eliminated.
- Woven geotextile should be purchased in a long roll, then cut to the length of the barrier. When joints are necessary, geotextile should be spliced together only at a support post, with a minimum 6 in. overlap and both ends securely fastened to the post.
- The trench should be backfilled with native material and compacted.
- Construct the length of each reach so that the change in base elevation along the reach does not exceed $\frac{1}{3}$ the height of the barrier; in no case should the reach exceed 500 ft.
- Cross barriers should be a minimum of $\frac{1}{3}$ and a maximum of $\frac{1}{2}$ the height of the linear barrier.
- See typical installation details at the end of this fact sheet.

FOR BIDDING
PURPOSES ONLY

Installation Guidelines - Static Slicing Method

- Static Slicing is defined as insertion of a narrow blade pulled behind a tractor, similar to a plow blade, at least 10 in. into the soil while at the same time pulling silt geotextile fabric into the ground through the opening created by the blade to the depth of the blade. Once the geotextile is installed, the soil is compacted using tractor tires.
- This method will not work with pre-fabricated, wire backed silt fence.
- Benefits:
 - Ease of installation (most often done with a 2-person crew).
 - Minimal soil disturbance.
 - Better level of compaction along fence, less susceptible to undercutting
 - Uniform installation.
- Limitations:
 - Does not work in shallow or rocky soils.
 - Complete removal of geotextile material after use is difficult.
 - Be cautious when digging near potential underground utilities.

Costs

- It should be noted that costs vary greatly across regions due to available supplies and labor costs.
- Average annual cost for installation using the traditional silt fence installation method (assumes 6 month useful life) is \$7 per linear foot based on vendor research. Range of cost is \$3.50 - \$9.10 per linear foot.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Repair undercut silt fences.
- Repair or replace split, torn, slumping, or weathered fabric. The lifespan of silt fence fabric is generally 5 to 8 months.
- Silt fences that are damaged and become unsuitable for the intended purpose should be removed from the site of work, disposed, and replaced with new silt fence barriers.
- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches 1/3 of the barrier height.
- Silt fences should be left in place until the upgradient area is permanently stabilized. Until then, the silt fence should be inspected and maintained regularly.

- Remove silt fence when upgradient areas are stabilized. Fill and compact post holes and anchor trench, remove sediment accumulation, grade fence alignment to blend with adjacent ground, and stabilize disturbed area.

References

CGP Review #2, State Water Resources Control Board, 2014. Available online at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/training/cgp_review_issue2.pdf.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Monitoring Data on Effectiveness of Sediment Control Techniques, Proceedings of World Water and Environmental Resources Congress, Barrett M. and Malina J. 2004.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group-Working Paper, USEPA, April 1992.

Sedimentation and Erosion Control Practices, and Inventory of Current Practices (Draft), USEPA, 1990.

Southeastern Wisconsin Regional Planning Commission (SWRPC). Costs of Urban Nonpoint Source Water Pollution Control Measures. Technical Report No. 31. Southeastern Wisconsin Regional Planning Commission, Waukesha, WI. 1991.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

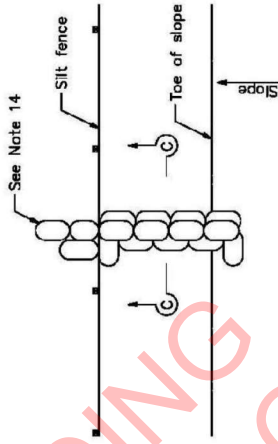
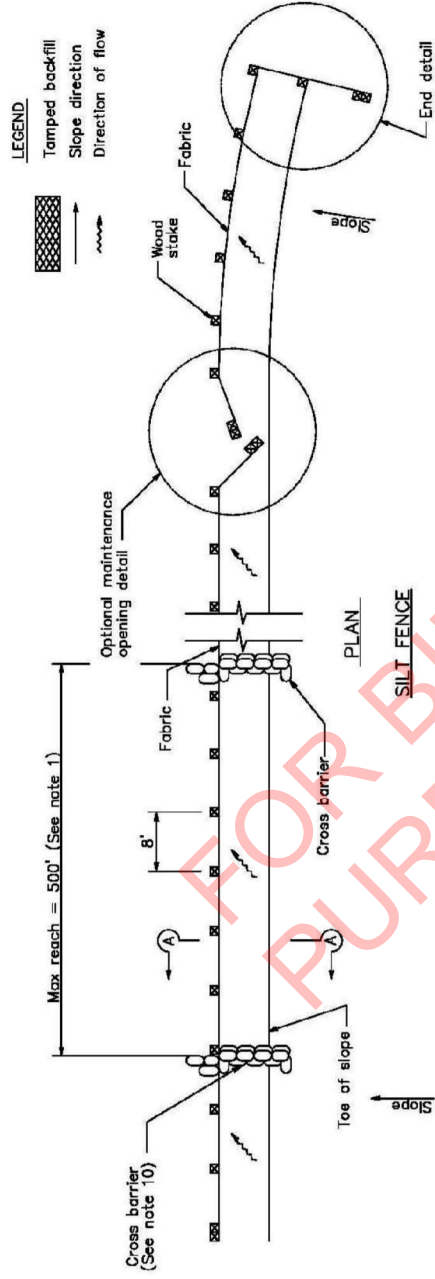
U.S. Environmental Protection Agency (USEPA). Stormwater Best Management Practices: Silt Fences. U.S. Environmental Protection Agency, Office of Water, Washington, DC, 2012.

U.S. Environmental Protection Agency (USEPA). Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices. U.S. Environmental Protection Agency, Office of Water, Washington, DC, 1992.

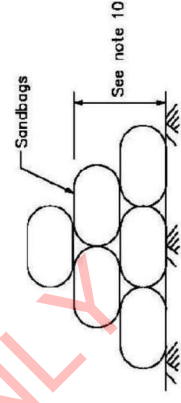
Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Soil Stabilization BMP Research for Erosion and Sediment Controls: Cost Survey Technical Memorandum, State of California Department of Transportation (Caltrans), July 2007.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



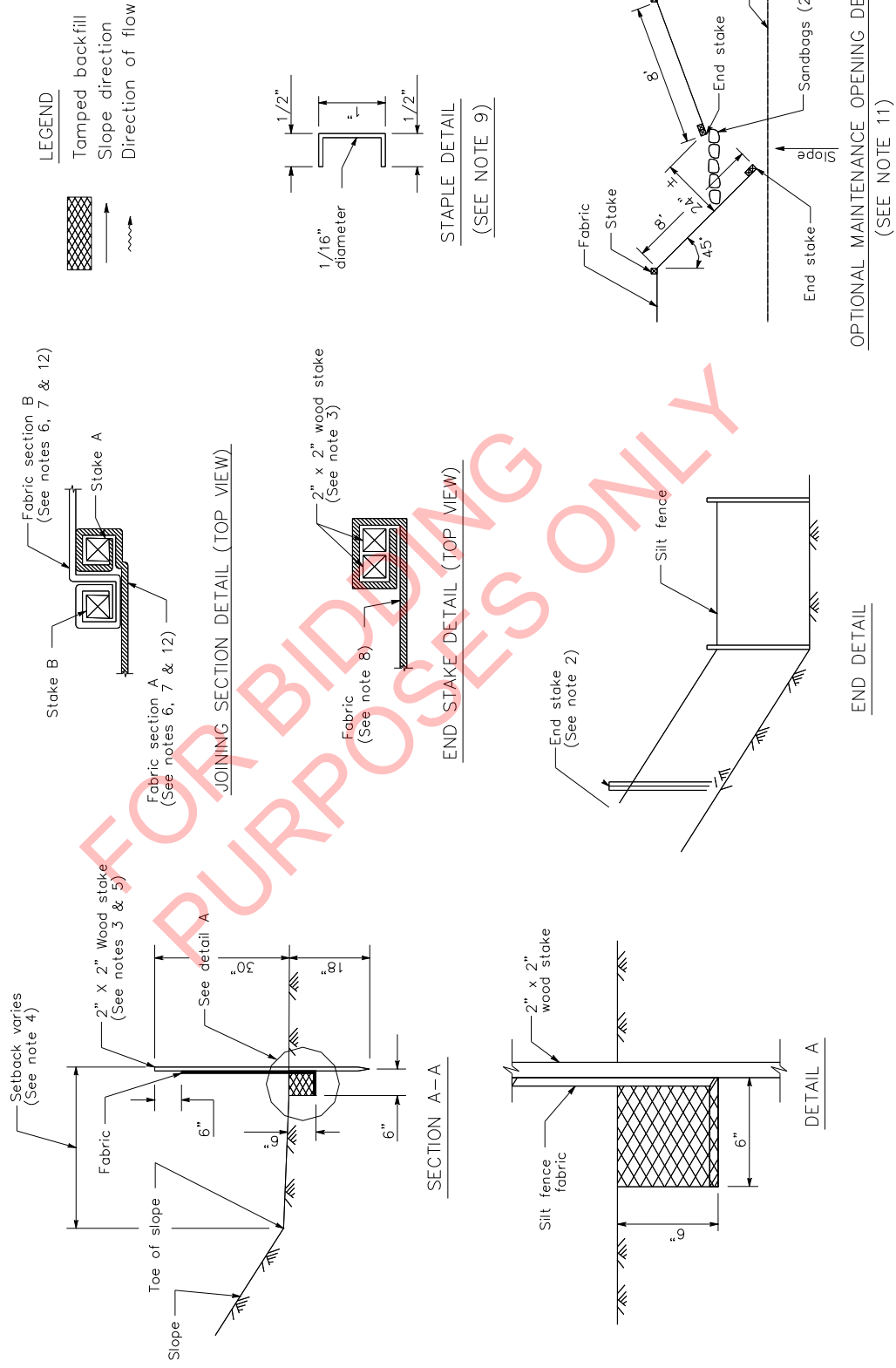
CROSS BARRIER DETAIL

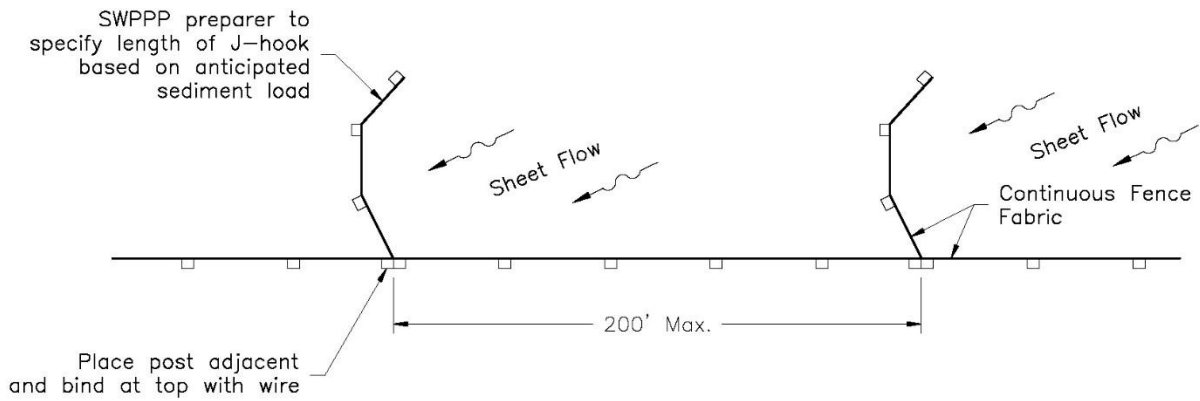


SECTION C-C

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 500'.
2. The last 8'-0" of fence shall be turned up slope.
3. Stake dimensions are nominal.
4. Dimension may vary to fit field condition.
5. Stakes shall be spaced at 8'-0" maximum and shall be positioned on downstream side of fence.
6. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples.
7. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
8. For end stake, fence fabric shall be folded around two stakes are full turn and secured with 4 staples.
9. Minimum 4 staples per stake. Dimensions shown are typical.
10. Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
11. Maintenance openings shall be constructed in a manner to ensure sediment remains behind silt fence.
12. Joining sections shall not be placed at sump locations.
13. Sandbag rows and layers shall be offset to eliminate gaps.
14. Add 3-4 bags to cross barrier on downgradient side of silt fence as needed to prevent bypass or undermining and as allowable based on site limits of disturbance.

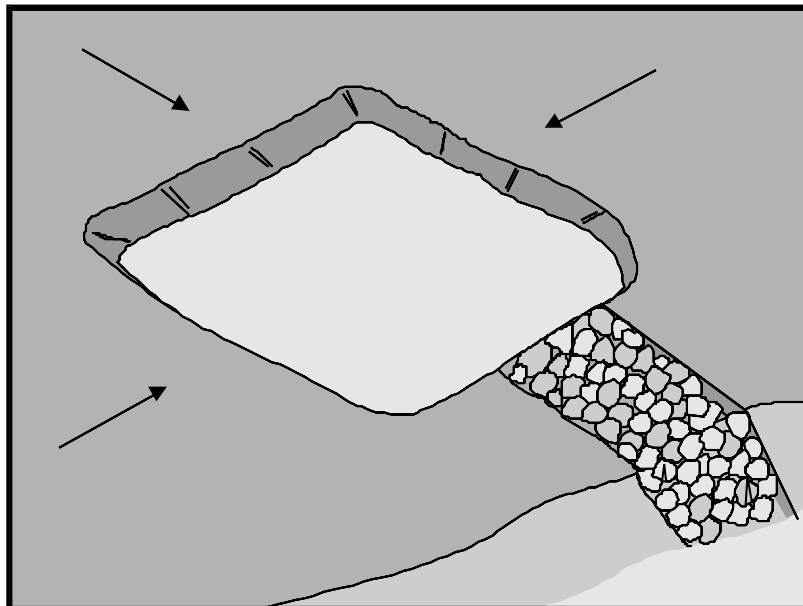




Plan

J-HOOK

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-2 Sediment Basin (for larger areas)

Description and Purpose

A sediment trap is a containment area where sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out or before the runoff is discharged by gravity flow. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area.

Trap design guidance provided in this fact sheet is not intended to guarantee compliance with numeric discharge limits (numeric action levels or numeric effluent limits for turbidity). Compliance with discharge limits requires a thoughtful approach to comprehensive BMP planning, implementation, and maintenance. Therefore, optimally designed and maintained sediment traps should be used in conjunction with a comprehensive system of BMPs.

Suitable Applications

Sediment traps should be considered for use:

- At the perimeter of the site at locations where sediment-laden runoff is discharged offsite.
- At multiple locations within the project site where sediment control is needed.
- Around or upslope from storm drain inlet protection measures.
- Sediment traps may be used on construction projects where the drainage area is less than 5 acres. Traps would be

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



placed where sediment-laden stormwater may enter a storm drain or watercourse. SE-2, Sediment Basins, must be used for drainage areas greater than 5 acres.

- As a supplemental control, sediment traps provide additional protection for a water body or for reducing sediment before it enters a drainage system.

Limitations

- Requires large surface areas to permit infiltration and settling of sediment.
- Not appropriate for drainage areas greater than 5 acres.
- Only removes large and medium sized particles and requires upstream erosion control.
- Attractive and dangerous to children, requiring protective fencing.
- Conducive to vector production.
- Should not be located in live streams.

Implementation

Design

A sediment trap is a small temporary ponding area, usually with a gravel outlet, formed by excavation or by construction of an earthen embankment. Its purpose is to collect and store sediment from sites cleared or graded during construction. It is intended for use on small drainage areas with no unusual drainage features and projected for a quick build-out time. It should help in removing coarse sediment from runoff. The trap is a temporary measure with a design life of approximately six months to one year and is to be maintained until the site area is permanently protected against erosion by vegetation and/or structures.

Sediment traps should be used only for small drainage areas. If the contributing drainage area is greater than 5 acres, refer to SE-2, Sediment Basins, or subdivide the catchment area into smaller drainage basins.

Sediment usually must be removed from the trap after each rainfall event. The SWPPP should detail how this sediment is to be disposed, such as in fill areas onsite, or removal to an approved offsite dump. Sediment traps used as perimeter controls should be installed before any land disturbance takes place in the drainage area.

Sediment traps are usually small enough that a failure of the structure would not result in a loss of life, damage to home or buildings, or interruption in the use of public roads or utilities. However, sediment traps are attractive to children and can be dangerous. The following recommendations should be implemented to reduce risks:

- Install continuous fencing around the sediment trap or pond. Consult local ordinances regarding requirements for maintaining health and safety.
- Restrict basin side slopes to 3:1 or flatter.

Sediment trap size depends on the type of soil, size of the drainage area, and desired sediment removal efficiency (see SE-2, Sediment Basin). As a rule of thumb, the larger the basin volume

the greater the sediment removal efficiency. Sizing criteria are typically established under the local grading ordinance or equivalent. The runoff volume from a 2-year storm is a common design criterion for a sediment trap. The sizing criteria below assume that this runoff volume is 0.042 acre-ft/acre (0.5 in. of runoff). While the climatic, topographic, and soil type extremes make it difficult to establish a statewide standard, the following criteria should trap moderate to high amounts of sediment in most areas of California:

- Locate sediment traps as near as practical to areas producing the sediment.
- Trap should be situated according to the following criteria: (1) by excavating a suitable area or where a low embankment can be constructed across a swale, (2) where failure would not cause loss of life or property damage, and (3) to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area.
- Trap should be sized to accommodate a settling zone and sediment storage zone with recommended minimum volumes of 67 yd³/acre and 33 yd³/acre of contributing drainage area, respectively, based on 0.5 in. of runoff volume over a 24-hour period. In many cases, the size of an individual trap is limited by available space. Multiple traps or additional volume may be required to accommodate specific rainfall, soil, and site conditions.
- Traps with an impounding levee greater than 4.5 ft tall, measured from the lowest point to the impounding area to the highest point of the levee, and traps capable of impounding more than 35,000 ft³, should be designed by a Registered Civil Engineer. The design should include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the trap outlet and bypass structures.
- The outlet pipe or open spillway must be designed to convey anticipated peak flows.
- Use rock or vegetation to protect the trap outlets against erosion.
- Fencing should be provided to prevent unauthorized entry.

Installation

Sediment traps can be constructed by excavating a depression in the ground or creating an impoundment with a small embankment. Sediment traps should be installed outside the area being graded and should be built prior to the start of the grading activities or removal of vegetation. To minimize the area disturbed by them, sediment traps should be installed in natural depressions or in small swales or drainage ways. The following steps must be followed during installation:

- The area under the embankment must be cleared, grubbed, and stripped of any vegetation and root mat. The pool area should be cleared.
- The fill material for the embankment must be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment may be compacted by traversing with equipment while it is being constructed.
- All cut-and-fill slopes should be 3:1 or flatter.
- When a riser is used, all pipe joints must be watertight.

- When a riser is used, at least the top two-thirds of the riser should be perforated with 0.5 in. diameter holes spaced 8 in. vertically and 10 to 12 in. horizontally. See SE-2, Sediment Basin.
- When an earth or stone outlet is used, the outlet crest elevation should be at least 1 ft below the top of the embankment.
- When crushed stone outlet is used, the crushed stone used in the outlet should meet AASHTO M43, size No. 2 or 24, or its equivalent such as MSHA No. 2. Gravel meeting the above gradation may be used if crushed stone is not available.

Costs

Average annual cost per installation is \$15 ft² and plus additional costs for the design and maintenance.

Inspection and Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect outlet area for erosion and stabilize if required.
- Inspect trap banks for seepage and structural soundness, repair as needed.
- Inspect outlet structure and spillway for any damage or obstructions. Repair damage and remove obstructions as needed.
- Inspect fencing for damage and repair as needed.
- Inspect the sediment trap for area of standing water during every visit. Corrective measures should be taken if the BMP does not dewater completely in 96 hours or less to prevent vector production.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the trap capacity. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed of at an appropriate location.
- Remove vegetation from the sediment trap when first detected to prevent pools of standing water and subsequent vector production.
- BMPs that require dewatering shall be continuously attended while dewatering takes place. Dewatering BMPs per NS-2 shall be implemented at all times during dewatering activities.

References

Brown, W., and T. Schueler. The Economics of Stormwater BMPs in the Mid-Atlantic Region. Prepared for Chesapeake Research Consortium, Edgewater, MD, by the Center for Watershed Protection, Ellicott City, MD, 1997.

Draft – Sedimentation and Erosion Control, an Inventory of Current Practices, USEPA, April 1990.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Metzger, M.E., D.F. Messer, C.L. Beitia, C.M. Myers, and V.L. Kramer, The Dark Side of Stormwater Runoff Management: Disease Vectors Associated with Structural BMPs, 2002.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group-Working Paper, USEPA, April 1992.

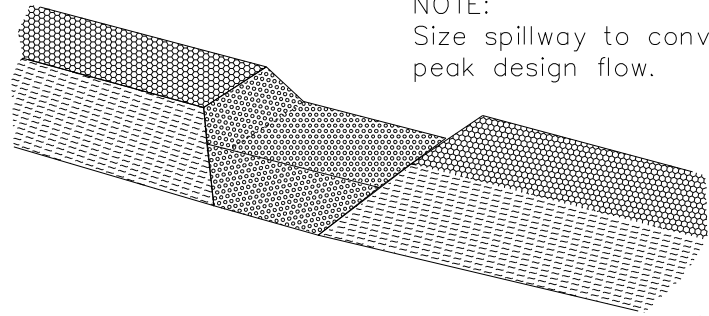
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

U.S. Environmental Protection Agency (USEPA). Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters. EPA 840-B-9-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC, 1993.

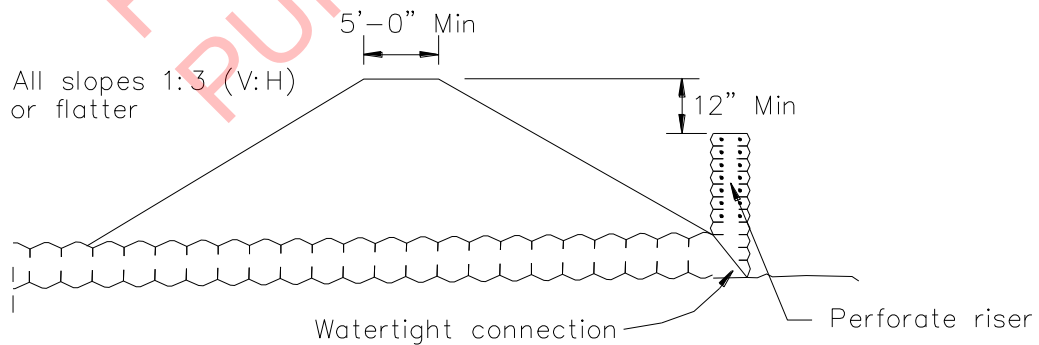
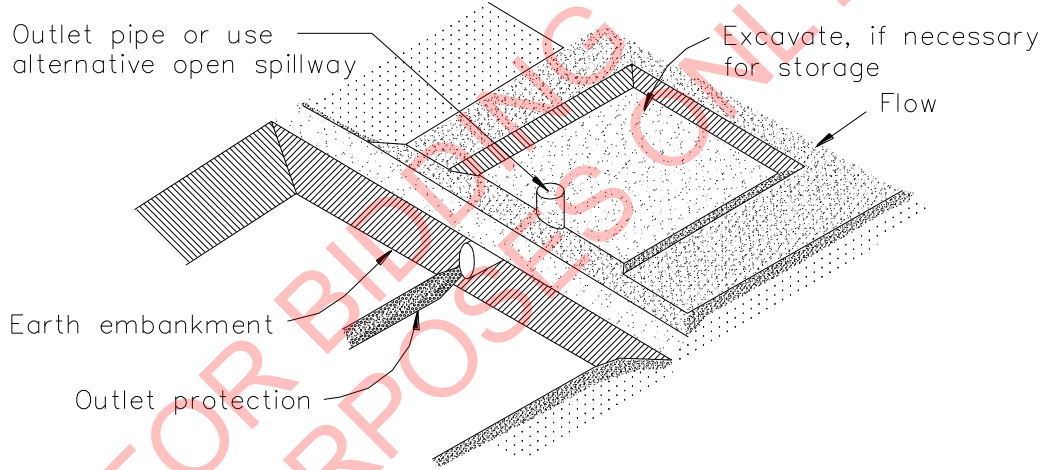
Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

FOR BIDDING ONLY
PURPOSES ONLY



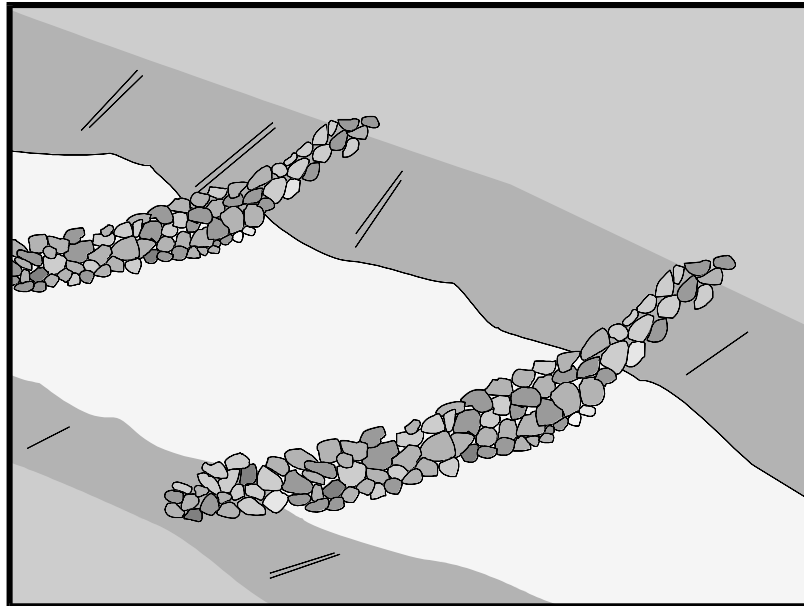
NOTE:
Size spillway to convey
peak design flow.

TYPICAL OPEN SPILLWAY



EMBANKMENT SECTION THRU RISER

TYPICAL SEDIMENT TRAP
NOT TO SCALE



Description and Purpose

A check dam is a small barrier constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary products, placed across a constructed swale or drainage ditch. Check dams reduce the effective slope of the channel, thereby reducing scour and channel erosion by reducing flow velocity and increasing residence time within the channel, allowing sediment to settle.

Suitable Applications

Check dams may be appropriate in the following situations:

- To promote sedimentation behind the dam.
- To prevent erosion by reducing the velocity of channel flow in small intermittent channels and temporary swales.
- In small open channels that drain 10 acres or less.
- In steep channels where stormwater runoff velocities exceed 5 ft/s.
- During the establishment of grass linings in drainage ditches or channels.
- In temporary ditches where the short length of service does not warrant establishment of erosion-resistant linings.
- To act as a grade control structure.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category**
- Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-8 Sandbag Barrier
- SE-12 Manufactured Linear Sediment Controls
- SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Limitations

- Not to be used in live streams or in channels with extended base flows.
- Not appropriate in channels that drain areas greater than 10 acres.
- Not appropriate in channels that are already grass-lined unless erosion potential or sediment-laden flow is expected, as installation may damage vegetation.
- Require extensive maintenance following high velocity flows.
- Promotes sediment trapping which can be re-suspended during subsequent storms or removal of the check dam.
- Do not construct check dams with straw bales or silt fence.
- Water suitable for mosquito production may stand behind check dams, particularly if subjected to daily non-stormwater discharges.

Implementation

General

Check dams reduce the effective slope and create small pools in swales and ditches that drain 10 acres or less. Using check dams to reduce channel slope reduces the velocity of stormwater flows, thus reducing erosion of the swale or ditch and promoting sedimentation. Thus, check dams are dual-purpose and serve an important role as erosion controls as well as sediment controls. Note that use of 1-2 isolated check dams for sedimentation will likely result in little net removal of sediment because of the small detention time and probable scour during longer storms. Using a series of check dams will generally increase their effectiveness. A sediment trap (SE-3) may be placed immediately upstream of the check dam to increase sediment removal efficiency.

Design and Layout

Check dams work by decreasing the effective slope in ditches and swales. An important consequence of the reduced slope is a reduction in capacity of the ditch or swale. This reduction in capacity should be considered when using this BMP, as reduced capacity can result in overtopping of the ditch or swale and resultant consequences. In some cases, such as a “permanent” ditch or swale being constructed early and used as a “temporary” conveyance for construction flows, the ditch or swale may have sufficient capacity such that the temporary reduction in capacity due to check dams is acceptable. When check dams reduce capacities beyond acceptable limits, either:

- Don't use check dams. Consider alternative BMPs, or.
- Increase the size of the ditch or swale to restore capacity.

Maximum slope and velocity reduction is achieved when the toe of the upstream dam is at the same elevation as the top of the downstream dam (see “Spacing Between Check Dams” detail at the end of this fact sheet). The center section of the dam should be lower than the edge sections (at least 6 inches), acting as a spillway, so that the check dam will direct flows to the center of

the ditch or swale (see “Typical Rock Check Dam” detail at the end of this fact sheet). Bypass or side-cutting can occur if a sufficient spillway is not provided in the center of the dam.

Check dams are usually constructed of rock, gravel bags, sandbags, and fiber rolls. A number of products can also be used as check dams (e.g. HDPE check dams, temporary silt dikes (SE-12)), and some of these products can be removed and reused. Check dams can also be constructed of logs or lumber and have the advantage of a longer lifespan when compared to gravel bags, sandbags, and fiber rolls. Check dams should not be constructed from straw bales or silt fences, since concentrated flows quickly wash out these materials.

Rock check dams are usually constructed of 8 to 12 in. rock. The rock is placed either by hand or mechanically, but never just dumped into the channel. The dam should completely span the ditch or swale to prevent washout. The rock used should be large enough to stay in place given the expected design flow through the channel. It is recommended that abutments be extended 18 in. into the channel bank. Rock can be graded such that smaller diameter rock (e.g. 2-4 in) is located on the upstream side of larger rock (holding the smaller rock in place); increasing residence time.

Log check dams are usually constructed of 4 to 6 in. diameter logs, installed vertically. The logs should be embedded into the soil at least 18 in. Logs can be bolted or wired to vertical support logs that have been driven or buried into the soil.

See fiber rolls, SE-5, for installation of fiber roll check dams.

Gravel bag and sand bag check dams are constructed by stacking bags across the ditch or swale, shaped as shown in the drawings at the end of this fact sheet (see “Gravel Bag Check Dam” detail at the end of this fact sheet).

Manufactured products, such as temporary silt dikes (SE-12), should be installed in accordance with the manufacturer’s instructions. Installation typically requires anchoring or trenching of products, as well as regular maintenance to remove accumulated sediment and debris.

If grass is planted to stabilize the ditch or swale, the check dam should be removed when the grass has matured (unless the slope of the swales is greater than 4%).

The following guidance should be followed for the design and layout of check dams:

- Install the first check dam approximately 16 ft from the outfall device and at regular intervals based on slope gradient and soil type.
- Check dams should be placed at a distance and height to allow small pools to form between each check dam.
- For multiple check dam installation, backwater from a downstream check dam should reach the toes of the upstream check dam.
- A sediment trap provided immediately upstream of the check dam will help capture sediment. Due to the potential for this sediment to be resuspended in subsequent storms, the sediment trap should be cleaned following each storm event.

- High flows (typically a 2-year storm or larger) should safely flow over the check dam without an increase in upstream flooding or damage to the check dam.
- Where grass is used to line ditches, check dams should be removed when grass has matured sufficiently to protect the ditch or swale.

Materials

- Rock used for check dams should typically be 8-12 in rock and be sufficiently sized to stay in place given expected design flows in the channel. Smaller diameter rock (e.g. 2 to 4 in) can be placed on the upstream side of larger rock to increase residence time.
- Gravel bags used for check dams should conform to the requirements of SE-6, Gravel Bag Berms.
- Sandbags used for check dams should conform to SE-8, Sandbag Barrier.
- Fiber rolls used for check dams should conform to SE-5, Fiber Rolls.
- Temporary silt dikes used for check dams should conform to SE-12, Temporary Silt Dikes.

Installation

- Rock should be placed individually by hand or by mechanical methods (no dumping of rock) to achieve complete ditch or swale coverage.
- Tightly abut bags and stack according to detail shown in the figure at the end of this section (pyramid approach). Gravel bags and sandbags should not be stacked any higher than 3 ft.
- Upper rows of gravel and sand bags shall overlap joints in lower rows.
- Fiber rolls should be trenched in, backfilled, and firmly staked in place.
- Install along a level contour.
- HDPE check dams, temporary silt dikes, and other manufactured products should be used and installed per manufacturer specifications.

Costs

Cost consists of labor costs if materials are readily available (such as gravel on-site). If material must be imported, costs will increase. For other material and installation costs, see SE-5, SE-6, SE-8, SE-12, and SE-14.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Replace missing rock, bags, rolls, etc. Replace bags or rolls that have degraded or have become damaged.

- If the check dam is used as a sediment capture device, sediment that accumulates behind the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- If the check dam is used as a grade control structure, sediment removal is not required as long as the system continues to control the grade.
- Inspect areas behind check dams for pools of standing water, especially if subjected to daily non-stormwater discharges.
- Remove accumulated sediment prior to permanent seeding or soil stabilization.
- Remove check dam and accumulated sediment when check dams are no longer needed.

References

Draft – Sedimentation and Erosion Control, and Inventory of Current Practices, USEPA, April 1990.

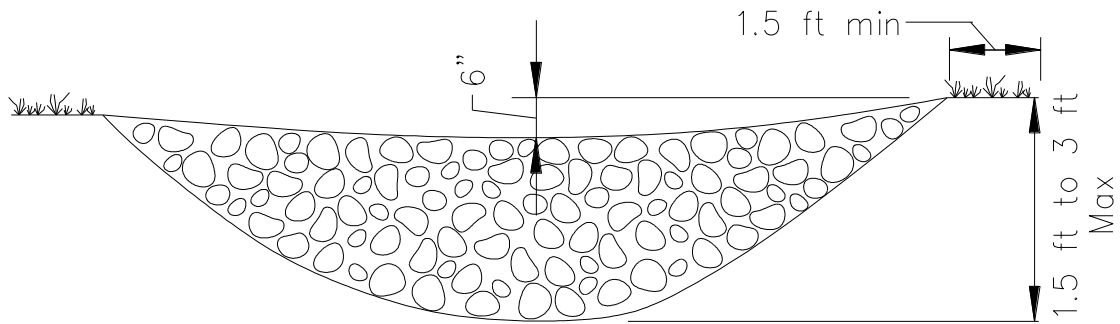
Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

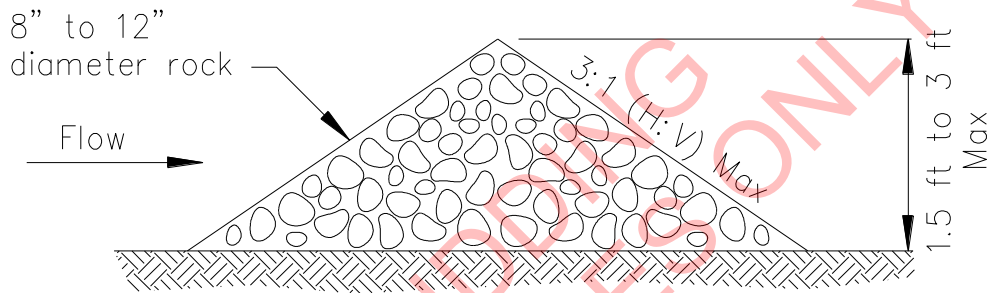
Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Metzger, M.E. 2004. Managing mosquitoes in stormwater treatment devices. University of California Division of Agriculture and Natural Resources, Publication 8125. On-line: <http://anrcatalog.ucdavis.edu/pdf/8125.pdf>

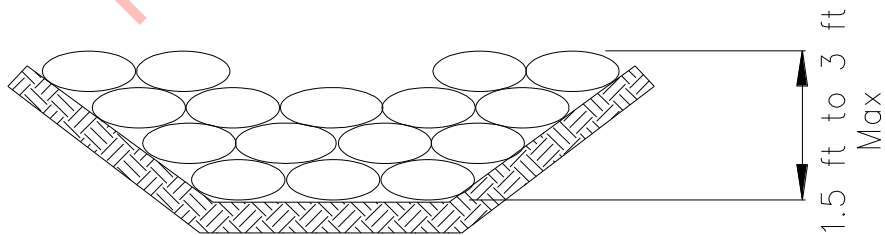


ELEVATION

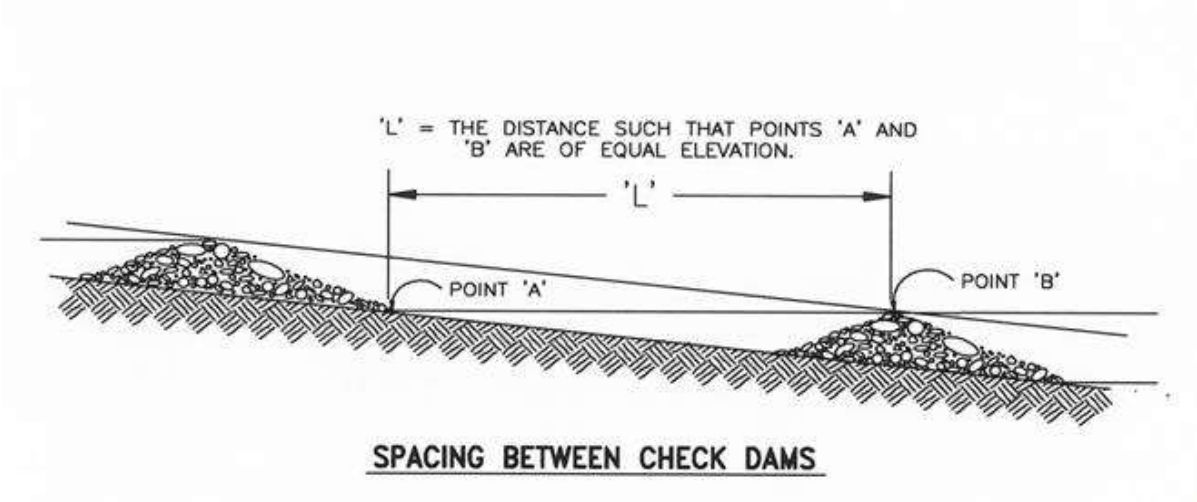


TYPICAL ROCK CHECK DAM SECTION

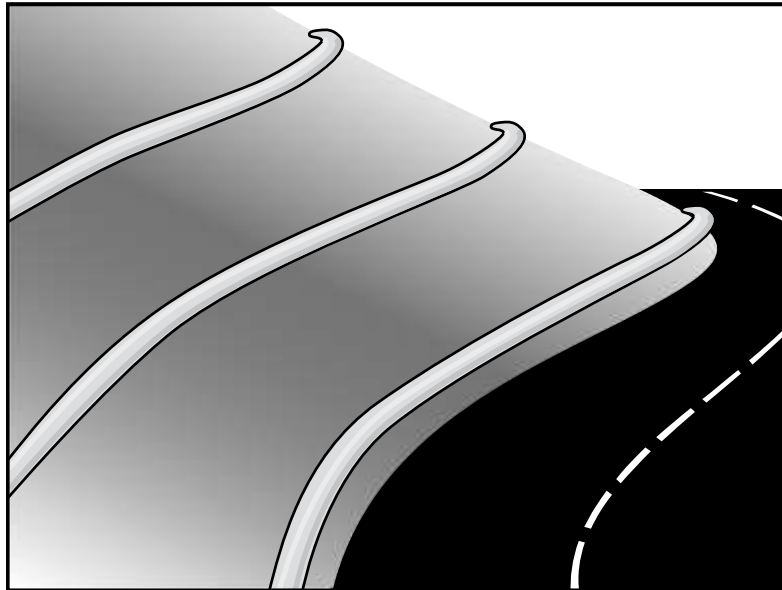
ROCK CHECK DAM
NOT TO SCALE



GRAVEL BAG CHECK DAM ELEVATION
NOT TO SCALE



FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category**
- Secondary Category**

Description and Purpose

A fiber roll (also known as wattles or logs) consists of straw, coir, curled wood fiber, or other biodegradable materials bound into a tight tubular roll wrapped by plastic netting, which can be photodegradable, or natural fiber, such as jute, cotton, or sisal. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

Suitable Applications

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- At the end of a downward slope where it transitions to a steeper slope.
- Along the perimeter of a project.
- As check dams in unlined ditches with minimal grade.
- Down-slope of exposed soil areas.

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-6 Gravel Bag Berm
- SE-8 Sandbag Barrier
- SE-12 Manufactured Linear Sediment Controls
- SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- At operational storm drains as a form of inlet protection.
- Around temporary stockpiles.

Limitations

- Fiber rolls should be used in conjunction with erosion control, such as hydroseed, RECPs, etc.
- Only biodegradable fiber rolls containing no plastic can remain on a site applying for a Notice of Termination due to plastic pollution and wildlife concerns (State Water Board, 2016). Fiber rolls containing plastic that are used on a site must be disposed of for final stabilization.
- Fiber rolls are not effective unless trenched in and staked. If not properly staked and trenched in, fiber rolls will not work as intended and could be transported by high flows.
- Not intended for use in high flow situations (i.e., for concentrated flows).
- Difficult to move once saturated.
- Fiber rolls have a limited sediment capture zone.
- Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.
- Rolls typically function for 12-24 months, depending upon local conditions and roll material.

Implementation

Fiber Roll Materials

- Fiber rolls should be prefabricated.
- Fiber rolls may come manufactured containing polyacrylamide (PAM), a flocculating agent within the roll. Fiber rolls impregnated with PAM provide additional sediment removal capabilities and should be used in areas with fine, clayey or silty soils to provide additional sediment removal capabilities. Monitoring may be required for these installations.
- Fiber rolls are made from weed-free rice straw, flax, curled wood fiber, or coir bound into a tight tubular roll by netting or natural fiber (see *Limitations* above regarding plastic netting).
- Typical fiber rolls vary in diameter from 6 in. to 20 in. Larger diameter rolls are available as well. The larger the roll, the higher the sediment retention capacity.
- Typical fiber rolls lengths are 4, 10, 20 and 25 ft., although other lengths are likely available.

Installation

- Locate fiber rolls on level contours spaced as follows:
 - Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.

- Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
- Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
- Prepare the slope before beginning installation.
- Dig small trenches across the slope on the contour. The trench depth should be $\frac{1}{4}$ to $\frac{1}{3}$ of the thickness of the roll, and the width should equal the roll diameter, in order to provide area to backfill the trench.
- It is critical that rolls are installed perpendicular to water movement, and parallel to the slope contour.
- Start building trenches and installing rolls from the bottom of the slope and work up.
- It is recommended that pilot holes be driven through the fiber roll. Use a straight bar to drive holes through the roll and into the soil for the wooden stakes.
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into the trench.
 - Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
 - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.
- See typical fiber roll installation details at the end of this fact sheet.

Removal

- Fiber rolls can be left in place or removed depending on the type of fiber roll and application (temporary vs. permanent installation). Fiber rolls encased with plastic netting or containing any plastic material will need to be removed from the site for final stabilization. Fiber rolls used in a permanent application are to be encased with a non-plastic material and are left in place. Removal of a fiber roll used in a permanent application can result in greater disturbance; therefore, during the BMP planning phase, the areas where fiber rolls will be used on final slopes, only fiber rolls wrapped in non-plastic material should be selected.
- Temporary installations should only be removed when up gradient areas are stabilized per General Permit requirements, and/or pollutant sources no longer present a hazard. But they should also be removed before vegetation becomes too mature so that the removal process does not disturb more soil and vegetation than is necessary.

Costs

Material costs for straw fiber rolls range from \$26 - \$38 per 25-ft. roll¹ and curled wood fiber rolls range from \$30 - \$40 per roll².

Material costs for PAM impregnated fiber rolls range between \$9.00-\$12.00 per linear foot, based upon vendor research¹.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-third the designated sediment storage depth.
- If fiber rolls are used for erosion control, such as in a check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.
- Repair any rills or gullies promptly.

References

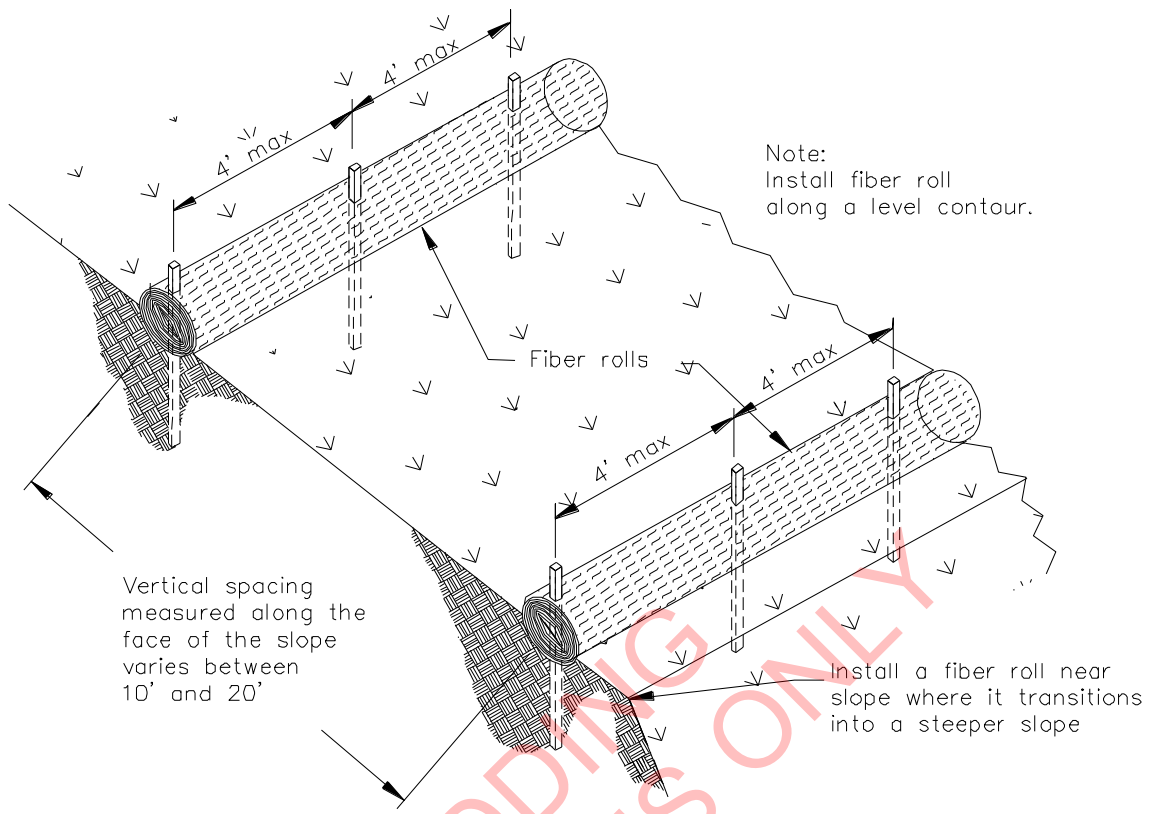
General Construction – Frequently Asked Questions, Storm Water Program website, State Water Resources Control Board, 2009 updated in 2016. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/gen_const_faq.shtml.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

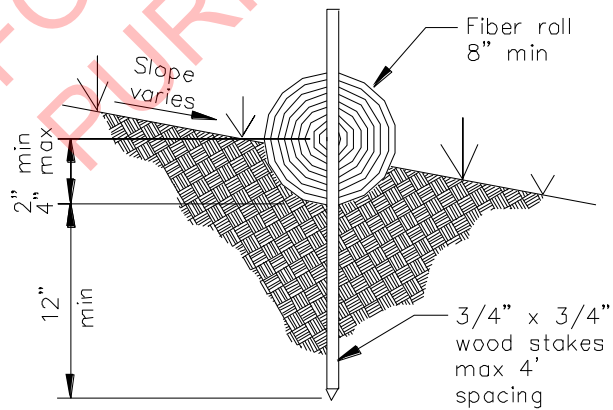
¹ Adjusted for inflation (2016 dollars) by Tetra Tech, Inc.

² Costs estimated based on vendor query by Tetra Tech, Inc. 2016.



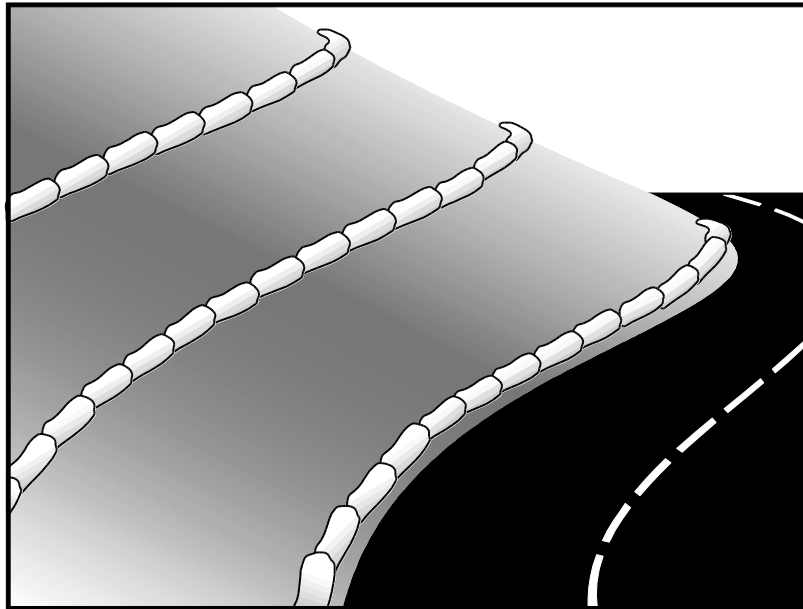
TYPICAL FIBER ROLL INSTALLATION

N.T.S.



ENTRENCHMENT DETAIL

N.T.S.



Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
 - Below the toe of slopes and erodible slopes
 - As sediment traps at culvert/pipe outlets
 - Below other small cleared areas
 - Along the perimeter of a site
 - Down slope of exposed soil areas
 - Around temporary stockpiles and spoil areas
 - Parallel to a roadway to keep sediment off paved areas
 - Along streams and channels
- As a linear erosion control measure:
 - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category**
- Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Roll
- SE-8 Sandbag Barrier
- SE-12 Temporary Silt Dike
- SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- At the top of slopes to divert runoff away from disturbed slopes.
- As chevrons (small check dams) across mildly sloped construction roads. For use check dam use in channels, see SE-4, Check Dams.

Limitations

- Gravel berms may be difficult to remove.
- Removal problems limit their usefulness in landscaped areas.
- Gravel bag berm may not be appropriate for drainage areas greater than 5 acres.
- Runoff will pond upstream of the berm, possibly causing flooding if sufficient space does not exist.
- Degraded gravel bags may rupture when removed, spilling contents.
- Installation can be labor intensive.
- Durability of gravel bags is somewhat limited, and bags may need to be replaced when installation is required for longer than 6 months.
- Easily damaged by construction equipment.
- When used to detain concentrated flows, maintenance requirements increase.

Implementation

General

A gravel bag berm consists of a row of open graded gravel-filled bags placed on a level contour. When appropriately placed, a gravel bag berm intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding allows sediment to settle. The open graded gravel in the bags is porous, which allows the ponded runoff to flow slowly through the bags, releasing the runoff as sheet flows. Gravel bag berms also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils. Gravel bag berms are similar to sand bag barriers but are more porous. Generally, gravel bag berms should be used in conjunction with temporary soil stabilization controls up slope to provide effective erosion and sediment control.

Design and Layout

- Locate gravel bag berms on level contours.
- When used for slope interruption, the following slope/sheet flow length combinations apply:
 - Slope inclination of 4:1 (H:V) or flatter: Gravel bags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
 - Slope inclination between 4:1 and 2:1 (H:V): Gravel bags should be placed at a maximum interval of 15 ft. (a closer spacing is more effective), with the first row near the slope toe.

Slope inclination 2:1 (H:V) or greater: Gravel bags should be placed at a maximum interval of 10 ft. (a closer spacing is more effective), with the first row near the slope toe.

- Turn the ends of the gravel bag barriers up slope to prevent runoff from going around the berm.
- Allow sufficient space up slope from the gravel bag berm to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, gravel bag barriers should be set back from the slope toe to facilitate cleaning. Where specific site conditions do not allow for a set-back, the gravel bag barrier may be constructed on the toe of the slope. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- In Non-Traffic Areas:
 - Height = 18 in. maximum
 - Top width = 24 in. minimum for three or more-layer construction
 - Top width = 12 in. minimum for one- or two-layer construction
 - Side slopes = 2:1 (H:V) or flatter
- In Construction Traffic Areas:
 - Height = 12 in. maximum
 - Top width = 24 in. minimum for three or more-layer construction.
 - Top width = 12 in. minimum for one- or two-layer construction.
 - Side slopes = 2:1 (H:V) or flatter.
- Butt ends of bags tightly.
- On multiple row, or multiple layer construction, overlap butt joints of adjacent row and row beneath.
- Use a pyramid approach when stacking bags.

Materials

- **Bag Material:** Bags should be woven polypropylene, polyethylene or polyamide fabric or burlap, minimum unit weight of 4 ounces/yd², Mullen burst strength exceeding 300 lb/in² in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355.

- **Bag Size:** Each gravel-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal and may vary based on locally available materials.
- **Fill Material:** Fill material should be 0.5 to 1 in. Crushed rock, clean and free from clay, organic matter, and other deleterious material, or other suitable open graded, non-cohesive, porous gravel.

Costs

Material costs for gravel bags are average and are dependent upon material availability. \$3.20-\$3.80 per filled gravel bag is standard based upon vendor research (Adjusted for inflation, 2016 dollars, by Tetra Tech, Inc.).

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Gravel bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.
- Reshape or replace gravel bags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove gravel bag berms when no longer needed and recycle gravel fill whenever possible and properly dispose of bag material. Remove sediment accumulation and clean, re-grade, and stabilize the area.

References

Handbook of Steel Drainage and Highway Construction, American Iron and Steel Institute, 1983.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Pollution Plan Handbook, First Edition, State of California, Department of Transportation Division of New Technology, Materials and Research, October 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

- Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).
- Sweeping may be less effective for fine particle soils (i.e., clay).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused and perhaps save money.
- Inspect potential sediment tracking locations daily.

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Visible sediment tracking should be swept or vacuumed on a daily basis.
- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from \$ 650/day to \$2,500/day¹, plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

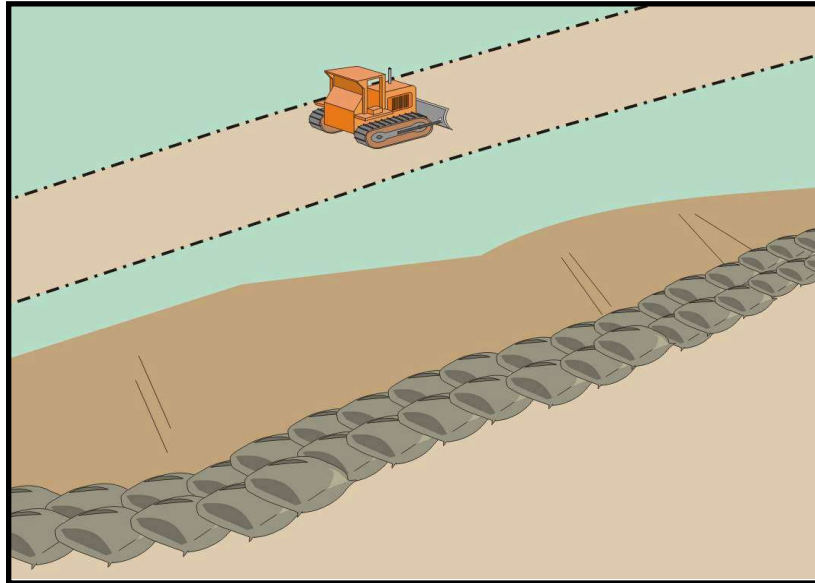
Inspection and Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

¹ Based on contractor query conducted by Tetra Tech, Inc. November 2016.



Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

<input checked="" type="checkbox"/>	Primary Category
<input checked="" type="checkbox"/>	Secondary Category

Description and Purpose

A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out.

Suitable Applications

Sandbag barriers may be a suitable control measure for the applications described below. It is important to consider that sand bags are less porous than gravel bags and ponding or flooding can occur behind the barrier. Also, sand is easily transported by runoff if bags are damaged or ruptured. The SWPPP Preparer should select the location of a sandbag barrier with respect to the potential for flooding, damage, and the ability to maintain the BMP.

- As a linear sediment control measure:
 - Below the toe of slopes and erodible slopes.
 - As sediment traps at culvert/pipe outlets.
 - Below other small cleared areas.
 - Along the perimeter of a site.
 - Down slope of exposed soil areas.
 - Around temporary stockpiles and spoil areas.
 - Parallel to a roadway to keep sediment off paved areas.
 - Along streams and channels.

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-12 Manufactured Linear Sediment Controls
- SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- As linear erosion control measure:
 - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
 - At the top of slopes to divert runoff away from disturbed slopes.
 - As check dams across mildly sloped construction roads.

Limitations

- It is necessary to limit the drainage area upstream of the barrier to 5 acres.
- Sandbags are not intended to be used as filtration devices.
- Easily damaged by construction equipment.
- Degraded sandbags may rupture when removed, spilling sand.
- Installation can be labor intensive.
- Durability of sandbags is somewhat limited, and bags will need to be replaced when there are signs of damage or wear.
- Burlap should not be used for sandbags.

Implementation

General

A sandbag barrier consists of a row of sand-filled bags placed on a level contour. When appropriately placed, a sandbag barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding allows sediment to settle. Sand-filled bags have limited porosity, which is further limited as the fine sand tends to quickly plug with sediment, limiting or completely blocking the rate of flow through the barrier. If a porous barrier is desired, consider SE-1, Silt Fence, SE-5, Fiber Rolls, SE-6, Gravel Bag Berms or SE-14, Biofilter Bags. Sandbag barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets which erode rills, and ultimately gullies, into disturbed, sloped soils. Sandbag barriers are similar to gravel bag berms, but less porous. Generally, sandbag barriers should be used in conjunction with temporary soil stabilization controls up slope to provide effective erosion and sediment control.

Design and Layout

- Locate sandbag barriers on a level contour.
- When used for slope interruption, the following slope/sheet flow length combinations apply:
 - Slope inclination of 4:1 (H:V) or flatter: Sandbags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
 - Slope inclination between 4:1 and 2:1 (H:V): Sandbags should be placed at a maximum interval of 15 ft. (a closer spacing is more effective), with the first row near the slope toe.

- Slope inclination 2:1 (H:V) or greater: Sandbags should be placed at a maximum interval of 10 ft. (a closer spacing is more effective), with the first row near the slope toe.
- Turn the ends of the sandbag barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, sand bag barriers should be set back from the slope toe to facilitate cleaning. Where specific site conditions do not allow for a set-back, the sand bag barrier may be constructed on the toe of the slope. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- Butt ends of bags tightly.
- Overlap butt joints of row beneath with each successive row.
- Use a pyramid approach when stacking bags.
- In non-traffic areas
 - Height = 18 in. maximum
 - Top width = 24 in. minimum for three or more-layer construction
 - Side slope = 2:1 (H:V) or flatter
- In construction traffic areas
 - Height = 12 in. maximum
 - Top width = 24 in. minimum for three or more-layer construction.
 - Side slopes = 2:1 (H:V) or flatter.
- See typical sandbag barrier installation details at the end of this fact sheet.

Materials

- **Sandbag Material:** Sandbag should be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight of 4 ounces/yd², Mullen burst strength exceeding 300 lb/in² in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355. Use of burlap is not an acceptable substitute, as sand can more easily mobilize out of burlap.
- **Sandbag Size:** Each sand-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal and may vary based on locally available materials.

- **Fill Material:** All sandbag fill material should be non-cohesive, Class 3 (Caltrans Standard Specification, Section 25) or similar permeable material free from clay and deleterious material, such as recycled concrete or asphalt.

Costs

Empty sandbags cost \$0.25 - \$0.75. Average cost of fill material is \$8 per yd³. Additional labor is required to fill the bags. Pre-filled sandbags are more expensive at \$1.50 - \$2.00 per bag. These costs are based upon vendor research.

Inspection and Maintenance

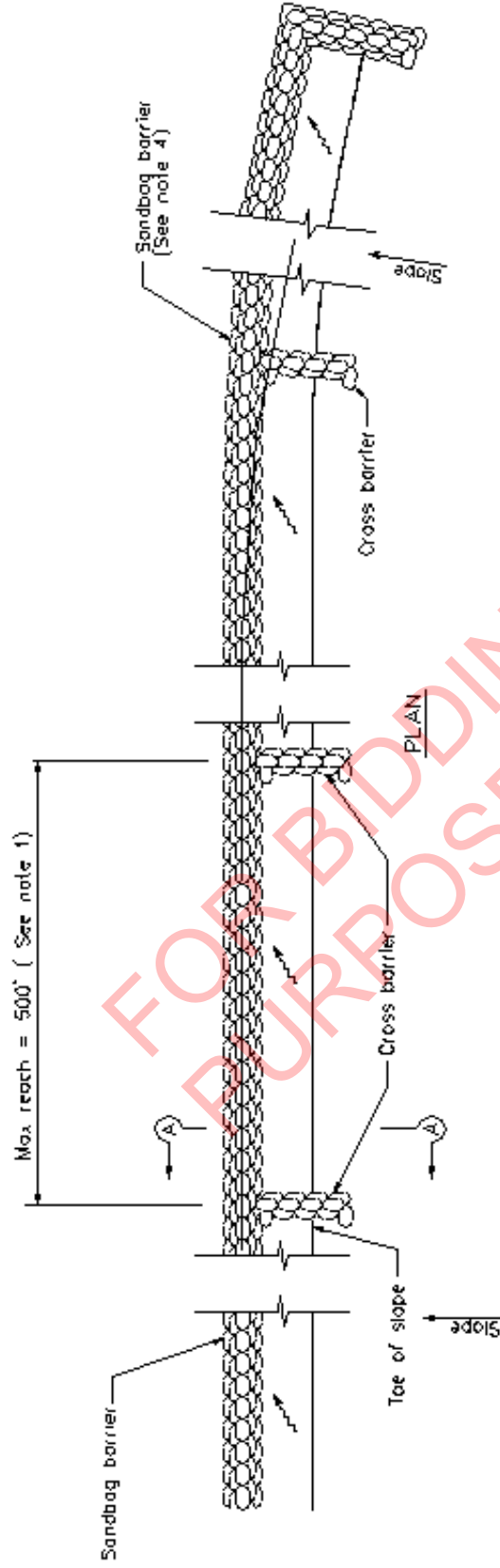
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sandbags exposed to sunlight will need to be replaced every two to three months due to degradation of the bags.
- Reshape or replace sandbags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates behind the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove sandbags when no longer needed and recycle sand fill whenever possible and properly dispose of bag material. Remove sediment accumulation, and clean, re-grade, and stabilize the area.

References

Standard Specifications for Construction of Local Streets and Roads, California Department of Transportation (Caltrans), July 2002.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

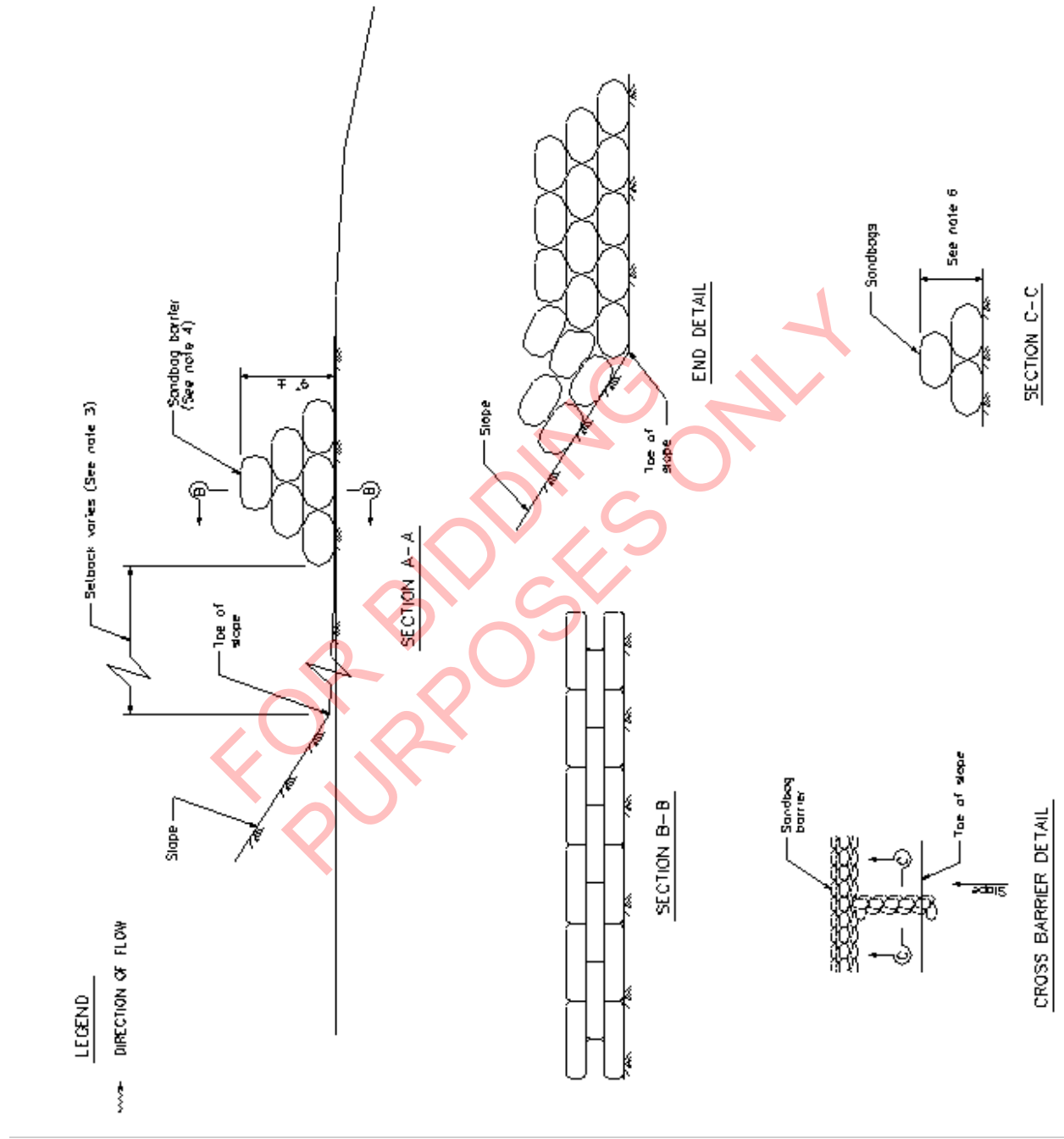
Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

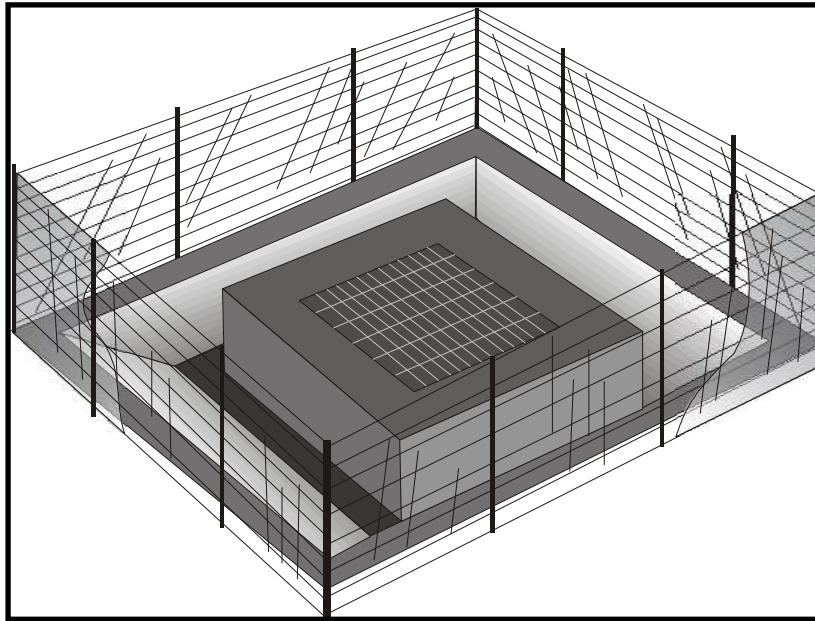


SANDBAG BARRIER

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed $1/2$ the height of the linear barrier. In no case shall the reach length exceed 500'.
2. Place sandbags tightly.
3. Dimension may vary to fit field condition.
4. Sandbag barrier shall be a minimum of 3 bags high.
5. The end of the barrier shall be turned up slope.
6. Cross barriers shall be a min of $1/2$ and a max of $2/3$ the height of the linear barrier.
7. Sandbag rows and layers shall be staggered to eliminate gaps.





Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area in, around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction. Temporary geotextile storm drain inserts attach underneath storm drain grates to capture and filter storm water.

Suitable Applications

- Every storm drain inlet receiving runoff from unstabilized or otherwise active work areas should be protected. Inlet protection should be used in conjunction with other erosion and sediment controls to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.

Limitations

- Drainage area should not exceed 1 acre.
- In general straw bales should not be used as inlet protection.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Sediment removal may be inadequate to prevent sediment discharges in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-8 Sandbag Barrier
- SE-14 Biofilter Bags
- SE-13 Compost Socks and Berms

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



other onsite sediment trapping techniques in conjunction with inlet protection.

- Frequent maintenance is required.
- Limit drainage area to 1 acre maximum. For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows. See BMPs SE-2, Sediment Basin, and SE-3, Sediment Traps.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected, and overflow capability is needed.

Implementation

General

Inlet control measures presented in this handbook should not be used for inlets draining more than one acre. Runoff from larger disturbed areas should be first routed through SE-2, Sediment Basin or SE-3, Sediment Trap and/or used in conjunction with other drainage control, erosion control, and sediment control BMPs to protect the site. Different types of inlet protection are appropriate for different applications depending on site conditions and the type of inlet. Alternative methods are available in addition to the methods described/shown herein such as prefabricated inlet insert devices, or gutter protection devices.

Design and Layout

Identify existing and planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed and which method to use.

- The key to successful and safe use of storm drain inlet protection devices is to know where runoff that is directed toward the inlet to be protected will pond or be diverted as a result of installing the protection device.
 - Determine the acceptable location and extent of ponding in the vicinity of the drain inlet. The acceptable location and extent of ponding will influence the type and design of the storm drain inlet protection device.
 - Determine the extent of potential runoff diversion caused by the storm drain inlet protection device. Runoff ponded by inlet protection devices may flow around the device and towards the next downstream inlet. In some cases, this is acceptable; in other cases, serious erosion or downstream property damage can be caused by these diversions. The possibility of runoff diversions will influence whether or not storm drain inlet protection is suitable; and, if suitable, the type and design of the device.
- The location and extent of ponding, and the extent of diversion, can usually be controlled through appropriate placement of the inlet protection device. In some cases, moving the inlet protection device a short distance upstream of the actual inlet can provide more efficient sediment control, limit ponding to desired areas, and prevent or control diversions.
- Seven types of inlet protection are presented below. However, it is recognized that other effective methods and proprietary devices exist and may be selected.

- Silt Fence: Appropriate for drainage basins with less than a 5% slope, sheet flows, and flows under 0.5 cfs.
 - Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment (SE-3).
 - Gravel bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cfs, and where overtopping is required to prevent flooding.
 - Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.
 - Temporary Geotextile Storm drain Inserts: Different products provide different features. Refer to manufacturer details for targeted pollutants and additional features.
 - Biofilter Bag Barrier: Used to create a small retention area upstream of inlets and can be located on pavement or soil. Biofilter bags slowly filter runoff allowing sediment to settle out. Appropriate for flows under 0.5 cfs.
 - Compost Socks: Allow filtered run-off to pass through the compost while retaining sediment and potentially other pollutants (SE-13). Appropriate for flows under 1.0 cfs.
- Select the appropriate type of inlet protection and design as referred to or as described in this fact sheet.
 - Provide area around the inlet for water to pond without flooding structures and property.
 - Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water.
 - Excavate sediment sumps (where needed) 1 to 2 ft with 2:1 side slopes around the inlet.

Installation

- **DI Protection Type 1 - Silt Fence** - Similar to constructing a silt fence; see BMP SE-1, Silt Fence. Do not place fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced and water flow through the grate will be blocked resulting in flooding. See typical Type 1 installation details at the end of this fact sheet.
 1. Excavate a trench approximately 6 in. wide and 6 in. deep along the line of the silt fence inlet protection device.
 2. Place 2 in. by 2 in. wooden stakes around the perimeter of the inlet a maximum of 3 ft apart and drive them at least 18 in. into the ground or 12 in. below the bottom of the trench. The stakes should be at least 48 in.
 3. Lay fabric along bottom of trench, up side of trench, and then up stakes. See SE-1, Silt Fence, for details. The maximum silt fence height around the inlet is 24 in.
 4. Staple the filter fabric (for materials and specifications, see SE-1, Silt Fence) to wooden stakes. Use heavy-duty wire staples at least 1 in. in length.

5. Backfill the trench with gravel or compacted earth all the way around.
- **DI Protection Type 2 - Excavated Drop Inlet Sediment Trap** - Install filter fabric fence in accordance with DI Protection Type 1. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd³/acre of drainage area. See typical Type 2 installation details at the end of this fact sheet.
 - **DI Protection Type 3 - Gravel bag** - Flow from a severe storm should not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with SE-6, Gravel Bag Berm. Gravel bags should be used due to their high permeability. See typical Type 3 installation details at the end of this fact sheet.
 1. Construct on gently sloping street.
 2. Leave room upstream of barrier for water to pond and sediment to settle.
 3. Place several layers of gravel bags – overlapping the bags and packing them tightly together.
 4. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10-year storm) should not overtop the curb.
 - **DI Protection Type 4 – Block and Gravel Filter** - Block and gravel filters are suitable for curb inlets commonly used in residential, commercial, and industrial construction. See typical Type 4 installation details at the end of this fact sheet.
 1. Place hardware cloth or comparable wire mesh with 0.5 in. openings over the drop inlet so that the wire extends a minimum of 1 ft beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place woven geotextile over the wire mesh.
 2. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut. The height of the barrier can be varied, depending on design needs, by stacking combinations of blocks that are 4 in., 8 in., and 12 in. wide. The row of blocks should be at least 12 in. but no greater than 24 in. high.
 3. Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or comparable wire mesh with 0.5 in. opening.
 4. Pile washed stone against the wire mesh to the top of the blocks. Use 0.75 to 3 in.
 - **DI Protection Type 5 – Temporary Geotextile Insert (proprietary)** – Many types of temporary inserts are available. Most inserts fit underneath the grate of a drop inlet or inside of a curb inlet and are fastened to the outside of the grate or curb. These inserts are removable, and many can be cleaned and reused. Installation of these inserts differs between manufacturers. Please refer to manufacturer instruction for installation of proprietary devices.

- **DI Protection Type 6 - Biofilter bags** – Biofilter bags may be used as a substitute for gravel bags in low-flow situations. Biofilter bags should conform to specifications detailed in SE-14, Biofilter bags.
 1. Construct in a gently sloping area.
 2. Biofilter bags should be placed around inlets to intercept runoff flows.
 3. All bag joints should overlap by 6 in.
 4. Leave room upstream for water to pond and for sediment to settle out.
 5. Stake bags to the ground as described in the following detail. Stakes may be omitted if bags are placed on a paved surface.
- **DI Protection Type 7 – Compost Socks** – A compost sock can be assembled on site by filling a mesh sock (e.g., with a pneumatic blower). Compost socks do not require special trenching compared to other sediment control methods (e.g., silt fence). Compost socks should conform to specification detailed in SE-13, Compost Socks and Berms.

Costs

- Average annual cost for installation and maintenance of DI Type 1-4 and 6 (one-year useful life) is \$200 per inlet.
- Temporary geotextile inserts are proprietary, and cost varies by region. These inserts can often be reused and may have greater than 1 year of use if maintained and kept undamaged. Average cost per insert ranges from \$50-75 plus installation, but costs can exceed \$100. This cost does not include maintenance.
- See SE-13 for Compost Sock cost information.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Silt Fences. If the fabric becomes clogged, torn, or degrades, it should be replaced. Make sure the stakes are securely driven in the ground and are in good shape (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes. At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height.
- Gravel Filters. If the gravel becomes clogged with sediment, it should be carefully removed from the inlet and either cleaned or replaced. Since cleaning gravel at a construction site may be difficult, consider using the sediment-laden stone as fill material and put fresh stone around the inlet. Inspect bags for holes, gashes, and snags, and replace bags as needed. Check gravel bags for proper arrangement and displacement.

- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Inspect and maintain temporary geotextile insert devices according to manufacturer's specifications.
- Remove storm drain inlet protection once the drainage area is stabilized.
 - Clean and regrade area around the inlet and clean the inside of the storm drain inlet, as it should be free of sediment and debris at the time of final inspection.

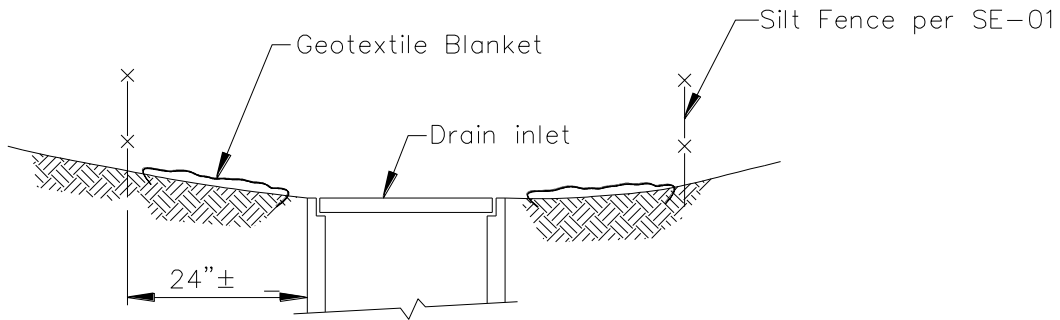
References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

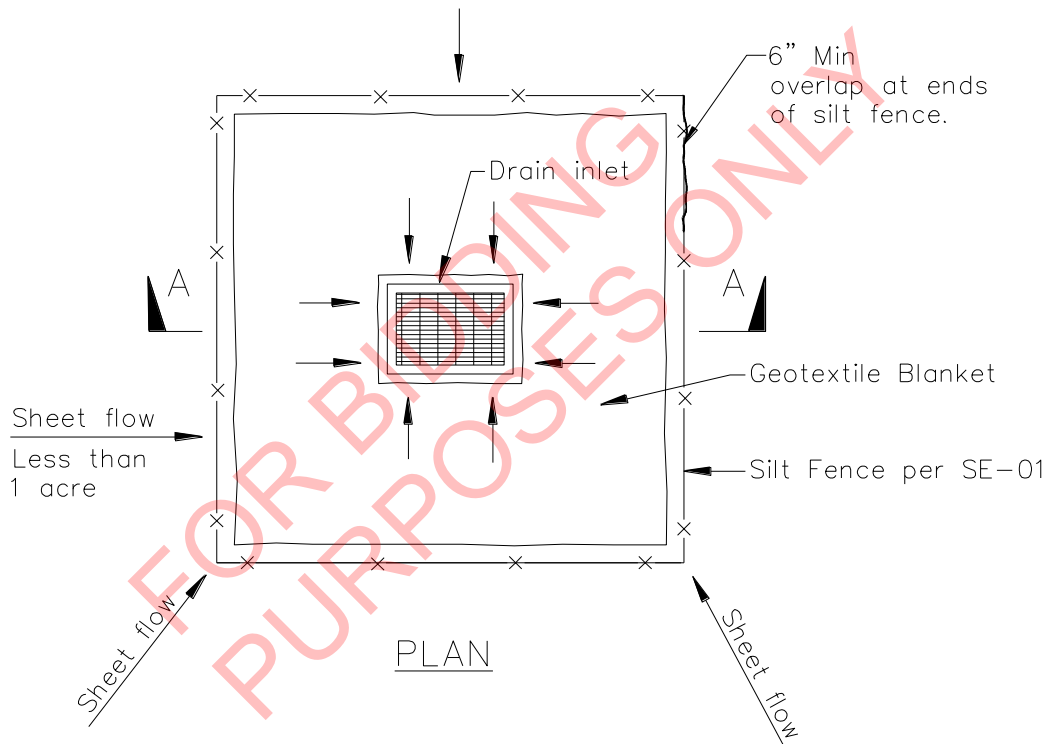
Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

FOR BIDDING
PURPOSES ONLY



SECTION A-A

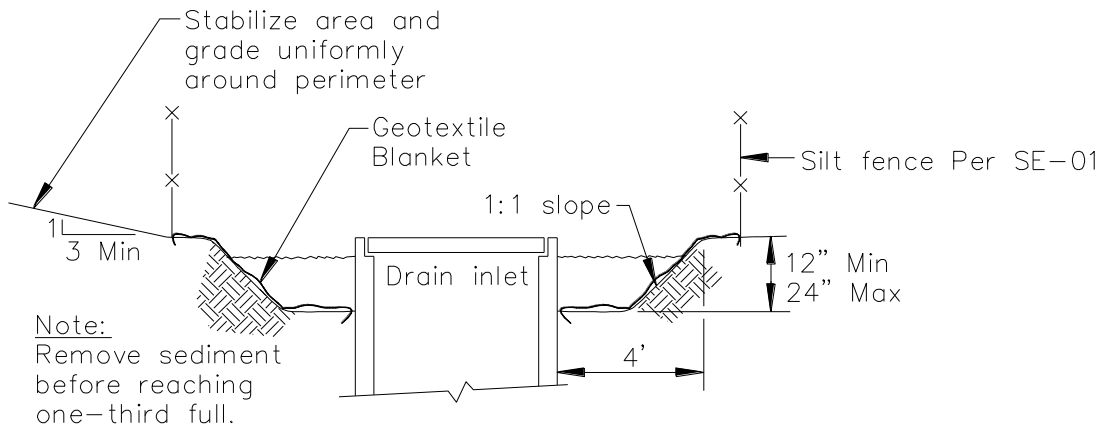


PLAN

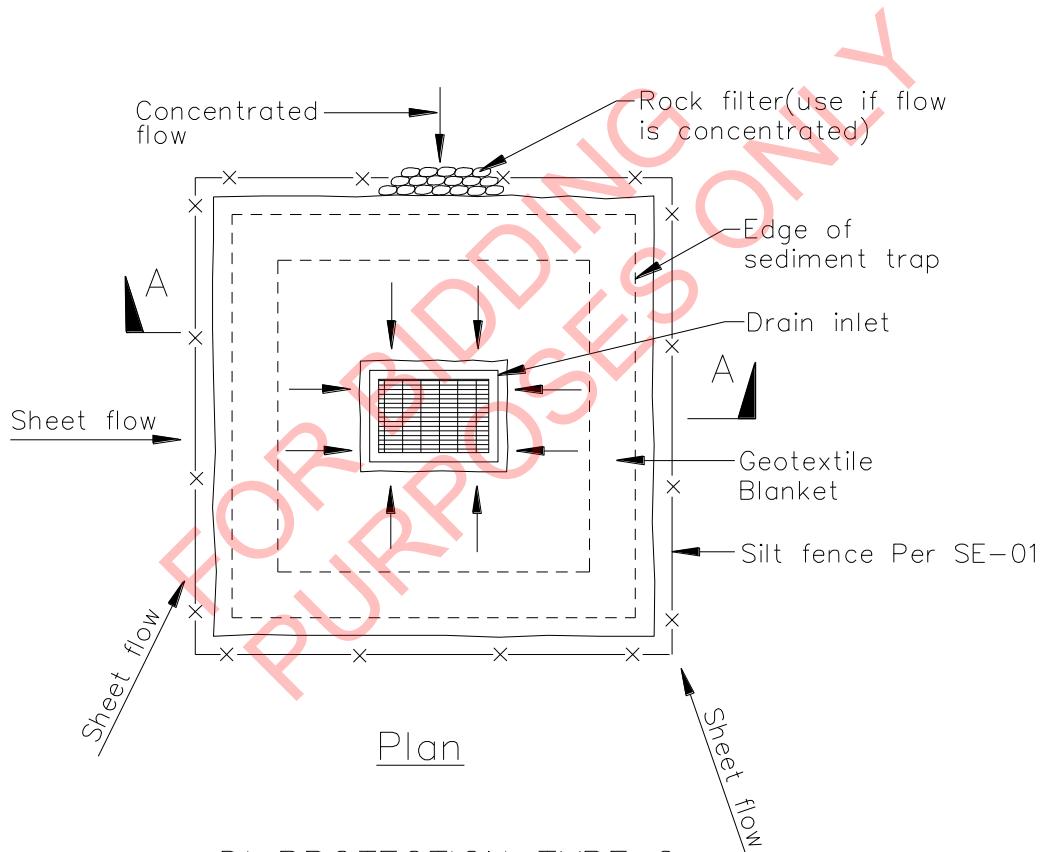
DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.



Section A-A

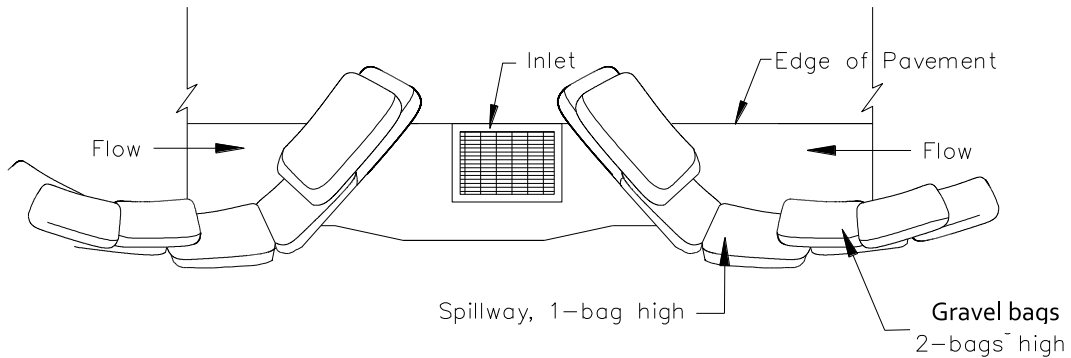


Plan

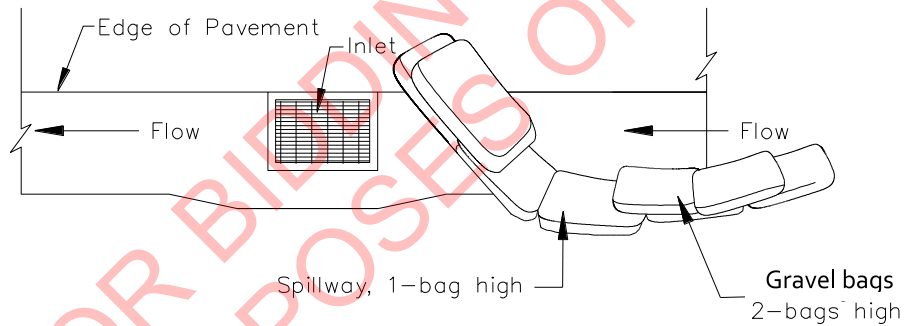
DI PROTECTION TYPE 2
NOT TO SCALE

Notes

1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



TYPICAL PROTECTION FOR INLET ON SUMP

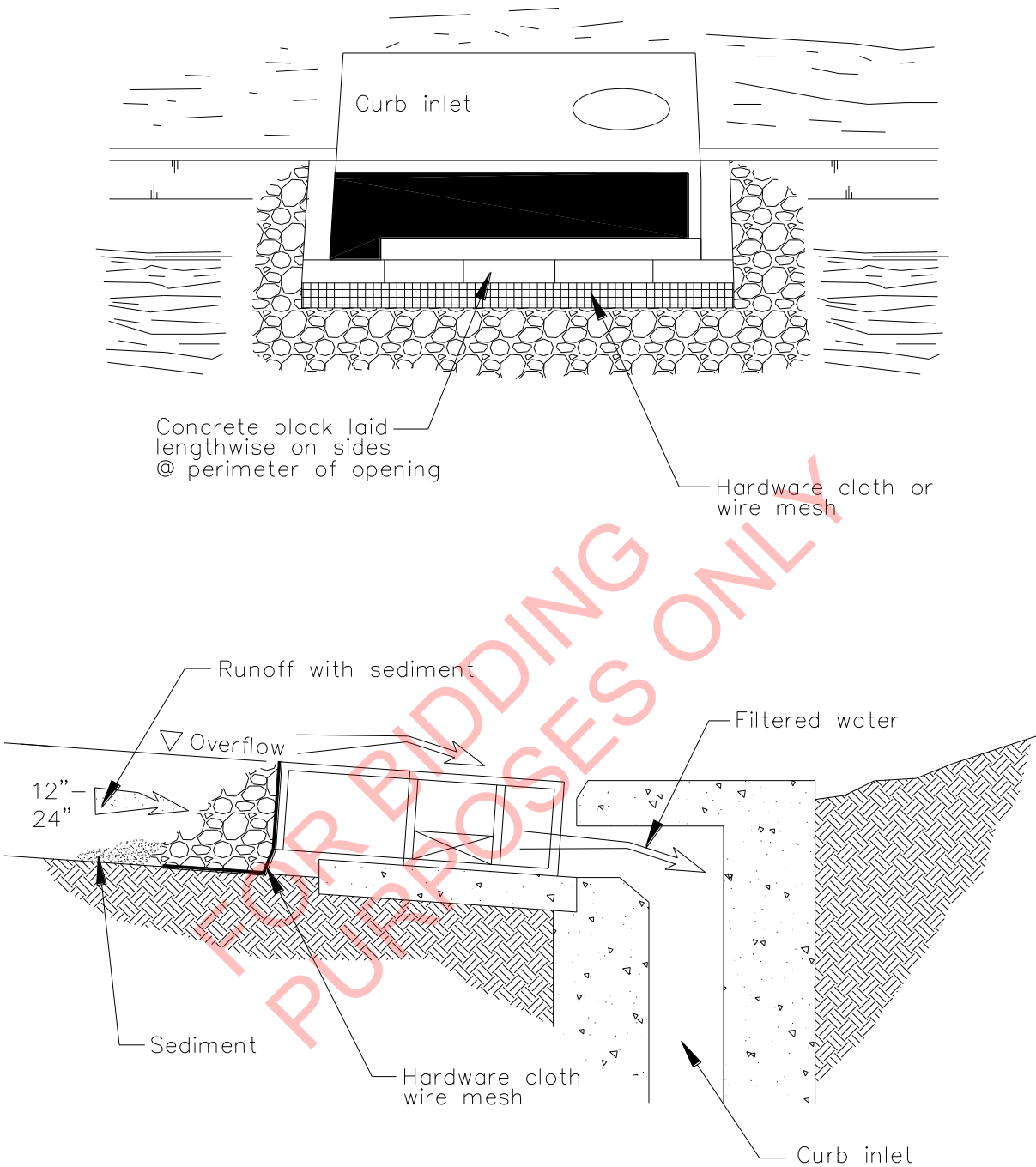


TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

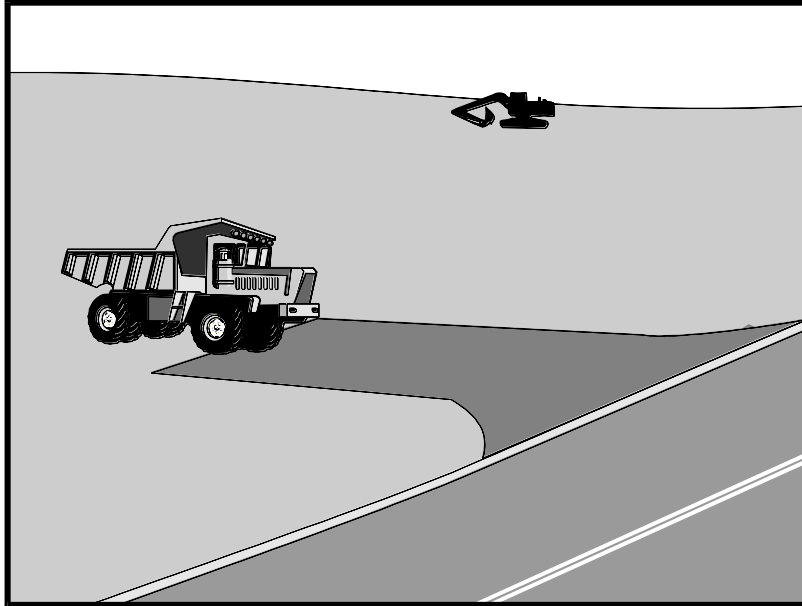
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.
6. Protection can be effective even if it is not immediately adjacent to the inlet provided that the inlet is protected from potential sources of pollution.

DI PROTECTION TYPE 3
NOT TO SCALE



DI PROTECTION — TYPE 4
NOT TO SCALE

Stabilized Construction Entrance/Exit TC-1



Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.



Stabilized Construction Entrance/Exit TC-1

Implementation

General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft or maximum site will allow, and 10 ft minimum width or to accommodate traffic.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.

Stabilized Construction Entrance/Exit TC-1

- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs

Average annual cost for installation and maintenance may vary from \$1,500 to \$6,100 each, averaging \$3,100 per entrance. Costs will increase with addition of washing rack and sediment trap. With wash rack, costs range from \$1,500 - \$7,700 each, averaging \$4,600 per entrance (All costs adjusted for inflation, 2016 dollars, by Tetra Tech Inc.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stabilized Construction Entrance/Exit TC-1

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

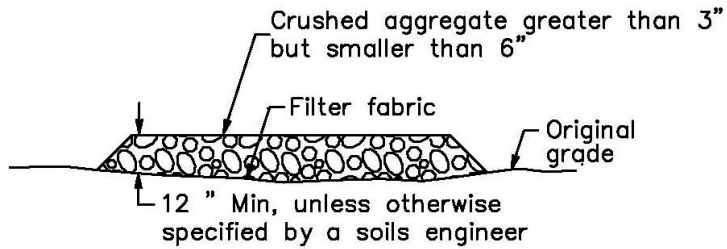
Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters, EPA 840-B-9-002, USEPA, Office of Water, Washington, DC, 1993.

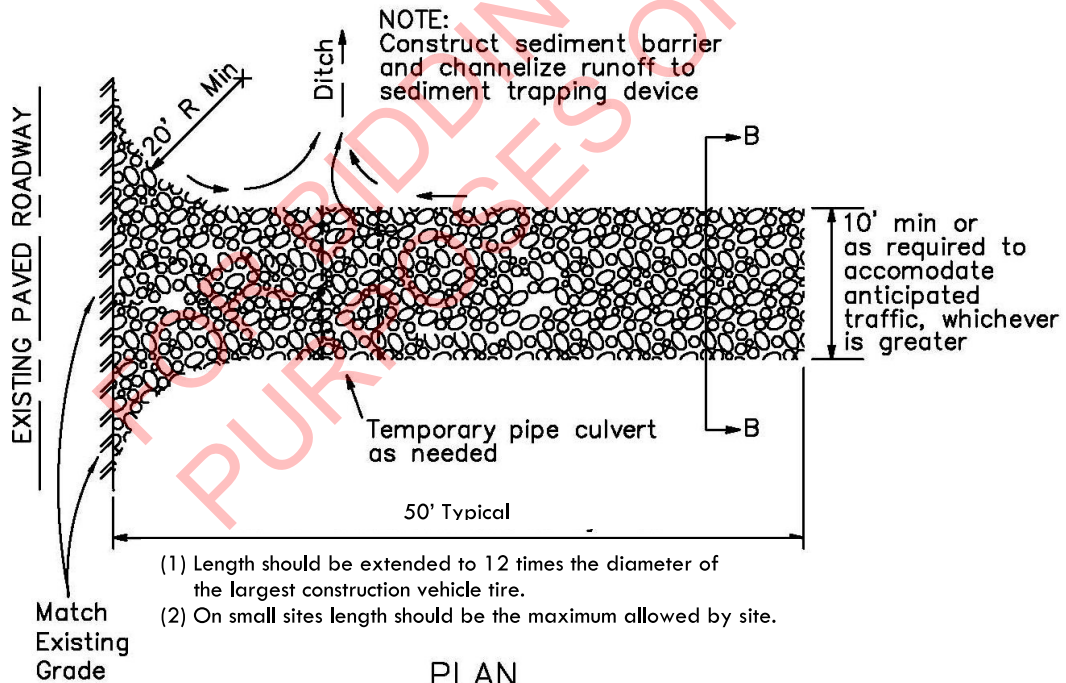
Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

FOR BIDDING
PURPOSES ONLY

Stabilized Construction Entrance/Exit TC-1

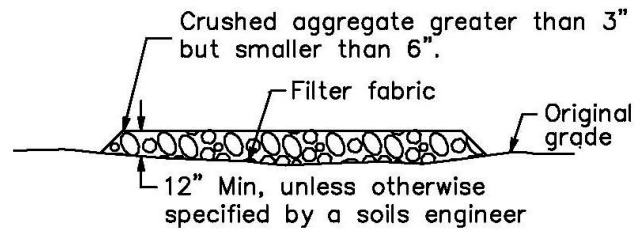


SECTION B-B
NTS

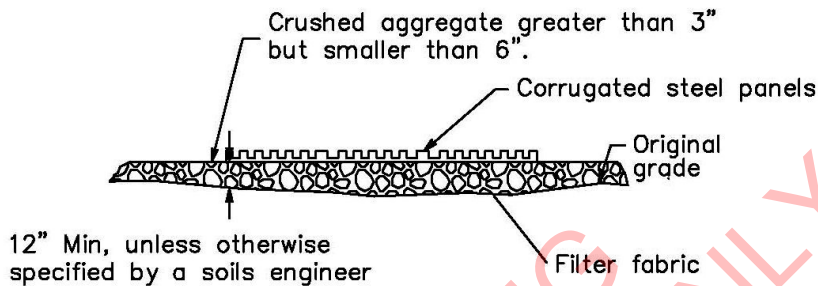


PLAN
NTS

Stabilized Construction Entrance/Exit TC-1

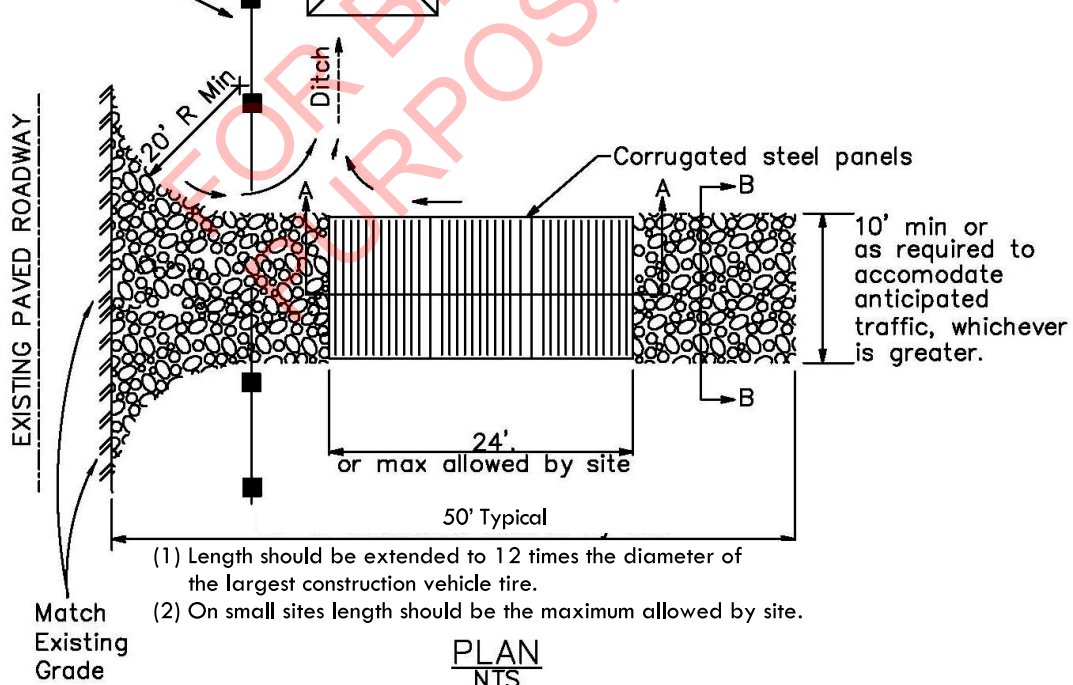
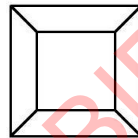


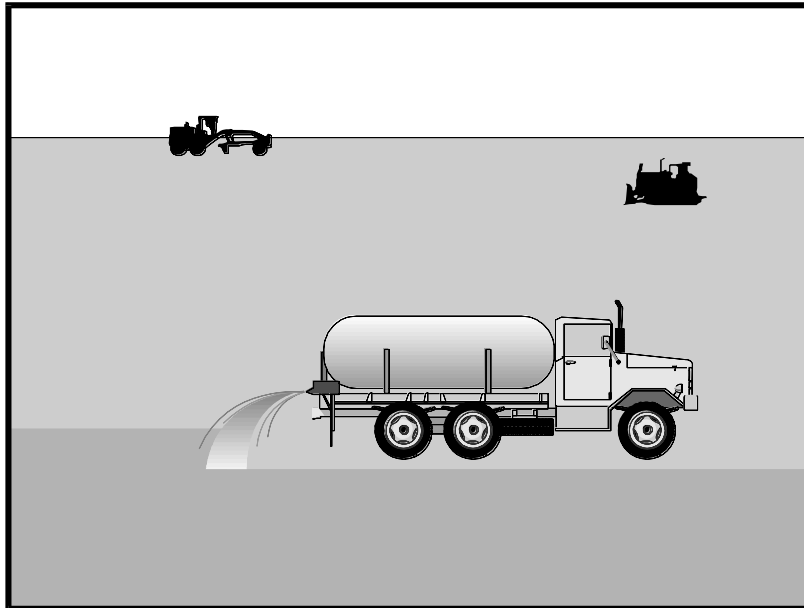
SECTION B-B
NTS



SECTION A-A
NOT TO SCALE

NOTE:
Construct sediment barrier and channelize runoff to sediment trapping device





Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking, and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water-based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Suitable Applications

Most BMPs that provide protection against water-based erosion will also protect against wind-based erosion and dust control requirements required by other agencies will generally meet wind erosion control requirements for water quality protection. Wind erosion control BMPs are suitable during the following construction activities:



- Construction vehicle traffic on unpaved roads
- Drilling and blasting activities
- Soils and debris storage piles
- Batch drop from front-end loaders
- Areas with unstabilized soil
- Final grading/site stabilization

Limitations

- Watering prevents dust only for a short period (generally less than a few hours) and should be applied daily (or more often) to be effective.
- Over watering may cause erosion and track-out.
- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil.
- Chemical dust suppression agents may have potential environmental impacts. Selected chemical dust control agents should be environmentally benign.
- Effectiveness of controls depends on soil, temperature, humidity, wind velocity and traffic.
- Chemical dust suppression agents should not be used within 100 feet of wetlands or water bodies.
- Chemically treated subgrades may make the soil water repellant, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.
- If the soil surface has minimal natural moisture, the affected area may need to be pre-wetted so that chemical dust control agents can uniformly penetrate the soil surface.

Implementation

Dust Control Practices

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. The following table presents dust control practices that can be applied to varying site conditions that could potentially cause dust. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures include minimizing surface areas to be disturbed, limiting onsite vehicle traffic to 15 mph or less, and controlling the number and activity of vehicles on a site at any given time.

Chemical dust suppressants include: mulch and fiber based dust palliatives (e.g. paper mulch with gypsum binder), salts and brines (e.g. calcium chloride, magnesium chloride), non-petroleum based organics (e.g. vegetable oil, lignosulfonate), petroleum based organics (e.g. asphalt emulsion, dust oils, petroleum resins), synthetic polymers (e.g. polyvinyl acetate, vinyl, acrylic), clay additives (e.g. bentonite, montmorillonite) and electrochemical products (e.g. enzymes, ionic products).

Site Condition	Dust Control Practices							
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel or Asphalt	Temporary Gravel Construction Entrances/Equipment Wash Down	Synthetic Covers	Minimize Extent of Disturbed Area
Disturbed Areas not Subject to Traffic	X	X	X	X	X			X
Disturbed Areas Subject to Traffic			X	X	X	X		X
Material Stockpiles		X	X	X			X	X
Demolition			X			X	X	
Clearing/Excavation			X	X				X
Truck Traffic on Unpaved Roads			X	X	X	X	X	
Tracking					X	X		

Additional preventive measures include:

- Schedule construction activities to minimize exposed area (see EC-1, Scheduling).
- Quickly treat exposed soils using water, mulching, chemical dust suppressants, or stone/gravel layering.
- Identify and stabilize key access points prior to commencement of construction.
- Minimize the impact of dust by anticipating the direction of prevailing winds.
- Restrict construction traffic to stabilized roadways within the project site, as practicable.
- Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment should be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.
- If reclaimed waste water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality

Control Board (RWQCB) requirements. Non-potable water should not be conveyed in tanks or drain pipes that will be used to convey potable water and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes, and other conveyances should be marked, "NON-POTABLE WATER - DO NOT DRINK."

- Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Provide covers for haul trucks transporting materials that contribute to dust.
- Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and wheel wash areas.
- Stabilize inactive areas of construction sites using temporary vegetation or chemical stabilization methods.

For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater and should meet all applicable regulatory requirements.

Costs

Installation costs for water and chemical dust suppression vary based on the method used and the length of effectiveness. Annual costs may be high since some of these measures are effective for only a few hours to a few days.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check areas protected to ensure coverage.
- Most water-based dust control measures require frequent application, often daily or even multiple times per day. Obtain vendor or independent information on longevity of chemical dust suppressants.

References

Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

California Air Pollution Control Laws, California Air Resources Board, updated annually.

Construction Manual, Chapter 4, Section 10, "Dust Control"; Section 17, "Watering"; and Section 18, "Dust Palliative", California Department of Transportation (Caltrans), July 2001.

Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide, California Air Resources Board, April 1991.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

FOR BIDDING
PURPOSES ONLY

Section 4

Non-Stormwater Management and Material Management BMPs

4.1 Non-Stormwater Management BMPs

The [discharge](#) of materials other than [stormwater](#) and authorized [non-stormwater discharges](#) is prohibited by NPDES regulations as well as other local codes and ordinances. It is recognized that certain authorized non-stormwater discharges may be necessary for the completion of construction projects. Such discharges include, but are not limited to, irrigation of vegetative [erosion control](#) measures, and pipe flushing and testing.

Non-stormwater management [BMPs](#) are [source control BMPs](#) that prevent pollution by limiting or reducing potential [pollutants](#) at their source or eliminating off-site discharge. These practices involve day-to-day operations of the construction site and are usually under the control of the contractor. These BMPs are also referred to as “good housekeeping practices,” which involve keeping a clean, orderly construction site.

Non-stormwater management BMPs also include procedures and practices designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, and maintenance operations to stormwater drainage systems or to watercourses.

Table 4-1 lists the non-stormwater management BMPs. All these BMPs must be implemented depending on the conditions and applicability of deployment described as part of the BMP. The key to implementing these BMPs is to maintain a clean site and keep water, runoff, and run-on away from potential pollutants, including bare soil. In general, conduct construction activities so that: potential pollutants are not discharged directly to drainage systems; generation of potential pollutants is limited; and pollutants that are generated are contained and cleaned up immediately and are therefore not available for later discharge. These BMPs are fundamental to water quality protection and all sites must implement non-stormwater BMPs appropriate for the construction activities being performed.

Table 4-1 Non-Stormwater Management BMPs

BMP#	BMP Name
NS-1	Water Conservation Practices ²
NS-2	Dewatering Operations ^{1,3}
NS-3	Paving and Grinding Operations ^{1,3}
NS-4	Temporary Stream Crossing ^{1,2}
NS-5	Clear Water Diversion ²
NS-6	Illicit Connection/Discharge ^{1,2}
NS-7	Potable Water/Irrigation ^{1,2}
NS-8	Vehicle and Equipment Cleaning ^{1,2}
NS-9	Vehicle and Equipment Fueling ^{1,2}
NS-10	Vehicle and Equipment Maintenance ^{1,2}
NS-11	Pile Driving Operations ^{1,2}
NS-12	Concrete Curing ^{1,3}
NS-13	Concrete Finishing ^{1,3}
NS-14	Material Over Water ^{1,2}
NS-15	Demolition Adjacent to Water ^{1,2}
NS-16	Temporary Batch Plants ^{1,3}
1) BMP fact sheet updated in 2009 2) BMP fact sheet updated in 2011 3) BMP fact sheet updated in 2012	

It is recommended that owners and contractors be vigilant regarding implementation of these BMPs, including making their implementation a condition of continued employment, and part of all prime and subcontract agreements. By doing so, the chance of inadvertent violation by an uncaring individual can be prevented, potentially saving thousands of dollars in fines and project delays. Also, if procedures are not properly implemented and/or if BMPs are compromised then the discharge may be subject to additional sampling and analysis requirements for non-visible pollutants contained in the [General Permit](#). (See Section 2.5.5.)

4.2 Waste Management and Materials Pollution Control BMPs

[Waste management](#) and materials pollution control BMPs, like non-stormwater management BMPs, are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with stormwater. These BMPs also involve day-to-day operations of the construction site, and are under the control of the contractor, and are additional “good housekeeping practices,” which involve keeping a clean, orderly construction site. These BMPs are fundamental to water quality protection and all sites must implement waste management and/or materials pollution control non-stormwater BMPs appropriate for the construction activities being performed.

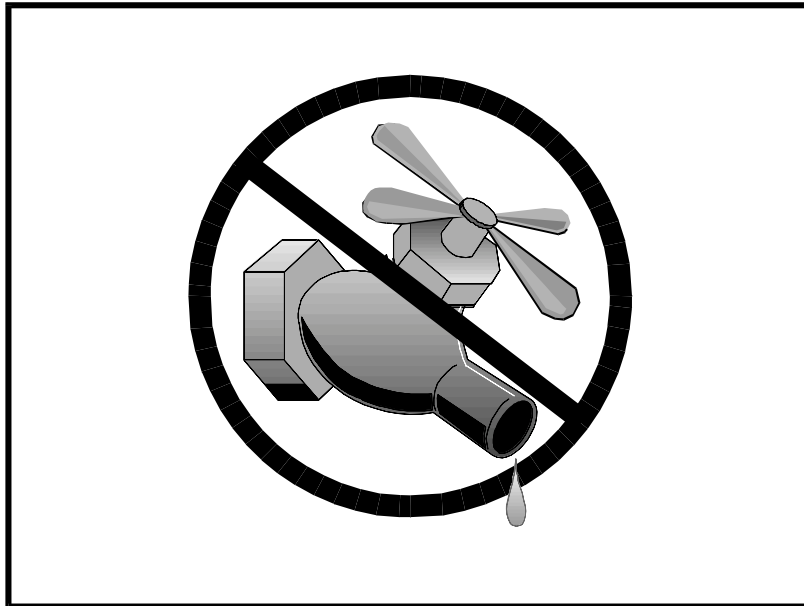
Waste management consists of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project to prevent the release of waste materials into stormwater runoff or discharges through proper management of the following types of wastes:

- Solid
- Sanitary
- Concrete
- Hazardous
- Equipment-related wastes

Materials pollution control (also called materials handling) consists of implementing procedural and structural BMPs in the handling of, storing, and the using of construction materials. The BMPs are intended to prevent the release of pollutants during stormwater and non-stormwater discharges. The objective is to prevent or reduce the opportunity for contamination of

Table 4-2 Waste Management and Materials Pollution Control BMPs

BMP#	BMP Name
WM-1	Material Delivery and Storage ¹
WM-2	Material Use ¹
WM-3	Stockpile Management ^{1, 2, 3}
WM-4	Spill Prevention and Control ^{1, 2}
WM-5	Solid Waste Management ^{1, 2}
WM-6	Hazardous Waste Management ^{1, 2}
WM-7	Contaminated Soil Management ^{1, 2}
WM-8	Concrete Waste Management ^{1, 3}
WM-9	Sanitary/ Septic Waste Management ¹
WM-10	Liquid Waste Management ¹
1) BMP fact sheet updated in 2009	
2) BMP fact sheet updated in 2011	
3) BMP fact sheet updated in 2012	



Description and Purpose

Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

Suitable Applications

Water conservation practices are suitable for all construction sites where water is used, including piped water, metered water, trucked water, and water from a reservoir.

Limitations

- None identified.

Implementation

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Washing of vehicles and equipment on the construction site is discouraged.
- Avoid using water to clean construction areas. If water must be used for cleaning or surface preparation, surface should be swept and vacuumed first to remove dirt. This will minimize amount of water required.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Direct construction water runoff to areas where it can soak into the ground or be collected and used.
- Authorized non-stormwater discharges to the storm drain system, channels, or receiving waters are acceptable with the implementation of appropriate BMPs.
- Lock water tank valves to prevent unauthorized use.

Costs

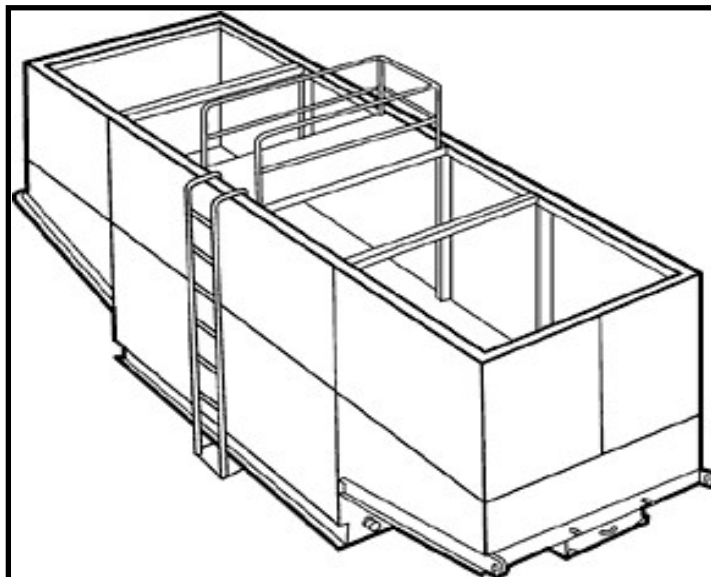
The cost is small to none compared to the benefits of conserving water.

Inspection and Maintenance

- Inspect and verify that activity based BMPs are in place prior to the commencement of authorized non-stormwater discharges.
- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges are occurring.
- Repair water equipment as needed to prevent unintended discharges.
 - Water trucks
 - Water reservoirs (water buffalos)
 - Irrigation systems
 - Hydrant connections

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.



Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Category
- Secondary Category

Description and Purpose

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation (stormwater) must be removed from a work location to proceed with construction work or to provide vector control.

The General Permit incorporates Numeric Action Levels (NAL) for turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Discharges from dewatering operations can contain high levels of fine sediment that, if not properly treated, could lead to exceedances of the General Permit requirements or Basin Plan standards.

The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

Suitable Applications

These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area to facilitate construction.

Practices identified in this section are also appropriate for implementation when managing the removal of accumulated

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

- SE-5: Fiber Roll
- SE-6: Gravel Bag Berm

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



precipitation (stormwater) from depressed areas at a construction site.

Stormwater mixed with non-stormwater should be managed as non-stormwater.

Limitations

- Dewatering operations will require and should comply with applicable local and project-specific permits and regulations. In some areas, all dewatering activities, regardless of the discharge volume, require a dewatering permit.
- Site conditions will dictate design and use of dewatering operations.
- The controls discussed in this fact sheet primarily address sediment. Other secondary pollutant removal benefits are discussed where applicable.
- The controls detailed in this fact sheet only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods.
- Avoid dewatering discharges where possible by using the water for dust control.

Implementation

- A Construction Site Monitoring Plan (CSMP) should be included in the project Stormwater Pollution Prevention Plan (SWPPP).
- Regional Water Quality Control Board (RWQCB) Regions may require notification and approval prior to any discharge of water from construction sites.
- The destination of discharge from dewatering activities will typically determine the type of permit required for the discharge. For example, when discharging to a water of the U.S., a dewatering permit may be required through the site's governing RWQCB. When discharging to a sanitary sewer or Municipal Separate Storm Sewer System (MS4), a permit may need to be obtained from the owner of the sanitary sewer or MS4 in addition to obtaining an RWQCB dewatering permit. Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges should not cause erosion at the discharge point. Appropriate BMPs should be implemented to maintain compliance with all applicable permits.
- Maintain dewatering records in accordance with all local and project-specific permits and regulations.

Sediment Treatment

A variety of methods can be used to treat water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The sediment particle size and permit or receiving water limitations on sediment or turbidity are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate. Use of other enhanced treatment methods (i.e., introduction of chemicals or electric current to enhance flocculation and removal of sediment) must comply with: 1) for storm drain or surface water discharges, the requirements for Active Treatment Systems (see SE-11); or 2) for sanitary sewer discharges, the requirements of applicable sanitary sewer discharge permits.

Sediment Basin (see also SE-2)

Description:

- A sediment basin is a temporary basin with a controlled release structure that is formed by excavation or construction of an embankment to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment basins are generally larger than Sediment Traps (SE-3) and have a designed outlet structure.

Appropriate Applications:

- Effective for the removal of trash, gravel, sand, silt, some metals that settle out with the sediment.

Implementation:

- Excavation and construction of related facilities is required.
- Temporary sediment basins should be fenced if safety is a concern.
- Outlet protection is required to prevent erosion at the outfall location.

Maintenance:

- Maintenance is required for safety fencing, vegetation, embankment, inlet and outlet, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-third.

Sediment Trap (See also SE-3)

Description:

- A sediment trap is a temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment traps are generally smaller than Sediment Basins (SE-2) and do not have a designed outlet (but do have a spillway or overflow).

Appropriate Applications:

Effective for the removal of large and medium sized particles (sand and gravel) and some metals that settle out with the sediment.

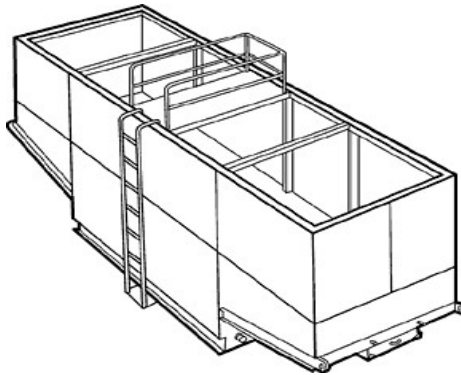
Implementation:

- Excavation and construction of related facilities is required.
- Trap inlets should be located to maximize the travel distance to the trap outlet.
- Use rock or vegetation to protect the trap outlets against erosion.

Maintenance:

- Maintenance is required for vegetation, embankment, inlet and outfall structures, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-third.

Weir Tanks



Description:

- A weir tank separates water and waste by using weirs. The configuration of the weirs (over and under weirs) maximizes the residence time in the tank and determines the waste to be removed from the water, such as oil, grease, and sediments.

Appropriate Applications:

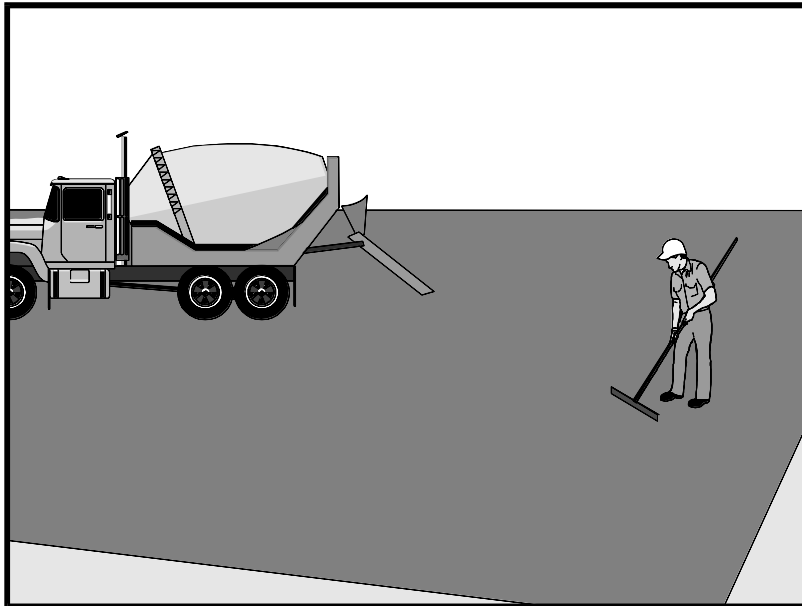
- The tank removes trash, some settleable solids (gravel, sand, and silt), some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

Implementation:

- Tanks are delivered to the site by the vendor, who can provide assistance with set-up and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. Vendors should be consulted to appropriately size tank.
- Treatment capacity (i.e., volume and number of tanks) should provide at a minimum the required volume for discrete particle settling for treatment design flows.

Maintenance:

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal should be conducted by a licensed waste disposal company.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category**
- Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runoff and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

The General Permit incorporates Numeric Action Levels (NAL) for pH and turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials associated with paving and grinding operations, including mortar, concrete, and cement and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Paving opportunities may be limited during wet weather.

Discharges of freshly paved surfaces may raise pH to environmentally harmful levels and trigger permit violations.



Implementation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is forecasted.
- Train employees and sub-contractors in pollution prevention and reduction.
- Store materials away from drainage courses to prevent stormwater runoff (see WM-1, Material Delivery and Storage).
- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses. These materials should be stored consistent with WM-3, Stockpile Management.
- Disposal of PCC (Portland cement concrete) and AC (asphalt concrete) waste should be in conformance with WM-8, Concrete Waste Management.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials:
 - AC grindings, pieces, or chunks used in embankments or shoulder backing should not be allowed to enter any storm drains or watercourses. Install inlet protection and perimeter controls until area is stabilized (i.e. cutting, grinding or other removal activities are complete and loose material has been properly removed and disposed of) or permanent controls are in place. Examples of temporary perimeter controls can be found in EC-9, Earth Dikes and Drainage Swales; SE-1, Silt Fence; SE-5, Fiber Rolls, or SE-13 Compost Socks and Berms
 - Collect and remove all broken asphalt and recycle when practical. Old or spilled asphalt should be recycled or disposed of properly.
- Do not allow saw-cut slurry to enter storm drains or watercourses. Residue from grinding operations should be picked up by a vacuum attachment to the grinding machine, or by sweeping, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM-8, Concrete Waste Management, and WM-10, Liquid Waste Management.
- Pavement removal activities should not be conducted in the rain.
- Collect removed pavement material by mechanical or manual methods. This material may be recycled for use as shoulder backing or base material.

- If removed pavement material cannot be recycled, transport the material back to an approved storage site.

Asphaltic Concrete Paving

- If paving involves asphaltic cement concrete, follow these steps:
 - Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or creeks. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM-5, Solid Waste Management.
 - Old asphalt should be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

Portland Cement Concrete Paving

- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect waste materials by dry methods, such as sweeping or shoveling, and return to aggregate base stockpile or dispose of properly. Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in WM-8, Concrete Waste Management, or pump the water to the sanitary sewer if authorized by the local wastewater authority.

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate should not be allowed to enter any storm drain or water courses. Apply temporary perimeter controls until structure is stabilized (i.e. all sealing operations are complete and cured and loose materials have been properly removed and disposed).
- Inlet protection (SE-10, Storm Drain Inlet Protection) should be used during application of seal coat, tack coat, slurry seal, and fog seal.
- Seal coat, tack coat, slurry seal, or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials and dispose of in accordance with the applicable regulations. See NS-10, Vehicle and Equipment Maintenance, WM-4, Spill Prevention and Control, and WM-10, Liquid Waste Management.
- Substances used to coat asphalt transport trucks and asphalt spreading equipment should not contain soap and should be non-foaming and non-toxic.
- Paving equipment parked onsite should be parked over plastic to prevent soil contamination.
- Clean asphalt coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM-5, Solid Waste Management. Any cleaning onsite should follow NS-8, Vehicle and Equipment Cleaning.

Thermoplastic Striping

- Thermoplastic striper and pre-heater equipment shutoff valves should be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Pre-heaters should be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible, recycle thermoplastic material.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system, or watercourses.
- Melting tanks should be loaded with care and not filled to beyond six inches from the top to leave room for splashing.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

Costs

- All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of paving and grinding operations.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sample stormwater runoff required by the General Permit.
- Keep ample supplies of drip pans or absorbent materials onsite.
- Inspect and maintain machinery regularly to minimize leaks and drips.

References

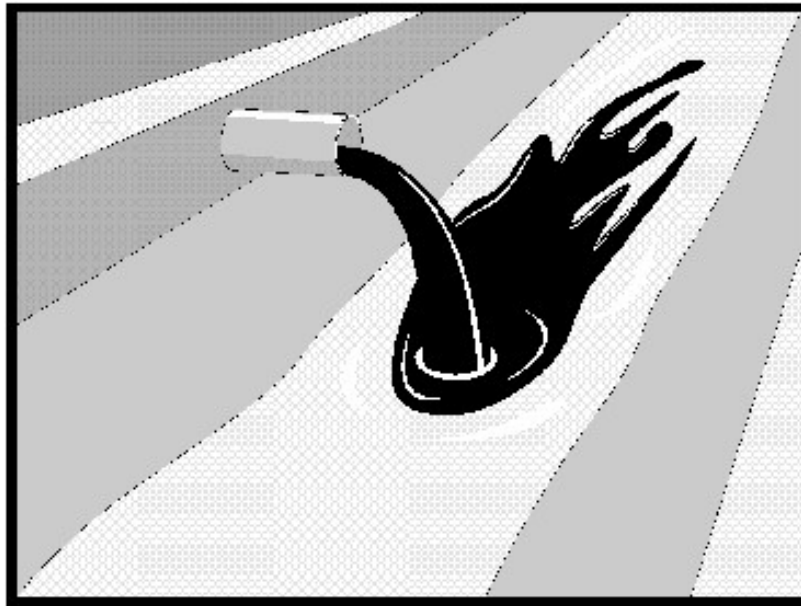
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Hot Mix Asphalt-Paving Handbook AC 150/5370-14, Appendix I, U.S. Army Corps of Engineers, July 1991.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Illicit connection/discharge and reporting is applicable anytime an illicit connection or discharge is discovered, or illegally dumped material is found on the construction site.

Limitations

Illicit connections and illegal discharges or dumping, for the purposes of this BMP, refer to discharges and dumping caused by parties other than the contractor. If pre-existing hazardous materials or wastes are known to exist onsite, they should be identified in the SWPPP and handled as set forth in the SWPPP.

Implementation

Planning

- Review the SWPPP. Pre-existing areas of contamination should be identified and documented in the SWPPP.
- Inspect site before beginning the job for evidence of illicit connections, illegal dumping or discharges. Document any pre-existing conditions and notify the owner.



- Inspect site regularly during project execution for evidence of illicit connections, illegal dumping or discharges.
- Observe site perimeter for evidence for potential of illicitly discharged or illegally dumped material, which may enter the job site.

Identification of Illicit Connections and Illegal Dumping or Discharges

- **General** – unlabeled and unidentifiable material should be treated as hazardous.
- **Solids** - Look for debris, or rubbish piles. Solid waste dumping often occurs on roadways with light traffic loads or in areas not easily visible from the traveled way.
- **Liquids** - signs of illegal liquid dumping or discharge can include:
 - Visible signs of staining or unusual colors to the pavement or surrounding adjacent soils
 - Pungent odors coming from the drainage systems
 - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
 - Abnormal water flow during the dry weather season
- **Urban Areas** - Evidence of illicit connections or illegal discharges is typically detected at storm drain outfall locations or at manholes. Signs of an illicit connection or illegal discharge can include:
 - Abnormal water flow during the dry weather season
 - Unusual flows in sub drain systems used for dewatering
 - Pungent odors coming from the drainage systems
 - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
 - Excessive sediment deposits, particularly adjacent to or near active offsite construction projects
- **Rural Areas** - Illicit connections or illegal discharges involving irrigation drainage ditches are detected by visual inspections. Signs of an illicit discharge can include:
 - Abnormal water flow during the non-irrigation season
 - Non-standard junction structures
 - Broken concrete or other disturbances at or near junction structures

Reporting

Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery. For illicit connections or discharges to the storm drain system, notify the local stormwater management agency. For illegal dumping, notify the local law enforcement agency.

Cleanup and Removal

The responsibility for cleanup and removal of illicit or illegal dumping or discharges will vary by location. Contact the local stormwater management agency for further information.

Costs

Costs to look for and report illicit connections and illegal discharges and dumping are low. The best way to avoid costs associated with illicit connections and illegal discharges and dumping is to keep the project perimeters secure to prevent access to the site, to observe the site for vehicles that should not be there, and to document any waste or hazardous materials that exist onsite before taking possession of the site.

Inspection and Maintenance

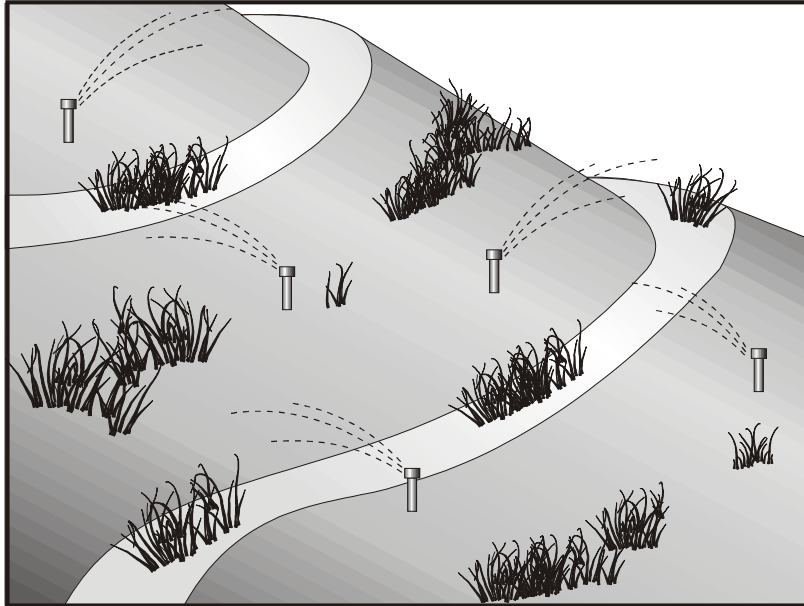
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect the site regularly to check for any illegal dumping or discharge.
- Prohibit employees and subcontractors from disposing of non-job-related debris or materials at the construction site.
- Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective**
- Secondary Objective**

Description and Purpose

Potable Water/Irrigation consists of practices and procedures to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.

Suitable Applications

Implement this BMP whenever potable water or irrigation water discharges occur at or enter a construction site.

Limitations

None identified.

Implementation

- Direct water from offsite sources around or through a construction site, where feasible, in a way that minimizes contact with the construction site.
- Discharges from water line flushing should be reused for landscaping purposes where feasible.
- Shut off the water source to broken lines, sprinklers, or valves as soon as possible to prevent excess water flow.
- Protect downstream stormwater drainage systems and watercourses from water pumped or bailed from trenches excavated to repair water lines.

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Inspect irrigated areas within the construction limits for excess watering. Adjust watering times and schedules to ensure that the appropriate amount of water is being used and to minimize runoff. Consider factors such as soil structure, grade, time of year, and type of plant material in determining the proper amounts of water for a specific area.

Costs

Cost to manage potable water and irrigation are low and generally considered to be a normal part of related activities.

Inspection and Maintenance

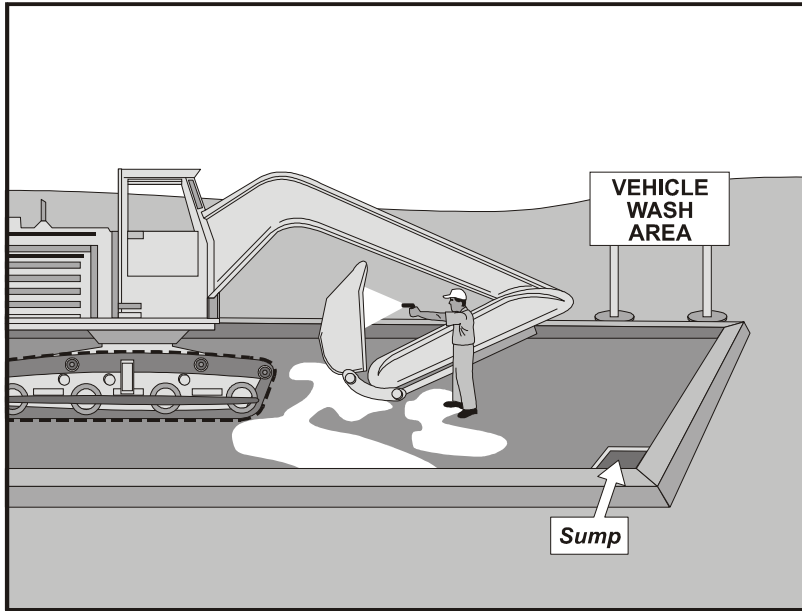
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Repair broken water lines as soon as possible.
- Inspect irrigated areas regularly for signs of erosion and/or discharge.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.



Description and Purpose

Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Implementation

Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning onsite. Steam cleaning can generate significant pollutant concentrates.
- Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried and must be captured and recycled or disposed according to the requirements of WM-10, Liquid Waste Management or WM-6, Hazardous Waste Management, depending on the waste characteristics. Minimize use of solvents. Use of diesel for vehicle and equipment cleaning is prohibited.
- All vehicles and equipment that regularly enter and leave the construction site must be cleaned offsite.
- When vehicle and equipment washing and cleaning must occur onsite, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area should have the following characteristics:
 - Located away from storm drain inlets, drainage facilities, or watercourses
 - Paved with concrete or asphalt and bermed to contain wash waters and to prevent runoff
 - Configured with a sump to allow collection and disposal of wash water
 - No discharge of wash waters to storm drains or watercourses
 - Used only when necessary
- When cleaning vehicles and equipment with water:
 - Use as little water as possible. High-pressure sprayers may use less water than a hose and should be considered
 - Use positive shutoff valve to minimize water usage
 - Facility wash racks should discharge to a sanitary sewer, recycle system or other approved discharge system and must not discharge to the storm drainage system, watercourses, or to groundwater

Costs

Cleaning vehicles and equipment at an offsite facility may reduce overall costs for vehicle and equipment cleaning by eliminating the need to provide similar services onsite. When onsite cleaning is needed, the cost to establish appropriate facilities is relatively low on larger, long-duration projects, and moderate to high on small, short-duration projects.

Inspection and Maintenance

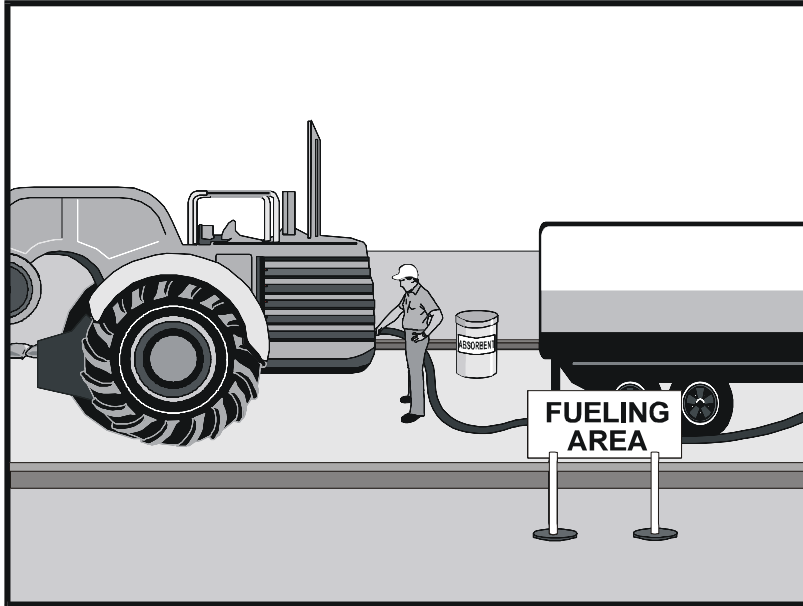
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspection and maintenance is minimal, although some berm repair may be necessary.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed.
- Prohibit employees and subcontractors from washing personal vehicles and equipment on the construction site.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Swisher, R.D. Surfactant Biodegradation, Marcel Decker Corporation, 1987.

FOR BIDDING ONLY
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment fueling takes place.

Limitations

Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/ Exit.

Implementation

- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage “topping-off” of fuel tanks.



- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the adsorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and large excavators, most vehicles should be able to travel to a designated area with little lost time.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- When fueling must take place onsite, designate an area away from drainage courses to be used. Fueling areas should be identified in the SWPPP.
- Dedicated fueling areas should be protected from stormwater runoff and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.
- Protect fueling areas with berms and dikes to prevent runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts (AQMD).
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Costs

- All of the above measures are low cost except for the capital costs of above ground tanks that meet all local environmental, zoning, and fire codes.

Inspection and Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately, or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.

- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

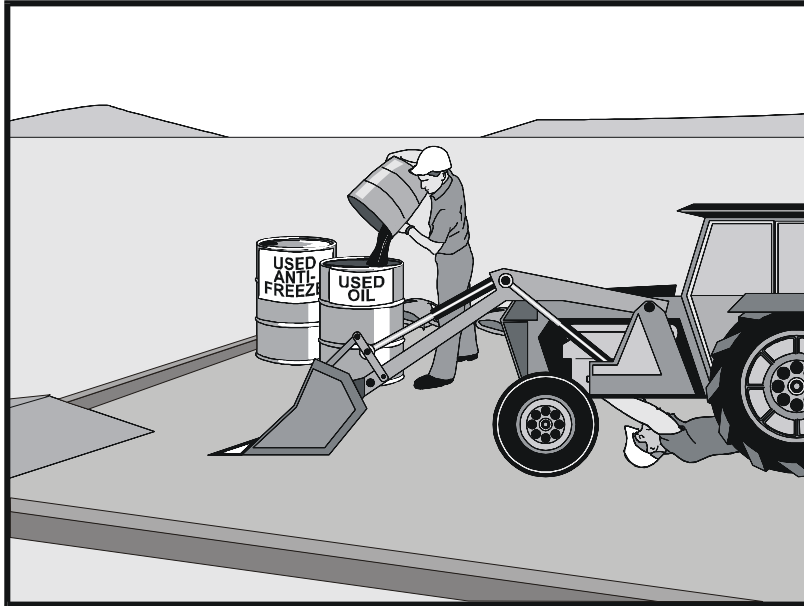
Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING
PURPOSES ONLY

Vehicle & Equipment Maintenance NS-10



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a “dry and clean site”. The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

Suitable Applications

These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Limitations

Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Outdoor vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). For further information on vehicle or equipment servicing, see NS-8,



Vehicle & Equipment Maintenance NS-10

Vehicle and Equipment Cleaning, and NS-9, Vehicle and Equipment Fueling.

Implementation

- Use offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate maintenance area.
- If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runoff and should be located at least 50 ft from downstream drainage facilities and watercourses.
- Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices.
- Use adsorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately.
- Keep vehicles and equipment clean; do not allow excessive build-up of oil and grease.
- Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite.
- Train employees and subcontractors in proper maintenance and spill cleanup procedures.
- Drip pans or plastic sheeting should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour.
- For long-term projects, consider using portable tents or covers over maintenance areas if maintenance cannot be performed offsite.
- Consider use of new, alternative greases and lubricants, such as adhesive greases, for chassis lubrication and fifth-wheel lubrication.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose of or recycle used batteries.
- Do not bury used tires.

Vehicle & Equipment Maintenance NS-10

- Repair leaks of fluids and oil immediately.

Listed below is further information if you must perform vehicle or equipment maintenance onsite.

Safer Alternative Products

- Consider products that are less toxic or hazardous than regular products. These products are often sold under an “environmentally friendly” label.
- Consider use of grease substitutes for lubrication of truck fifth-wheels. Follow manufacturers label for details on specific uses.
- Consider use of plastic friction plates on truck fifth-wheels in lieu of grease. Follow manufacturers label for details on specific uses.

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, trichloroethane, or methylene chloride. Many of these cleaners are listed in California Toxic Rule as priority pollutants. These materials are harmful and must not contaminate stormwater. They must be disposed of as a hazardous waste. Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents. Also, if possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. For example, replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check the list of active ingredients to see whether it contains chlorinated solvents. The “chlor” term indicates that the solvent is chlorinated. Also, try substituting a wire brush for solvents to clean parts.

Recycling and Disposal

Separating wastes allows for easier recycling and may reduce disposal costs. Keep hazardous wastes separate, do not mix used oil solvents, and keep chlorinated solvents (like, -trichloroethane) separate from non-chlorinated solvents (like kerosene and mineral spirits). Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around. Provide cover and secondary containment until these materials can be removed from the site.

Oil filters can be recycled. Ask your oil supplier or recycler about recycling oil filters.

Do not dispose of extra paints and coatings by dumping liquid onto the ground or throwing it into dumpsters. Allow coatings to dry or harden before disposal into covered dumpsters.

Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Costs

All of the above are low cost measures. Higher costs are incurred to setup and maintain onsite maintenance areas.

Vehicle & Equipment Maintenance NS-10

Inspection and Maintenance

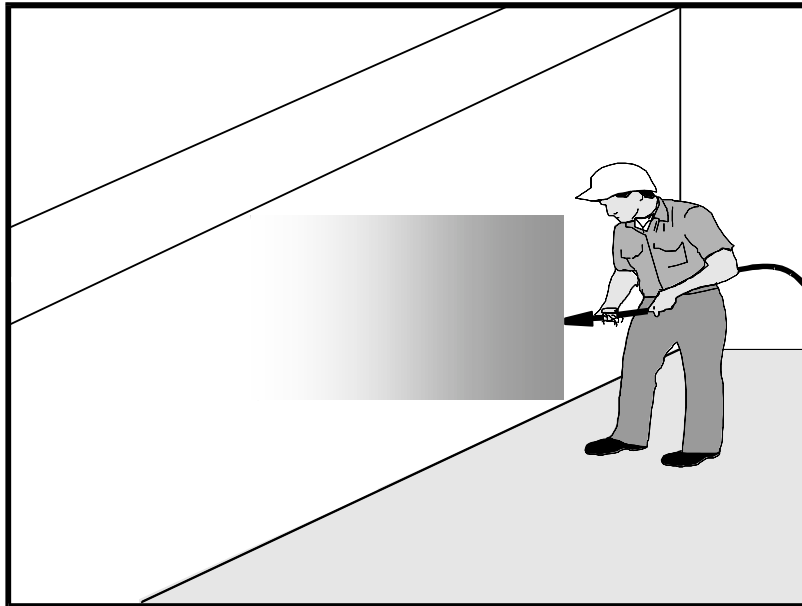
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Keep ample supplies of spill cleanup materials onsite.
- Maintain waste fluid containers in leak proof condition.
- Vehicles and equipment should be inspected on each day of use. Leaks should be repaired immediately, or the problem vehicle(s) or equipment should be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

Description and Purpose

Concrete curing is used in the construction of structures such as bridges, retaining walls, pump houses, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods.

Concrete and its associated curing materials have basic chemical properties that can raise the pH of water to levels outside of the permitted range. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Proper procedures and care should be taken when managing concrete curing materials to prevent them from coming into contact with stormwater flows, which could result in a high pH discharge.

Suitable Applications

Suitable applications include all projects where Portland Cement Concrete (PCC) and concrete curing chemicals are placed where they can be exposed to rainfall, runoff from other areas, or where runoff from the PCC will leave the site.

Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Implementation

Chemical Curing

- Avoid over spray of curing compounds.
- Minimize the drift by applying the curing compound close to the concrete surface. Apply an amount of compound that covers the surface but does not allow any runoff of the compound.
- Use proper storage and handling techniques for concrete curing compounds. Refer to WM-1, Material Delivery and Storage.
- Protect drain inlets prior to the application of curing compounds.
- Refer to WM-4, Spill Prevention and Control.

Water Curing for Bridge Decks, Retaining Walls, and other Structures

- Direct cure water away from inlets and watercourses to collection areas for evaporation or other means of removal in accordance with all applicable permits. See WM-8 Concrete Waste Management.
- Collect cure water at the top of slopes and transport to a concrete waste management area in a non-erosive manner. See EC-9 Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.
- Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.

Education

- Educate employees, subcontractors, and suppliers on proper concrete curing techniques to prevent contact with discharge as described herein.
- Arrange for the QSP or the appropriately trained contractor's superintendent or representative to oversee and enforce concrete curing procedures.

Costs

All of the above measures are generally low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Sample non-stormwater discharges and stormwater runoff that contacts uncured and partially cured concrete as required by the General Permit.

- Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
- Inspect cure containers and spraying equipment for leaks.

References

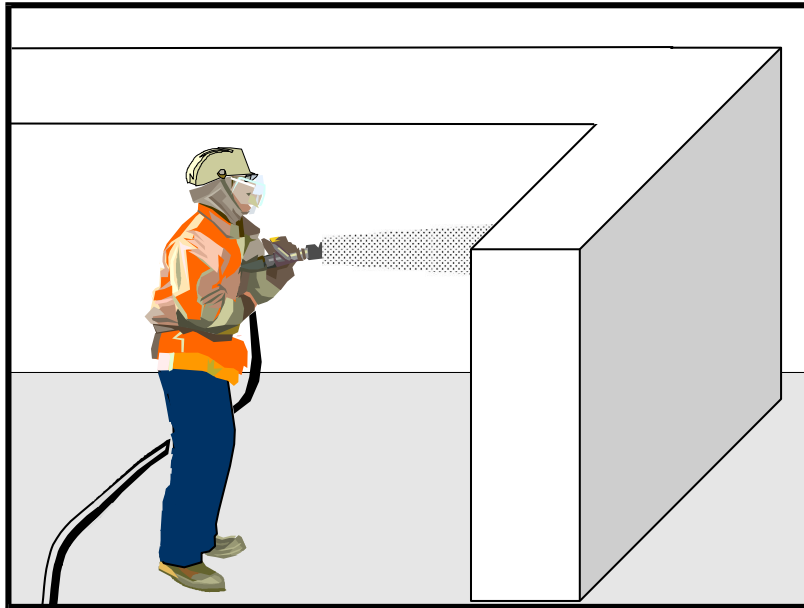
Blue Print for a Clean Bay-Construction-Related Industries: Best Management Practices for Stormwater Pollution Prevention; Santa Clara Valley Non-Point Source Pollution Control Program, 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

Description and Purpose

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high-pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Concrete and its associated curing materials have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures apply to all construction locations where concrete finishing operations are performed.

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

Implementation

- Collect and properly dispose of water from high-pressure water blasting operations.
- Collect contaminated water from blasting operations at the top of slopes. Transport or dispose of contaminated water while using BMPs such as those for erosion control. Refer to EC-9, Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.
- Direct water from blasting operations away from inlets and watercourses to collection areas for infiltration or other means of removal (dewatering). Refer to NS-2 Dewatering Operations.
- Protect inlets during sandblasting operations. Refer to SE-10, Storm Drain Inlet Protection.
- Refer to WM-8, Concrete Waste Management for disposal of concrete debris.
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste, refer to WM-6, Hazardous Waste Management.

Education

- Educate employees, subcontractors, and suppliers on proper concrete finishing techniques to prevent contact with discharge as described herein.
- Arrange for the QSP or the appropriately trained contractor's superintendent or representative to oversee and enforce concrete finishing procedures.

Costs

These measures are generally of low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Sample non-stormwater discharges and stormwater runoff that contacts concrete dust and debris as required by the General Permit.

- Sweep or vacuum up debris from sandblasting at the end of each shift.
- At the end of each work shift, remove and contain liquid and solid waste from containment structures, if any, and from the general work area.
- Inspect containment structures for damage prior to use and prior to onset of forecasted rain.

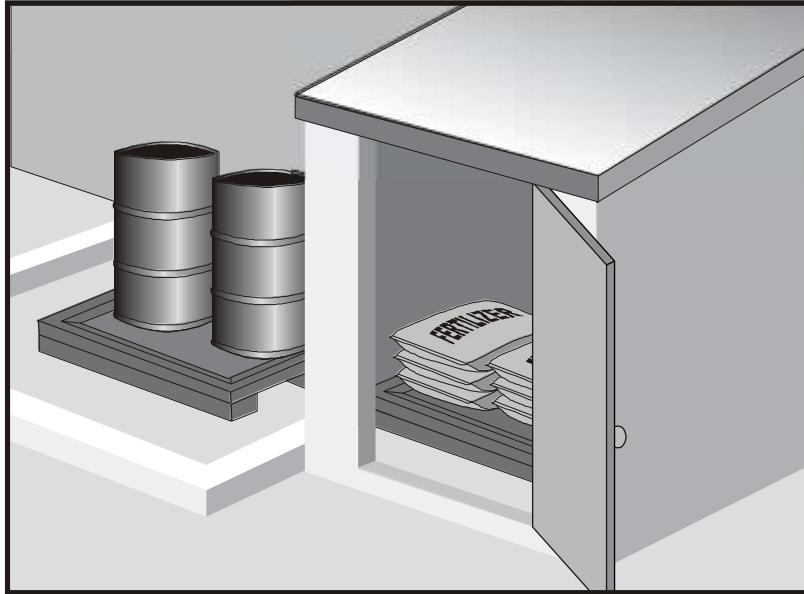
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Asphalt and concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Limitations

- Space limitation may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

Implementation

The following steps should be taken to minimize risk:

- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed.
- When a material storage area is located on bare soil, the area should be lined and bermed.
- Use containment pallets or other practical and available solutions, such as storing materials within newly constructed buildings or garages, to meet material storage requirements.
- Stack erodible landscape material on pallets and cover when not in use.
- Contain all fertilizers and other landscape materials when not in use.
- Temporary storage areas should be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) should be available on-site for all materials stored that have the potential to effect water quality.
- Construction site areas should be designated for material delivery and storage.
- Material delivery and storage areas should be located away from waterways, if possible.
 - Avoid transport near drainage paths or waterways.
 - Surround with earth berms or other appropriate containment BMP. See EC-9, Earth Dikes and Drainage Swales.
 - Place in an area that will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- An up to date inventory of materials delivered and stored onsite should be kept.

- Hazardous materials storage onsite should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- Keep ample spill cleanup supplies appropriate for the materials being stored. Ensure that cleanup supplies are in a conspicuous, labeled area.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquid chemicals are unloaded.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose of materials and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Materials should be covered prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.

- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or completely enclosed storage sheds when available.
- Proper storage instructions should be posted at all times in an open and conspicuous location.
- An ample supply of appropriate spill clean up material should be kept near storage areas.
- Also see WM-6, Hazardous Waste Management, for storing of hazardous wastes.

Material Delivery Practices

- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup

- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.
- If spills or leaks of materials occur that are not contained and could discharge to surface waters, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

Cost

- The largest cost of implementation may be in the construction of a materials storage area that is covered and provides secondary containment.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep storage areas clean and well organized, including a current list of all materials onsite.
- Inspect labels on containers for legibility and accuracy.

- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.

References

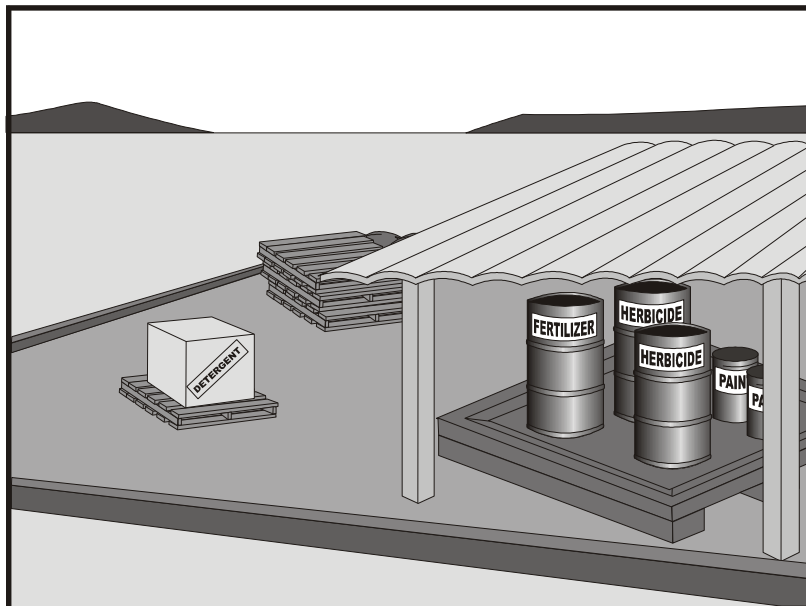
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Other materials that may be detrimental if released to the environment

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Limitations

Safer alternative building and construction products may not be available or suitable in every instance.

Implementation

The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train personnel who use pesticides. The California Department of Pesticide Regulation and county agricultural commissioners license pesticide dealers, certify pesticide applicators, and conduct onsite inspections.
- The preferred method of termiticide application is soil injection near the existing or proposed structure foundation/slab; however, if not feasible, soil drench application of termiticides should follow EPA label guidelines and the following recommendations (most of which are applicable to most pesticide applications):
 - Do not treat soil that is water-saturated or frozen.
 - Application shall not commence within 24-hours of a predicted precipitation event with a 40% or greater probability. Weather tracking must be performed on a daily basis prior to termiticide application and during the period of termiticide application.
 - Do not allow treatment chemicals to runoff from the target area. Apply proper quantity to prevent excess runoff. Provide containment for and divert stormwater from application areas using berms or diversion ditches during application.
 - Dry season: Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).
 - Wet season: Do not apply within 50 feet of storm drains or aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds) unless a vegetative buffer is present (if so, refer to dry season requirements).
 - Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.
 - Cover treatment site prior to a rain event in order to prevent run-off of the pesticide into non-target areas. The treated area should be limited to a size that can be backfilled and/or covered by the end of the work shift. Backfilling or covering of the treated area shall be done by the end of the same work shift in which the application is made.
 - The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the

application (if different than the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application, the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydraulic application. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals before predicted rainfall.
- Train employees and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.
- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse to a drain leading to a sanitary sewer where permitted or contain for proper disposal off site. For oil-based paints, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.
- Document the location, time, chemicals applied, and applicator's name and qualifications.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Discontinue use of erodible landscape material within 2 days prior to a forecasted rain event and materials should be covered and/or bermed.

- Provide containment for material use areas such as masons' areas or paint mixing/preparation areas to prevent materials/pollutants from entering stormwater.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Ensure employees and subcontractors throughout the job are using appropriate practices.

References

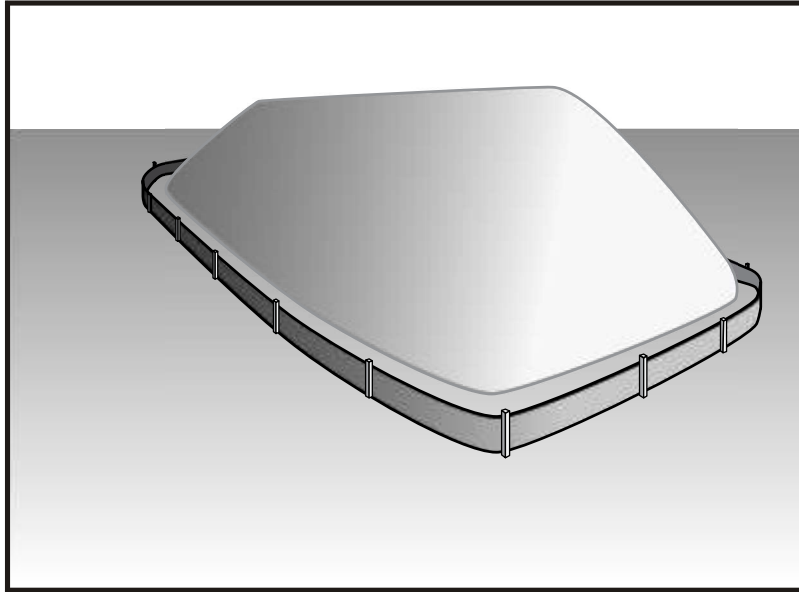
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Comments on Risk Assessments Risk Reduction Options for Cypermethrin: Docket No. OPP-2005-0293; California Stormwater Quality Association (CASQA) letter to USEPA, 2006. Environmental Hazard and General Labeling for Pyrethroid Non-Agricultural Outdoor Products, EPA-HQ-OPP-2008-0331-0021; USEPA, 2008.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



Treat Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category**
- Secondary Category**

Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called “cold mix” asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- On larger sites, a minimum of 50 ft separation from concentrated flows of stormwater, drainage courses, and inlets is recommended.
- After 14 days of inactivity, a stockpile is non-active and requires further protection described below. All stockpiles are required to be protected as non-active stockpiles immediately if they are not scheduled to be used within 14 days.
- Protect all stockpiles from stormwater run-on using temporary perimeter sediment barriers such as compost berms (SE-13), temporary silt dikes (SE-12), fiber rolls (SE-5), silt fences (SE-1), sandbags (SE-8), gravel bags (SE-6), or biofilter bags (SE-14). Refer to the individual fact sheet for each of these controls for installation information.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.
- Ensure that stockpile coverings are installed securely to protect from wind and rain.
- Some plastic covers withstand weather and sunlight better than others. Select cover materials or methods based on anticipated duration of use.

Protection of Non-Active Stockpiles

A stockpile is considered non-active if it either is not used for 14 days or if it is scheduled not to be used for 14 days or more. Stockpiles need to be protected immediately if they are not scheduled to be used within 14 days. Non-active stockpiles of the identified materials should be protected as follows:

Soil stockpiles

- Soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- Temporary vegetation should be considered for topsoil piles that will be stockpiled for extended periods.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- Stockpiles should be covered and protected with a temporary perimeter sediment barrier at all times.

Stockpiles of “cold mix”

- Cold mix stockpiles should be placed on and covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Stockpiles of fly ash, stucco, hydrated lime

- Stockpiles of materials that may raise the pH of runoff (i.e., basic materials) should be covered with plastic and surrounded by a berm.

Stockpiles/Storage of treated wood

- Treated wood should be covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Protection of Active Stockpiles

A stockpile is active when it is being used or is scheduled to be used within 14 days of the previous use. Active stockpiles of the identified materials should be protected as follows:

- All stockpiles should be covered and protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of “cold mix” and treated wood, and basic materials should be placed on and covered with plastic sheeting or comparable material and surrounded by a berm prior to the onset of precipitation.
- The downstream perimeter of an active stockpile should be protected with a linear sediment barrier or berm and runoff should be diverted around or away from the stockpile on the upstream perimeter.

Costs

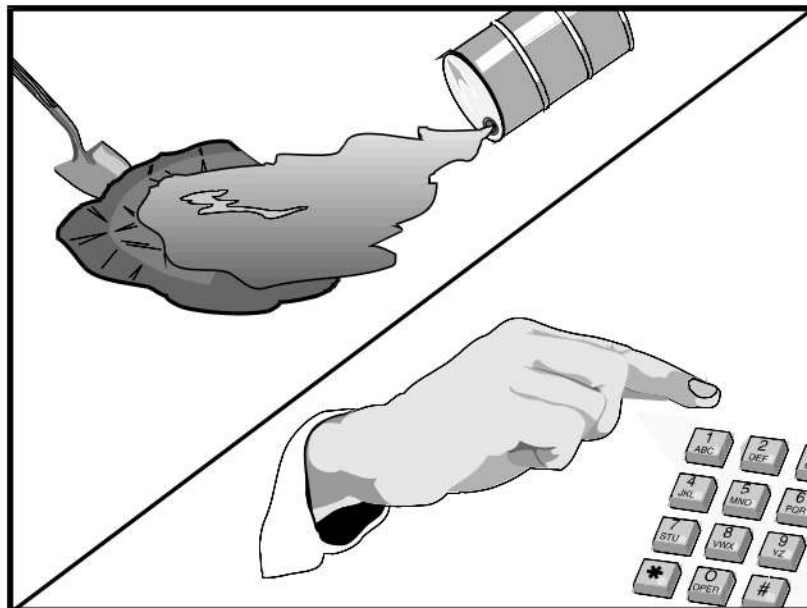
For cost information associated with stockpile protection refer to the individual erosion or sediment control BMP fact sheet considered for implementation (For example, refer to SE-1 Silt Fence for installation of silt fence around the perimeter of a stockpile.)

Inspection and Maintenance

- Stockpiles must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- It may be necessary to inspect stockpiles covered with plastic sheeting more frequently during certain conditions (for example, high winds or extreme heat).
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.
- Sediment shall be removed when it reaches one-third of the barrier height.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

This BMP is suitable for all construction projects. Spill control procedures are implemented anytime chemicals or hazardous substances are stored on the construction site, including the following materials:

- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals



- Fuels
- Lubricants
- Other petroleum distillates

Limitations

- In some cases, it may be necessary to use a private spill cleanup company.
- This BMP applies to spills caused by the contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored onsite

Implementation

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a “significant spill” is for each material they use, and what is the appropriate response for “significant” and “insignificant” spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- Have contractor’s superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn’t compromise clean up activities.
- Do not bury or wash spills with water.

- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with WM-10, Liquid Waste Management.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
 - Contain the spread of the spill.
 - Recover spilled materials.
 - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

- Spills should be cleaned up immediately:
 - Contain spread of the spill.
 - Notify the project foreman immediately.
 - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
 - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
 - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:
 - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
 - Notify the Governor's Office of Emergency Services Warning Center, (916) 845-8911.
 - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
 - Notification should first be made by telephone and followed up with a written report.
 - The services of a spill's contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
 - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, etc.

Reporting

- Report significant spills to local agencies, such as the Fire Department; they can assist in cleanup.
- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur onsite, use designate areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Costs

Prevention of leaks and spills is inexpensive. Treatment and/ or disposal of contaminated soil or water can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Keep ample supplies of spill control and cleanup materials onsite, near storage, unloading, and maintenance areas.
- Update your spill prevention and control plan and stock cleanup materials as changes occur in the types of chemicals onsite.

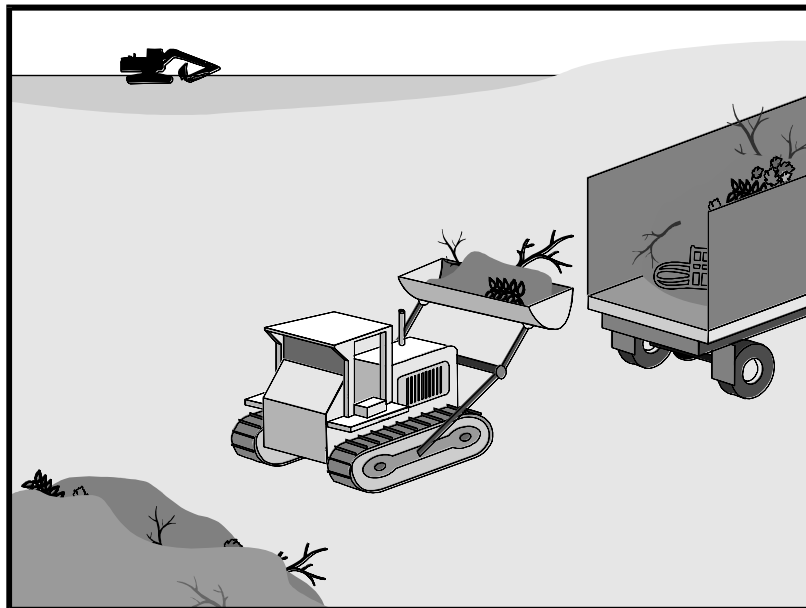
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING
PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials



- Highway planting wastes, including vegetative material, plant containers, and packaging materials

Limitations

Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Cover waste containers at the end of each work day and when it is raining.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runoff should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

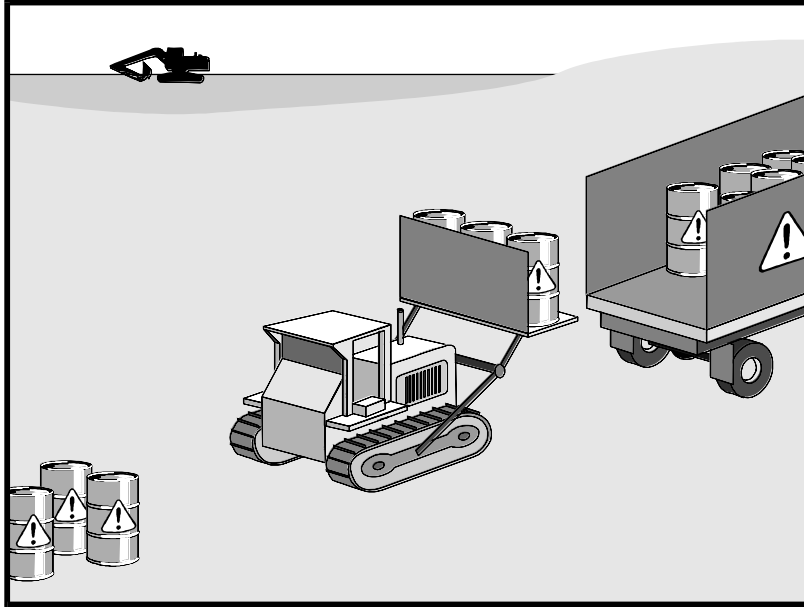
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Inspect construction waste area regularly.
- Arrange for regular waste collection.

References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Objective**
- Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Hazardous waste management practices are implemented on construction projects that generate waste from the use of:

- Petroleum Products
- Concrete Curing Compounds
- Palliatives
- Septic Wastes
- Stains
- Wood Preservatives
- Asphalt Products
- Pesticides
- Acids
- Paints
- Solvents
- Roofing Tar
- Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302



In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

Limitations

- Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.
- Nothing in this BMP relieves the contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
- This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to WM-7, Contaminated Soil Management.

Implementation

The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of a suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
 - Temporary containment facility should provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
 - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
 - Temporary containment facilities should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
 - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.

- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.
- Drums should not be overfilled, and wastes should not be mixed.
- Unless watertight, containers of dry waste should be stored on pallets.
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application. Allow time for infiltration and avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.
- Paint brushes and equipment for water and oil-based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste.
- Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. “Paint out” brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.
- The following actions should be taken with respect to temporary contaminant:
 - Ensure that adequate hazardous waste storage volume is available.
 - Ensure that hazardous waste collection containers are conveniently located.
 - Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.
 - Minimize production or generation of hazardous materials and hazardous waste on the job site.
 - Use containment berms in fueling and maintenance areas and where the potential for spills is high.
 - Segregate potentially hazardous waste from non-hazardous construction site debris.
 - Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas onsite.
- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paint.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The contractor's superintendent or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

- Hazardous spills should be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.
- The National Response Center, at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Also notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.
- A copy of the hazardous waste manifests should be provided.

References

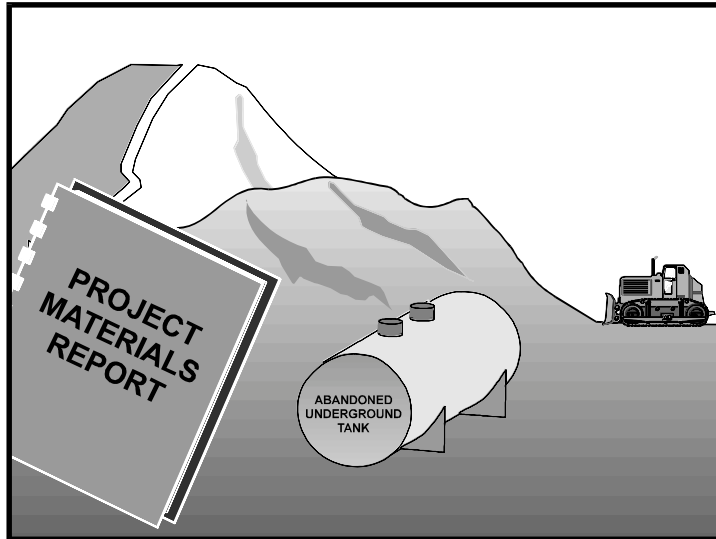
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING PURPOSES ONLY



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Suitable Applications

Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, aerial deposition, past use and leaks from underground storage tanks.

Limitations

Contaminated soils that cannot be treated onsite must be disposed of offsite by a licensed hazardous waste hauler. The presence of contaminated soil may indicate contaminated water as well. See NS-2, Dewatering Operations, for more information.

The procedures and practices presented in this BMP are general. The contractor should identify appropriate practices and procedures for the specific contaminants known to exist or discovered onsite.

Implementation

Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable reports and investigate appropriate call-outs in the

Targeted Constituents

Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



plans, specifications, and SWPPP. Recent court rulings holding contractors liable for cleanup costs when they unknowingly move contaminated soil highlight the need for contractors to confirm a site assessment is completed before earth moving begins.

The following steps will help reduce stormwater pollution from contaminated soil:

- Conduct thorough, pre-construction inspections of the site and review documents related to the site. If inspection or reviews indicated presence of contaminated soils, develop a plan before starting work.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
- Prevent leaks and spills. Contaminated soil can be expensive to treat and dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
- The contractor may further identify contaminated soils by investigating:
 - Past site uses and activities
 - Detected or undetected spills and leaks
 - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements
 - Contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
 - Suspected soils should be tested at a certified laboratory.

Education

- Have employees and subcontractors complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified, prior to performing any excavation work at the locations containing material classified as hazardous.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

Handling Procedures for Material with Aerially Deposited Lead (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations should result in no visible dust.
- Caution should be exercised to prevent spillage of lead containing material during transport.

- Quality should be monitored during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils

- Minimize onsite storage. Contaminated soil should be disposed of properly in accordance with all applicable regulations. All hazardous waste storage will comply with the requirements in Title 22, CCR, Sections 66265.250 to 66265.260.
- Test suspected soils at an approved certified laboratory.
- Work with the local regulatory agencies to develop options for treatment or disposal if the soil is contaminated.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- Take the following precautions if temporary stockpiling is necessary:
 - Cover the stockpile with plastic sheeting or tarps.
 - Install a berm around the stockpile to prevent runoff from leaving the area.
 - Do not stockpile in or near storm drains or watercourses.
- Remove contaminated material and hazardous material on exteriors of transport vehicles and place either into the current transport vehicle or into the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat or dispose of it at an appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavate, transport, and dispose of contaminated material and hazardous material in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
 - United States Department of Transportation (USDOT)
 - United States Environmental Protection Agency (USEPA)
 - California Environmental Protection Agency (CAL-EPA)

- California Division of Occupation Safety and Health Administration (CAL-OSHA)
- Local regulatory agencies

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies that have jurisdiction over such work.
- To determine if it contains hazardous substances, arrange to have tested, any liquid or sludge found in the underground tank prior to its removal.
- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s).
- The underground storage tank, any liquid or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal and transported to disposal facilities permitted to accept such waste.

Water Control

- All necessary precautions and preventive measures should be taken to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to, berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- If water does enter an excavation and becomes contaminated, such water, when necessary to proceed with the work, should be discharged to clean, closed top, watertight transportable holding tanks, treated, and disposed of in accordance with federal, state, and local laws.

Costs

Prevention of leaks and spills is inexpensive. Treatment or disposal of contaminated soil can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for contractor's Water Pollution Control Manager, foreman, and/or construction supervisor to monitor onsite contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.

- Implement WM-4, Spill Prevention and Control, to prevent leaks and spills as much as possible.

References

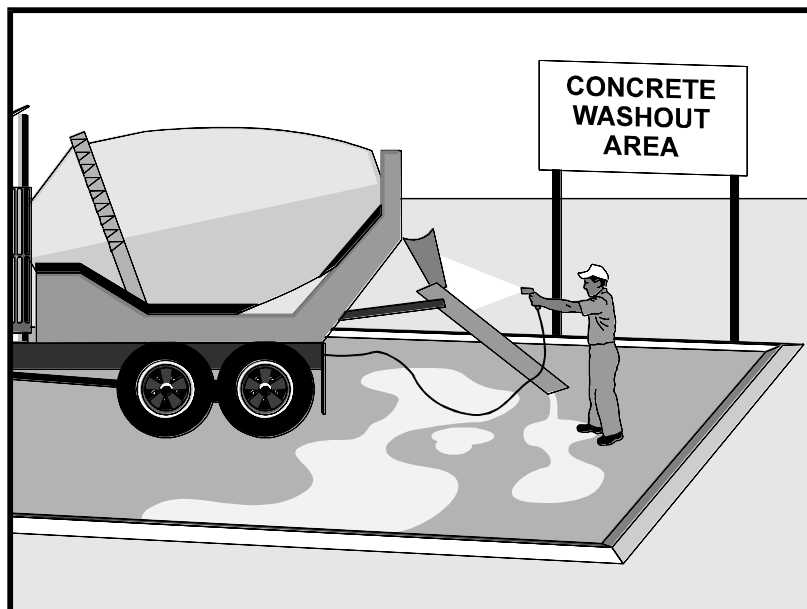
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING
PURPOSES ONLY



Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing Portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.
- Concrete trucks and other concrete-coated equipment are washed onsite.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



- Mortar-mixing stations exist.
- Stucco mixing and spraying.
- See also NS-8, Vehicle and Equipment Cleaning.

Limitations

- Offsite washout of concrete wastes may not always be possible.
- Multiple washouts may be needed to assure adequate capacity and to allow for evaporation.

Implementation

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas. Refer to WM-1, Material Delivery and Storage for more information.
- Avoid mixing excess amounts of concrete.
- Perform washout of concrete trucks in designated areas only, where washout will not reach stormwater.
- Do not wash out concrete trucks into storm drains, open ditches, streets, streams or onto the ground. Trucks should always be washed out into designated facilities.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
 - On larger sites, it is recommended to locate washout areas at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
 - Washout wastes into the temporary washout where the concrete can set, be broken up, and then disposed properly.
 - Washouts shall be implemented in a manner that prevents leaching to underlying soils. Washout containers must be water tight and washouts on or in the ground must be lined with a suitable impervious liner, typically a plastic type material.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.
- See typical concrete washout installation details at the end of this fact sheet.

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.

- Arrange for contractor's superintendent or representative to oversee and enforce concrete waste management procedures.
- Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.

Concrete Demolition Wastes

- Stockpile concrete demolition waste in accordance with BMP WM-3, Stockpile Management.
- Dispose of or recycle hardened concrete waste in accordance with applicable federal, state or local regulations.

Concrete Slurry Wastes

- PCC and AC waste should not be allowed to enter storm drains or watercourses.
- PCC and AC waste should be collected and disposed of or placed in a temporary concrete washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below).
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Saw-cut concrete slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine or by sweeping. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement. See also NS-3, Paving and Grinding Operations; and WM-10, Liquid Waste Management.
- Concrete slurry residue should be disposed in a temporary washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.

- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Temporary washout facilities should be lined to prevent discharge to the underlying ground or surrounding area.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of or recycled offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of or recycle hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
 - Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft; however, smaller sites or jobs may only need a smaller washout facility. With any washout, always maintain a sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
 - Materials used to construct the washout area should conform to the provisions detailed in their respective BMPs (e.g., SE-8 Sandbag Barrier).
 - Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
 - Alternatively, portable removable containers can be used as above grade concrete washouts. Also called a “roll-off”; this concrete washout facility should be properly sealed to prevent leakage and should be removed from the site and replaced when the container reaches 75% capacity.
- Temporary Concrete Washout Facility (Type Below Grade)
 - Temporary concrete washout facilities (type below grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.
 - Lath and flagging should be commercial type.
 - Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

- The base of a washout facility should be free of rock or debris that may damage a plastic liner.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and properly disposed or recycled in accordance with federal, state or local regulations. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed or recycled in accordance with federal, state or local regulations.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Costs

All of the above are low cost measures. Roll-off concrete washout facilities can be more costly than other measures due to removal and replacement; however, provide a cleaner alternative to traditional washouts. The type of washout facility, size, and availability of materials will determine the cost of the washout.

Inspection and Maintenance

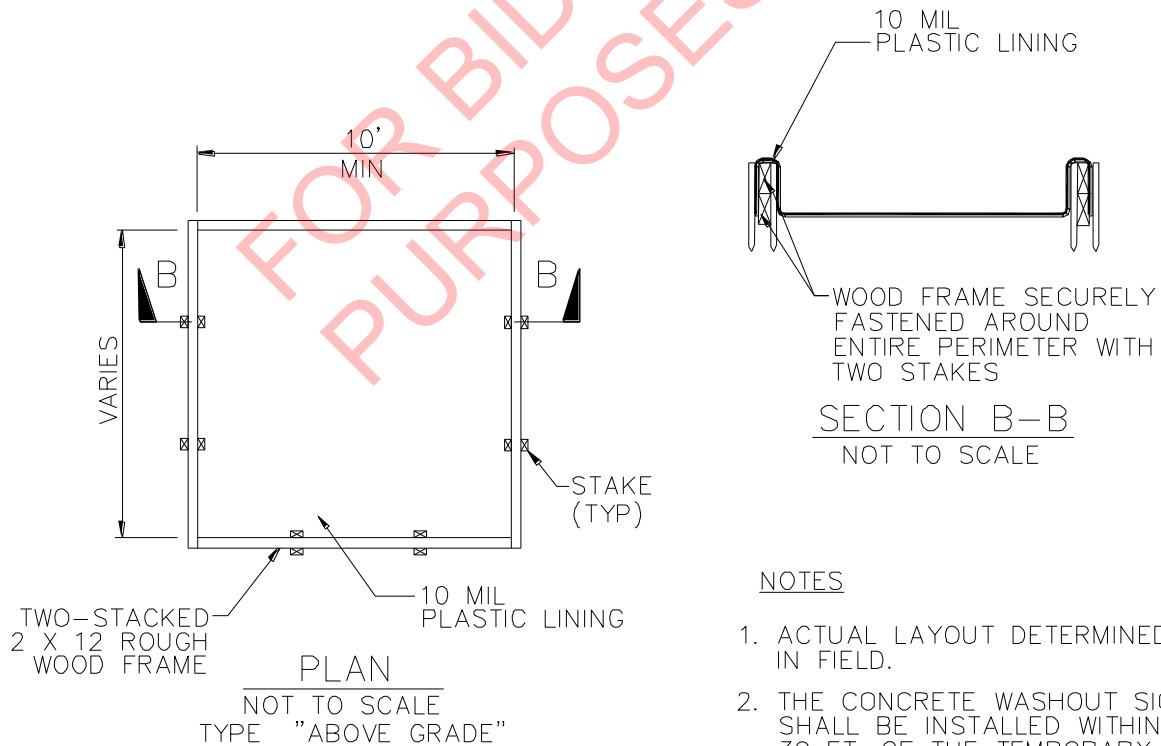
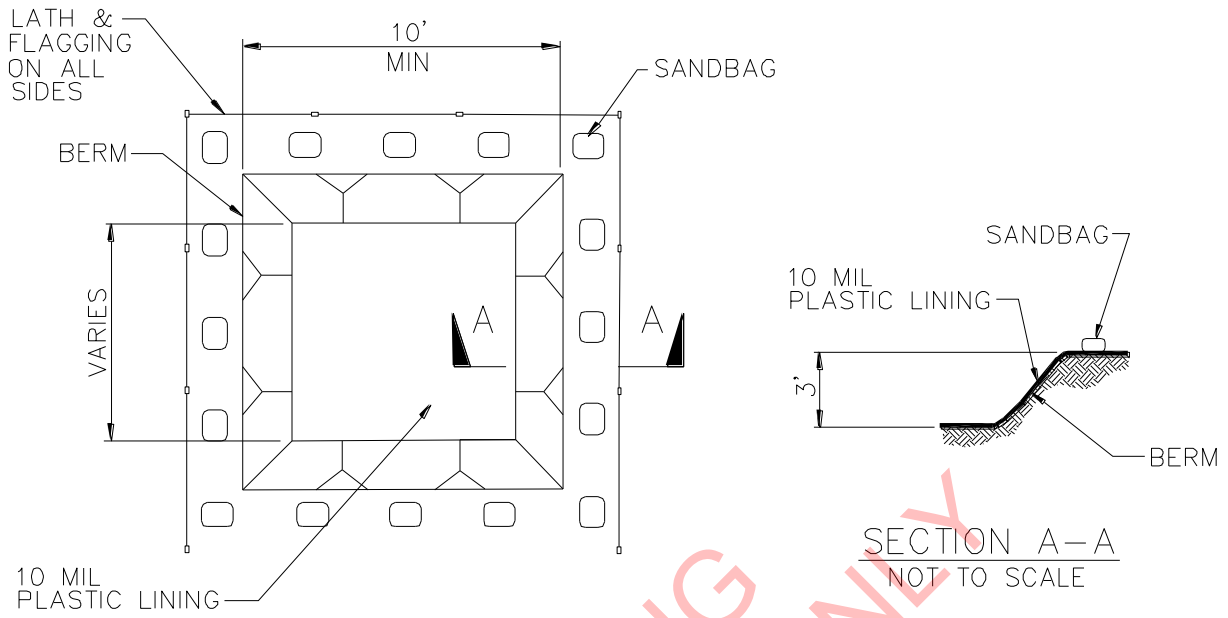
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Temporary concrete washout facilities should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and properly disposed or recycled in accordance with federal, state or local regulations.
- Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.
- Inspect washout facilities for damage (e.g. torn liner, evidence of leaks, signage, etc.). Repair all identified damage.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

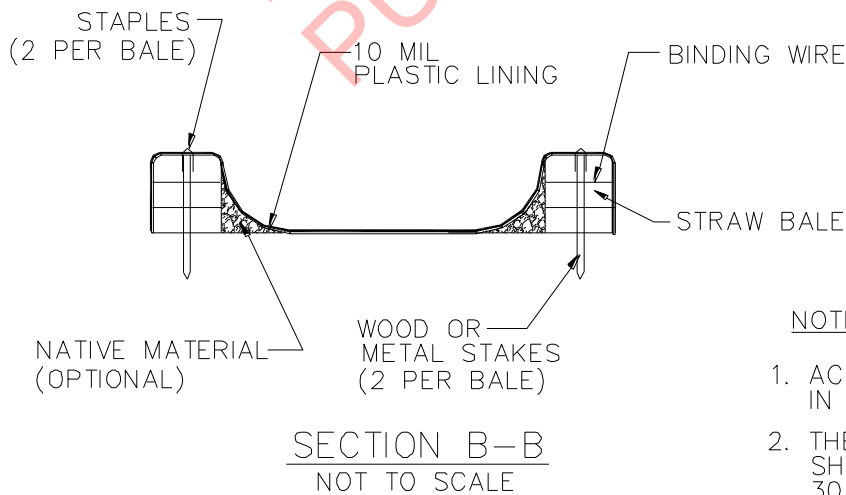
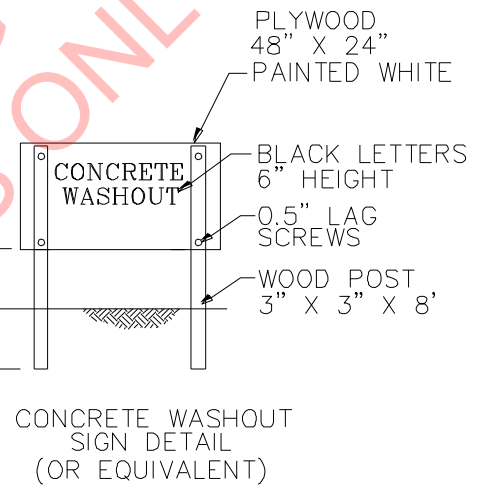
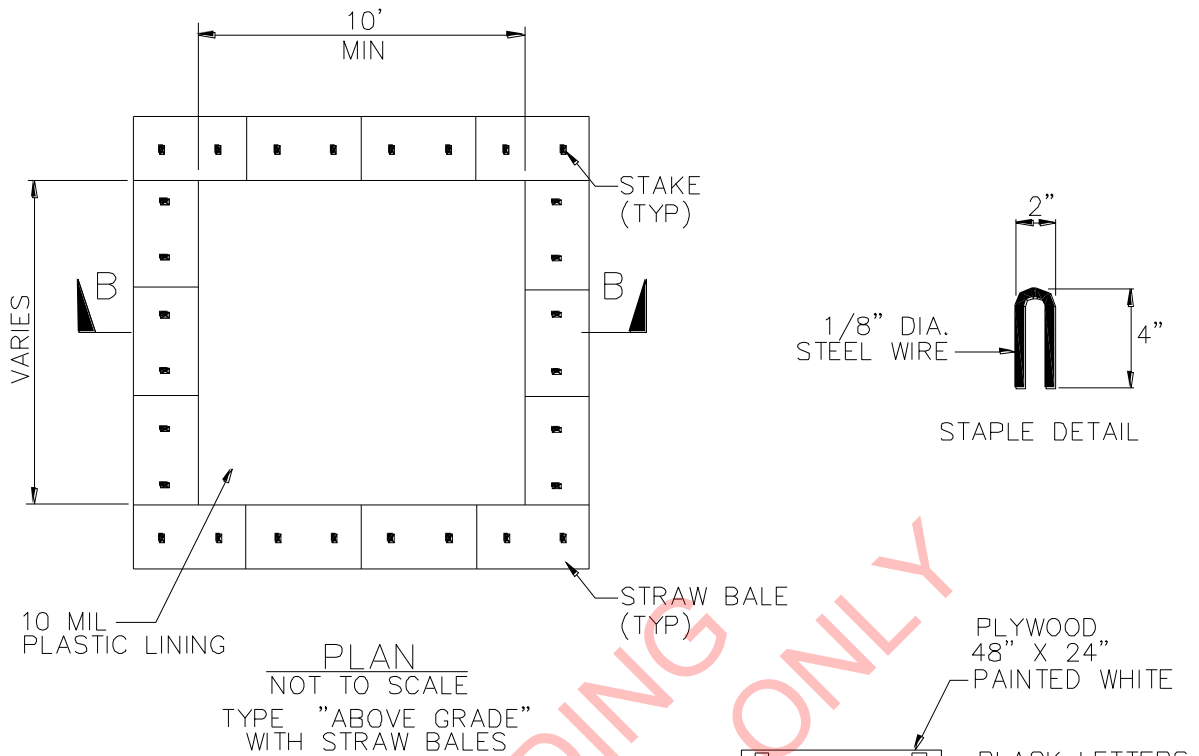
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000, Updated March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



NOTES

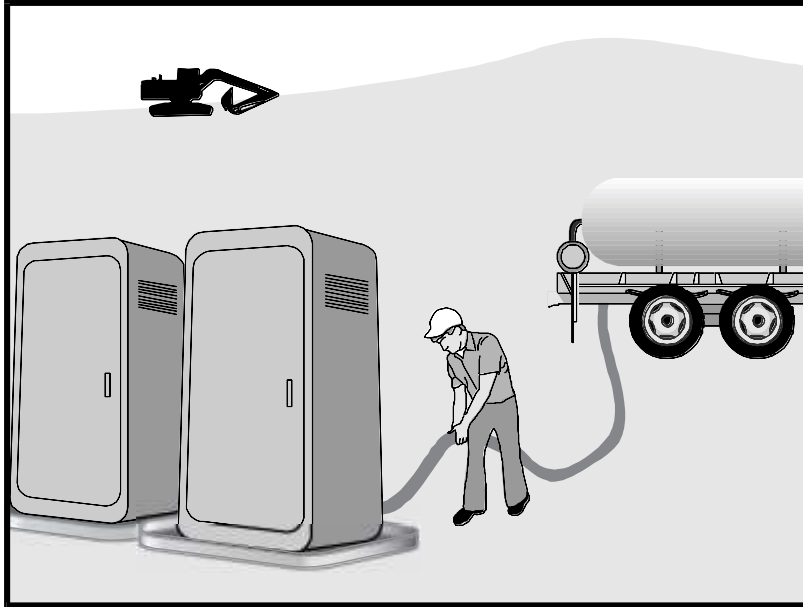
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Sanitary/Septic Waste Management WM-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Category
- Secondary Category

Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

Targeted Constituents

Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Sanitary/Septic Waste Management WM-9

- Temporary sanitary facilities must be equipped with containment to prevent discharge of pollutants to the stormwater drainage system of the receiving water.
- Consider safety as well as environmental implications before placing temporary sanitary facilities.
- Wastewater should not be discharged or buried within the project site.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, should comply with the local health agency, city, county, and sewer district requirements.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- If a spill does occur from a temporary sanitary facility, follow federal, state and local regulations for containment and clean-up.

Education

- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and septic waste.
- Hold regular meetings to discuss and reinforce the use of sanitary facilities (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Costs

All of the above are low cost measures.

Sanitary/Septic Waste Management WM-9

Inspection and Maintenance

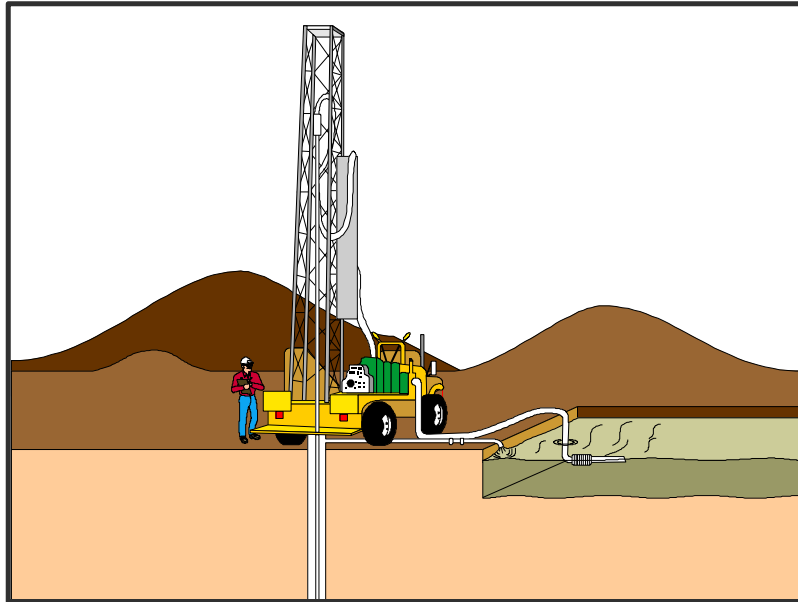
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes or weighed down to prevent over turning.
- If spills or leaks from sanitary or septic facilities occur that are not contained and discharge from the site, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

FOR BIDDING ONLY
PURPOSES ONLY



Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Suitable Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredgings
- Other non-stormwater liquid discharges not permitted by separate permits

Limitations

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project (e.g., NPDES permits, Army Corps permits, Coastal Commission permits, etc.).
- Liquid waste management does not apply to dewatering operations (NS-2 Dewatering Operations), solid waste management (WM-5, Solid Waste Management), hazardous wastes (WM-6, Hazardous Waste Management), or

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



concrete slurry residue (WM-8, Concrete Waste Management).

- Typical permitted non-stormwater discharges can include: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; flows from riparian habitats and wetlands; and discharges or flows from emergency fire fighting activities.

Implementation

General Practices

- Instruct employees and subcontractors how to safely differentiate between non-hazardous liquid waste and potential or known hazardous liquid waste.
- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water.
- Educate employees and subcontractors on liquid waste generating activities and liquid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Verify which non-stormwater discharges are permitted by the statewide NPDES permit; different regions might have different requirements not outlined in this permit.
- Apply NS-8, Vehicle and Equipment Cleaning for managing wash water and rinse water from vehicle and equipment cleaning operations.

Containing Liquid Wastes

- Drilling residue and drilling fluids should not be allowed to enter storm drains and watercourses and should be disposed of.
- If an appropriate location is available, drilling residue and drilling fluids that are exempt under Title 23, CCR § 2511(g) may be dried by infiltration and evaporation in a containment facility constructed in conformance with the provisions concerning the Temporary Concrete Washout Facilities detailed in WM-8, Concrete Waste Management.
- Liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters prior to treatment.
- Liquid wastes should be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank.
- Containment devices must be structurally sound and leak free.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated.

- Precautions should be taken to avoid spills or accidental releases of contained liquid wastes. Apply the education measures and spill response procedures outlined in WM-4, Spill Prevention and Control.
- Containment areas or devices should not be located where accidental release of the contained liquid can threaten health or safety or discharge to water bodies, channels, or storm drains.

Capturing Liquid Wastes

- Capture all liquid wastes that have the potential to affect the storm drainage system (such as wash water and rinse water from cleaning walls or pavement), before they run off a surface.
- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area or device for capture.
- Use a sediment trap (SE-3, Sediment Trap) for capturing and treating sediment laden liquid waste or capture in a containment device and allow sediment to settle.

Disposing of Liquid Wastes

- A typical method to handle liquid waste is to dewater the contained liquid waste, using procedures such as described in NS-2, Dewatering Operations, and SE-2, Sediment Basin, and dispose of resulting solids per WM-5, Solid Waste Management.
- Methods of disposal for some liquid wastes may be prescribed in Water Quality Reports, NPDES permits, Environmental Impact Reports, 401 or 404 permits, and local agency discharge permits, etc. Review the SWPPP to see if disposal methods are identified.
- Liquid wastes, such as from dredged material, may require testing and certification whether it is hazardous or not before a disposal method can be determined.
- For disposal of hazardous waste, see WM-6, Hazardous Waste Management.
- If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.

Costs

Prevention costs for liquid waste management are minimal. Costs increase if cleanup or fines are involved.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Remove deposited solids in containment areas and capturing devices as needed and at the completion of the task. Dispose of any solids as described in WM-5, Solid Waste Management.
- Inspect containment areas and capturing devices and repair as needed.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

FOR BIDDING
PURPOSES ONLY

Appendix H: Training Reporting Form, Responsible Parties

The QSP assigned to this project is:

Name	<u>Gretchen Heisdorf</u>
Phone Number	<u>559-449-2700</u>
Emergency Number	<u></u>
Company Name	<u>Provost & Pritchard Consulting Group</u>
Street Address	<u>455 W Fir Ave</u>
City, State Zip	<u>Clovis, CA 93611</u>

List of Qualified Personnel and/or Training Certifications

Name	Certification	Check if Attached
Gretchen Heisdorf	RCE 77241 CASQA 00485	X

CERTIFICATE OF TRAINING

CALIFORNIA CONSTRUCTION GENERAL PERMIT

QUALIFIED SWPPP DEVELOPER (QSD) AND QUALIFIED SWPPP PRACTITIONER (QSP)

Gretchen Heisdorf

Jan 19, 2023 - Apr 19, 2025

Certificate # 00485



California Stormwater Quality Association and
California Construction General Permit Training Team

APEX TUTORING
CERTIFICATE
OF COMPLETION

THIS CERTIFIES THAT

Gretchen Heisdorf

SUCCESSFULLY COMPLETED THE 8-HOUR CALTRANS MANDATORY
WATER POLLUTION CONTROL MANAGER (WPCM) TRAINING COURSE
ON APRIL 24, 2021. THIS COURSE AWARDS 8 PDUs.

David Korfias

DAVE KORFAS
CPESC, CGP TOR, QSD, QISP

Apex Tutoring
ACHIEVE YOUR HIGHEST POTENTIAL

Deanna Arrigo

DEANNA ARRIGO
PE, QSD, CMIT

CERTIFICATE OF TRAINING

CALIFORNIA CONSTRUCTION GENERAL PERMIT

QUALIFIED SWPPP PRACTITIONER (QSP)

Gregory Feaver

Nov 01, 2022 - Nov 01, 2024

Certificate # 28267



California Stormwater Quality Association and
California Construction General Permit Training Team



CISEC, Inc.
 P.O. Box 188
 Parker, CO 80134
 Ph: (720) 235-2783
 Fax: 720-600-2658
 E-mail: contactus@cisecinc.org

CISEC, Inc. Wallet Card

Name: Gregory Feaver

Order Date: October 2022

Below is your wallet card.

Please print this card and keep it in your wallet or your files.

	<p>CISEC, Inc. Board of Directors <i>certifies that</i> Gregory Feaver</p>	<p><i>As a CISEC Registrant, I agree to the following:</i></p>	
<p><i>has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of</i></p>	<ul style="list-style-type: none"> ▪ At all times, strictly abide by the CISEC, Inc. Code of Ethics. ▪ Perform all services in a professional manner and uphold professional standards in relating to the public, to other CISEC, Inc. registrants and to other professionals within the industry. ▪ Earn at least 12 CDH's each year after becoming a CISEC registrant and ▪ Pay CISEC, Inc. annual renewal fees. 	<p>CISEC, Inc. P.O. Box 188 Parker, CO 80134 720-235-2783 www.cisecinc.org</p>	
3462		October 31, 2023	
CISEC #	CISEC, Inc. President	Expiration Date	Signature (required)

CERTIFICATE OF TRAINING

THIS CERTIFICATE ACKNOWLEDGES ATTENDANCE BY

Greg Feaver

8-HOUR WATER POLLUTION CONTROL MANAGER
TRAINING COURSE PER 13-1.01D(4)(b)



John Gleason

10/14/2022

JOHN GLEASON, PE, QSD, TOR, CPESC
JOHN.GLEASON@MSHATCH.COM
(949) 981-3867

DATE

Trained Contractor Personnel Log

Stormwater Management Training Log and Documentation

Project Name: _____

WDID #: _____

Stormwater Management Topic: (check as appropriate)

- | | |
|--|---|
| <input type="checkbox"/> Erosion Control | <input type="checkbox"/> Sediment Control |
| <input type="checkbox"/> Wind Erosion Control | <input type="checkbox"/> Tracking Control |
| <input type="checkbox"/> Non-stormwater Management | <input type="checkbox"/> Waste Management and Materials Pollution Control |
| <input type="checkbox"/> Stormwater Sampling | |

Specific Training Objective: _____

Location: _____

Date: _____

Instructor: _____

Telephone: _____

Course Length (hours): _____

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

As needed, add proof of external training (i.e., course completion certificates, credentials for QSP, QSD).

Appendix I: Contractors and Subcontractors

The Contractor assigned to this project is:

Company Name	Contact Name (Site Responsibility)	Address (Street, City, State, Zip)	Phone Number

Additional Contacts:

Company Name	Contact Name (Site Responsibility)	Address (Street, City, State, Zip)	Phone Number

FOR BIDDING
PURPOSES ONLY

Appendix J: Calculations

FOR BIDDING
PURPOSES ONLY

Appendix K: Weather Reports

Weather tracking reports may be maintained in a separate location/binder or electronically.

FOR BIDDING
PURPOSES ONLY

Appendix L: Monitoring Records

Visual and BMP monitoring/inspection reports may be maintained in a separate location/binder or electronically.

FOR BIDDING
PURPOSES ONLY

Appendix M: Example Forms

FOR BIDDING
PURPOSES ONLY

Rain Gauge Log Sheet

Construction Site Name:

WDID #:

Date (mm/dd/yy)	Time (24-hr)	Initials	Rainfall Depth (Inches)	Notes:

FOR BIDDING
PURPOSES ONLY

CHAIN-OF-CUSTODY

DATE:

Lab ID:

DESTINATION LAB: ATTN: ADDRESS: Office Phone: Cell Phone: SAMPLED BY: Contact: Project Name						REQUESTED ANALYSIS		Notes:			
Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container							
				#	Type	Pres.					
SENDER COMMENTS:						RELINQUISHED BY					
						Signature:					
						Print:					
						Company:					
Date:				TIME:							
LABORATORY COMMENTS:						RECEIVED BY					
						Signature:					
						Print:					
						Company:					
Date:				TIME:							

FOR BIDDING PURPOSES ONLY

Appendix N: Field Meter Instructions

FOR BIDDING
PURPOSES ONLY

Appendix O: Supplemental Information

FOR BIDDING
PURPOSES ONLY

Appendix P: Construction General Permit

FOR BIDDING
PURPOSES ONLY



Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

CONSTRUCTION GENERAL PERMIT FACT SHEET TABLE OF CONTENTS

I. BACKGROUND 1

A. History 1

B. Legal Challenges and Court Decisions..... 1

C. Blue Ribbon Panel of Experts and Feasibility of Numeric Effluent Limitations 4

D. Summary of Panel Findings on Construction Activities 4

E. How the Panel’s Findings are Used in this General Permit 5

F. Summary of Significant Changes in This General Permit..... 5

II. RATIONALE 7

A. General Permit Approach..... 7

B. Construction Activities Covered..... 7

C. Construction Activities Not Covered 9

D. Obtaining and Terminating Permit Coverage 12

E. Discharge Prohibitions 12

F. Effluent Standards for All Types of Discharges..... 13

G. Receiving Water Limitations 20

H. Training Qualifications and Requirements 20

I. Sampling, Monitoring, Reporting and Record Keeping..... 21

J. Risk Determination..... 27

K. ATS Requirements..... 35

L. Post-Construction Requirements 37

M. Storm Water Pollution Prevention Plans 46

N. Regional Water Board Authorities..... 48

LIST OF TABLES

Table 1 - Regional Water Board Basin Plans, Water Quality Objectives for Turbidity	16
Table 2 - Results of Ecoregion Analysis	16
Table 3 – ACL Sampling Data taken by Regional Water Board Staff	17
Table 4 - Required Monitoring Elements for Risk Levels	21
Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level	23
Table 6 - Receiving Water Monitoring Requirements	26
Table 7 - Combined Risk Level Matrix	29
Table 8 -National Oceanic and Atmospheric Administration (NOAA) Definition of Probability of Precipitation (PoP)	31
Table 9 - Qualified SWPPP Developer/ Qualified SWPPP Practitioner Certification Criteria	47

LIST OF FIGURES

Figure 1 -Statewide Map of K * LS	28
Figure 2 - Suite of Storm Events	37
Figure 3 - Northern CA (2009) Counties / Cities With SUSMP-Plus Coverage	39
Figure 4 - Southern CA (2009) Counties / Cities With SUSMP-Plus Coverage	40
Figure 5 - Schematic of the Lane Relationship	42
Figure 6 - Channel Changes Associated with Urbanization	43

FOR BIDDING
PURPOSES ONLY

I. BACKGROUND

A. History

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that established storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. Regulations (Phase II Rule) that became final on December 8, 1999 lowered the permitting threshold from five acres to one acre.

While federal regulations allow two permitting options for storm water discharges (Individual Permits and General Permits), the State Water Board has elected to adopt only one statewide General Permit at this time that will apply to most storm water discharges associated with construction activity.

On August 19, 1999, the State Water Board reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ). On December 8, 1999 the State Water Board amended Order 99-08-DWQ to apply to sites as small as one acre.

The General Permit accompanying this fact sheet regulates storm water runoff from construction sites. Regulating many storm water discharges under one permit will greatly reduce the administrative burden associated with permitting individual storm water discharges. To obtain coverage under this General Permit, dischargers shall electronically file the Permit Registration Documents (PRDs), which includes a Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and other compliance related documents required by this General Permit and mail the appropriate permit fee to the State Water Board. It is expected that as the storm water program develops, the Regional Water Quality Control Boards (Regional Water Boards) may issue General Permits or Individual Permits containing more specific permit provisions. When this occurs, this General Permit will no longer regulate those dischargers.

B. Legal Challenges and Court Decisions

1. Early Court Decisions

Shortly after the passage of the CWA, the USEPA promulgated regulations exempting most storm water discharges from the NPDES permit requirements. (See 40 C.F.R. § 125.4 (1975); see also *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369, 1372 (*Costle*); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1163 (*Defenders of Wildlife*)). When environmental groups challenged this exemption in federal court, the District of Columbia Court of Appeals invalidated the regulation, holding that the USEPA “does not have authority to exempt categories of point sources from the permit requirements of [CWA] § 402.” (*Costle*, 568 F.2d at 1377.) The *Costle* court rejected the USEPA’s argument that effluent-based storm sewer regulation was administratively infeasible because of the variable nature of storm water pollution and the number of affected storm sewers throughout the country. (*Id.* at 1377-82.) Although the court acknowledged the practical problems relating to storm sewer regulation, the court found the USEPA had the flexibility under the CWA to design regulations that would overcome these problems. (*Id.* at 1379-83.) In particular, the court pointed to general permits and permits based on requiring best management practices (BMPs).

During the next 15 years, the USEPA made numerous attempts to reconcile the statutory requirement of point source regulation with the practical problem of regulating possibly millions of diverse point source discharges of storm water. (See *Defenders of Wildlife*, 191 F.3d at 1163; see also Gallagher, Clean Water Act in Environmental Law Handbook (Sullivan, edit., 2003) p. 300 (Environmental Law Handbook); Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Storm Water Runoff* (1995) 48 Wash. U.J. Urb. & Contemp. L.1, 40-41 [Regulation of Urban Storm Water Runoff].)

In 1987, Congress amended the CWA to require NPDES permits for storm water discharges. (See CWA § 402(p), 33 U.S.C. § 1342(p); *Defenders of Wildlife*, 191 F.3d at 1163; *Natural Resources Defense Council v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1296.) In these amendments, enacted as part of the Water Quality Act of 1987, Congress distinguished between industrial and municipal storm water discharges. With respect to industrial storm water discharges, Congress provided that NPDES permits "shall meet all applicable provisions of this section and section 1311 [requiring the USEPA to establish effluent limitations under specific timetables]." (CWA § 402(p)(3)(A), 33 U.S.C. § 1342(p)(3)(A); see also *Defenders of Wildlife*, 191 F.3d at 1163-64.)

In 1990, USEPA adopted regulations specifying what activities were considered "industrial" and thus required discharges of storm water associated with those activities to obtain coverage under NPDES permits. (55 Fed. Reg. 47,990 (1990); 40 C.F.R. § 122.26(b)(14).) Construction activities, deemed a subset of the industrial activities category, must also be regulated by an NPDES permit. (40 C.F.R. § 122.26(b)(14)(x)). In 1999, USEPA issued regulations for "Phase II" of storm water regulation, which required most small construction sites (1-5 acres) to be regulated under the NPDES program. (64 Fed. Reg. 68,722; 40 C.F.R. § 122.26(b)(15)(i).)

2. Court Decisions on Public Participation

Two recent federal court opinions have vacated USEPA rules that denied meaningful public review of NPDES permit conditions. On January 14, 2003, the Ninth Circuit Court of Appeals held that certain aspects of USEPA's Phase II regulations governing MS4s were invalid primarily because the general permit did not contain express requirements for public participation. (*Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832.) Specifically, the court determined that applications for general permit coverage (including the Notice of Intent (NOI) and Storm Water Management Program (SWMP)) must be made available to the public, the applications must be reviewed and determined to meet the applicable standard by the permitting authority before coverage commences, and there must be a process to accommodate public hearings. (*Id.* at 852-54.) Similarly, on February 28, 2005, the Second Circuit Court of Appeals held that the USEPA's confined animal feeding operation (CAFO) rule violated the CWA because it allowed dischargers to write their own nutrient management plans without public review. (*Waterkeeper Alliance v. USEPA* (2d Cir. 2005) 399 F.3d 486.) Although neither decision involved the issuance of construction storm water permits, the State Water Board's Office of Chief Counsel has recommended that the new General Permit address the courts' rulings where feasible¹.

¹ In *Texas Independent Producers and Royalty Owners Assn. v. USEPA* (7th Cir. 2005) 410 F.3d 964, the Seventh Circuit Court of Appeals held that the USEPA's construction general permit was not required to provide the public with the opportunity for a public hearing on the Notice of Intent or Storm Water Pollution Prevention Plan. The Seventh Circuit briefly discussed why it agreed with the Ninth Circuit's dissent in *Environmental Defense Center*, but

The CWA and the USEPA's regulations provide states with the discretion to formulate permit terms, including specifying best management practices (BMPs), to achieve strict compliance with federal technology-based and water quality-based standards. (*Natural Resources Defense Council v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1308.) Accordingly, this General Permit has developed specific BMPs as well as numeric action levels (NALs) in order to achieve these minimum federal standards. In addition, the General Permit requires a SWPPP and REAP (another dynamic, site-specific plan) to be developed but has removed all language requiring the discharger to implement these plans – instead, the discharger is required to comply with specific requirements. By requiring the dischargers to implement these specific BMPs and NALs, this General Permit ensures that the dischargers do not “write their own permits.” As a result this General Permit does not require each discharger's SWPPP and REAP to be reviewed and approved by the Regional Water Boards.

This General Permit also requires dischargers to electronically file all permit-related compliance documents. These documents include, but are not limited to, NOIs, SWPPPs, annual reports, Notice of Terminations (NOTs), and numeric action level (NAL) exceedance reports. Electronically submitted compliance information is immediately available to the public, as well as the Regional Water Quality Control Board (Regional Water Board) offices, via the Internet. In addition, this General Permit enables public review and hearings on permit applications when appropriate. Under this General Permit, the public clearly has a meaningful opportunity to participate in the permitting process.

FOR BIDDING
PURPOSES ONLY

generally did not discuss the substantive holdings in *Environmental Defense Center and Waterkeeper Alliance*, because neither court addressed the initial question of whether the plaintiffs had standing to challenge the permits at issue. However, notwithstanding the Seventh Circuit's decision, it is not binding or controlling on the State Water Board because California is located within the Ninth Circuit.

C. Blue Ribbon Panel of Experts and Feasibility of Numeric Effluent Limitations

In 2005 and 2006, the State Water Board convened an expert panel (panel) to address the feasibility of numeric effluent limitations (NELs) in California's storm water permits. Specifically, the panel was asked to address:

"Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits? How would such limitations or criteria be established, and what information and data would be required?"

"The answers should address industrial general permits, construction general permits, and area-wide municipal permits. The answers should also address both technology-based limitations or criteria and water quality-based limitations or criteria. In evaluating establishment of any objective criteria, the panel should address all of the following:

The ability of the State Water Board to establish appropriate objective limitations or criteria;

How compliance determinations would be made;

The ability of dischargers and inspectors to monitor for compliance; and

The technical and financial ability of dischargers to comply with the limitations or criteria."

Through a series of public participation processes (State Water Board meetings, State Water Board workshops, and the solicitation of written comments), a number of water quality, public process and overall program effectiveness problems were identified. Some of these problems are addressed through this General Permit.

D. Summary of Panel Findings on Construction Activities

The panel's final report can be downloaded and viewed through links at www.waterboards.ca.gov or by clicking [here](#)².

The panel made the following observations:

"Limited field studies indicate that traditional erosion and sediment controls are highly variable in performance, resulting in highly variable turbidity levels in the site discharge."

"Site-to-site variability in runoff turbidity from undeveloped sites can also be quite large in many areas of California, particularly in more arid regions with less natural vegetative cover and steep slopes."

² http://www.waterboards.ca.gov/stormwtr/docs/numeric/swpanel_final_report.pdf

“Active treatment technologies involving the use of polymers with relatively large storage systems now exist that can provide much more consistent and very low discharge turbidity. However, these technologies have as yet only been applied to larger construction sites, generally five acres or greater. Furthermore, toxicity has been observed at some locations, although at the vast majority of sites, toxicity has not occurred. There is also the potential for an accidental large release of such chemicals with their use.”

“To date most of the construction permits have focused on TSS and turbidity, but have not addressed other, potentially significant pollutants such as phosphorus and an assortment of chemicals used at construction sites.”

“Currently, there is no required training or certification program for contractors, preparers of soil erosion and sediment control Storm Water Pollution Prevention Plans, or field inspectors.”

“The quality of storm water discharges from construction sites that effectively employ BMPs likely varies due to site conditions such as climate, soil, and topography.”

“The States of Oregon and Washington have recently adopted similar concepts to the Action Levels described earlier.”

In addition, the panel made the following conclusions:

“It is the consensus of the Panel that active treatment technologies make Numeric Limits technically feasible for pollutants commonly associated with storm water discharges from construction sites (e.g. TSS and turbidity) for larger construction sites. Technical practicalities and cost-effectiveness may make these technologies less feasible for smaller sites, including small drainages within a larger site, as these technologies have seen limited use at small construction sites. If chemical addition is not permitted, then Numeric Limits are not likely feasible.”

“The Board should consider Numeric Limits or Action Levels for other pollutants of relevance to construction sites, but in particular pH. It is of particular concern where fresh concrete or wash water from cement mixers/equipment is exposed to storm water.”

“The Board should consider the phased implementation of Numeric Limits and Action Levels, commensurate with the capacity of the dischargers and support industry to respond.”

E. How the Panel’s Findings are Used in this General Permit

The State Water Board carefully considered the findings of the panel and related public comments. The State Water Board also reviewed and considered the comments regarding statewide storm water policy and the reissuance of the Industrial General Permit. From the input received the State Water Board identified some permit and program performance gaps that are addressed in this General Permit. The Summary of Significant Changes (below) in this General Permit are a direct result of this process.

F. Summary of Significant Changes in This General Permit

The State Water Board has significant changes to Order 99-08-DWQ. This General Permit differs from Order 99-08-DWQ in the following significant ways:

Rainfall Erosivity Waiver: this General Permit includes the option allowing a small construction site (>1 and <5 acres) to self-certify if the rainfall erosivity value (R value) for their site's given location and time frame compute to be less than or equal to 5.

Technology-Based Numeric Action Levels: this General Permit includes NALs for pH and turbidity.

Risk-Based Permitting Approach: this General Permit establishes three levels of risk possible for a construction site. Risk is calculated in two parts: 1) Project Sediment Risk, and 2) Receiving Water Risk.

Minimum Requirements Specified: this General Permit imposes more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.

Project Site Soil Characteristics Monitoring and Reporting: this General Permit provides the option for dischargers to monitor and report the soil characteristics at their project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.

Effluent Monitoring and Reporting: this General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to evaluate whether NALs and NELs for Active Treatment Systems included in this General Permit are exceeded.

Receiving Water Monitoring and Reporting: this General Permit requires some Risk Level 3 and LUP Type 3 dischargers to monitor receiving waters and conduct bioassessments.

Post-Construction Storm Water Performance Standards: this General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize and/or mitigate post-construction storm water runoff impacts.

Rain Event Action Plan: this General Permit requires certain sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.

Annual Reporting: this General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and public information.

Certification/Training Requirements for Key Project Personnel: this General Permit requires that key personnel (e.g., SWPPP preparers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with General Permit requirements.

Linear Underground/Overhead Projects: this General Permit includes requirements for all Linear Underground/Overhead Projects (LUPs).

II. RATIONALE

A. General Permit Approach

A general permit for construction activities is an appropriate permitting approach for the following reasons:

1. A general permit is an efficient method to establish the essential regulatory requirements for a broad range of construction activities under differing site conditions;
2. A general permit is the most efficient method to handle the large number of construction storm water permit applications;
3. The application process for coverage under a general permit is far less onerous than that for individual permit and hence more cost effective;
4. A general permit is consistent with USEPA's four-tier permitting strategy, the purpose of which is to use the flexibility provided by the CWA in designing a workable and efficient permitting system; and
5. A general permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. It is appropriate when the discharge characteristics are sufficiently similar, and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges. In most cases, the general permit will provide sufficient and appropriate management requirements to protect the quality of receiving waters from discharges of storm water from construction sites.

There may be instances where a general permit is not appropriate for a specific construction project. A Regional Water Board may require any discharger otherwise covered under the General Permit to apply for and obtain an Individual Permit or apply for coverage under a more specific General Permit. The Regional Water Board must determine that this General Permit does not provide adequate assurance that water quality will be protected, or that there is a site-specific reason why an individual permit should be required.

B. Construction Activities Covered

1. Construction activity subject to this General Permit:

Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre.

Construction activity that results in land surface disturbances of less than one acre if the construction activity is part of a larger common plan of development or sale of one or more acres of disturbed land surface.

Construction activity related to residential, commercial, or industrial development on lands currently used for agriculture including, but not limited to, the construction of buildings related to agriculture that are considered industrial pursuant to USEPA regulations, such as dairy barns or food processing facilities.

Construction activity associated with LUPs including, but not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete

and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities.³

Storm water discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction⁴ (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction projects that intend to disturb one or more acres of land within the jurisdictional boundaries of a CWA § 404 permit should contact the appropriate Regional Water Board to determine whether this permit applies to the project.

2. Linear Underground/Overhead Projects (LUPs) subject to this General Permit:

Underground/overhead facilities typically constructed as LUPs include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water, wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

Water Quality Order 2003-0007-DWQ regulated construction activities associated with small LUPs that resulted in land disturbances greater than one acre, but less than five acres. These projects were considered non-traditional construction projects. Attachment A of this Order now regulates all construction activities from LUPs resulting in land disturbances greater than one acre.

3. Common Plan of Development or Sale

USEPA regulations include the term “common plan of development or sale” to ensure that acreage within a common project does not artificially escape the permit requirements because construction activities are phased, split among smaller parcels, or completed by different owners/developers. In the absence of an

³ Pursuant to the Ninth Circuit Court of Appeals' decision in *NRDC v. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the USEPA's petition for reconsideration in November 2008, oil and gas construction activities discharging storm water contaminated only with sediment are no longer exempt from the NPDES program.

⁴ A construction site that includes a dredge and/or fill discharge to any water of the United States (e.g., wetland, channel, pond, or marine water) requires a CWA Section 404 permit from the U.S. Army Corps of Engineers and a CWA Section 401 Water Quality Certification from the Regional Water Board or State Water Board.

exact definition of “common plan of development or sale,” the State Water Board is required to exercise its regulatory discretion in providing a common sense interpretation of the term as it applies to construction projects and permit coverage. An overbroad interpretation of the term would render meaningless the clear “one acre” federal permitting threshold and would potentially trigger permitting of almost any construction activity that occurs within an area that had previously received area-wide utility or road improvements.

Construction projects generally receive grading and/or building permits (Local Permits) from local authorities prior to initiating construction activity. These Local Permits spell out the scope of the project, the parcels involved, the type of construction approved, etc. Referring to the Local Permit helps define “common plan of development or sale.” In cases such as tract home development, a Local Permit will include all phases of the construction project including rough grading, utility and road installation, and vertical construction. All construction activities approved in the Local Permit are part of the common plan and must remain under the General Permit until construction is completed. For custom home construction, Local Permits typically only approve vertical construction as the rough grading, utilities, and road improvements were already independently completed under the a previous Local Permit. In the case of a custom home site, the homeowner must submit plans and obtain a distinct and separate Local Permit from the local authority in order to proceed. It is not the intent of the State Water Board to require permitting for an individual homeowner building a custom home on a private lot of less than one acre if it is subject to a separate Local Permit. Similarly, the installation of a swimming pool, deck, or landscaping that disturbs less than one acre that was not part of any previous Local Permit are not required to be permitted.

The following are several examples of construction activity of less than one acre that would require permit coverage:

- a. A landowner receives a building permit(s) to build tract homes on a 100-acre site split into 200 one-third acre parcels, (the remaining acreage consists of streets and parkways) which are sold to individual homeowners as they are completed. The landowner completes and sells all the parcels except for two. Although the remaining two parcels combined are less than one acre, the landowner must continue permit coverage for the two parcels.
- b. One of the parcels discussed above is sold to another owner who intends to complete the construction as already approved in the Local Permit. The new landowner must file Permit Registration Documents (PRDs) to complete the construction even if the new landowner is required to obtain a separate Local Permit.
- c. Landowner in (1) above purchases 50 additional one half-acre parcels adjacent to the original 200-acre project. The landowner seeks a Local Permit (or amendment to existing Local permit) to build on 20 parcels while leaving the remaining 30 parcels for future development. The landowner must amend PRDs to include the 20 parcels 14 days prior to commencement of construction activity on those parcels.

C. Construction Activities Not Covered

1. Traditional Construction Projects Not Covered

This General Permit does not apply to the following construction activity:

- a. Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

- b. Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation.
- c. Discharges of storm water from areas on tribal lands; construction on tribal lands is regulated by a federal permit.
- d. Discharges of storm water within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Board has adopted its own permit to regulate storm water discharges from construction activity in the Lake Tahoe Hydrologic Unit (Regional Water Board 6SLT). Owners of construction projects in this watershed must apply for the Lahontan Regional Water Board permit rather than the statewide Construction General Permit. Construction projects within the Lahontan region must also comply with the Lahontan Region Project Guideline for Erosion Control (R6T-2005-0007 Section), which can be found at http://www.waterboards.ca.gov/lahontan/Adopted_Orders/2005/r6t_2005_0007.pdf
- e. Construction activity that disturbs less than one acre of land surface, unless part of a larger common plan of development or the sale of one or more acres of disturbed land surface.
- f. Construction activity covered by an individual NPDES Permit for storm water discharges.
- g. Landfill construction activity that is subject to the Industrial General Permit.
- h. Construction activity that discharges to Combined Sewer Systems.
- i. Conveyances that discharge storm water runoff combined with municipal sewage.
- j. Discharges of storm water identified in CWA § 402(l)(2), 33 U.S.C. § 1342(l)(2).

2. Linear Projects Not Covered

- a. LUP construction activity does not include linear routine maintenance projects. Routine maintenance projects are projects associated with operations and maintenance activities that are conducted on existing lines and facilities and within existing right-of-way, easements, franchise agreements, or other legally binding agreements of the discharger. Routine maintenance projects include, but are not limited to projects that are conducted to:
 - i. Maintain the original purpose of the facility or hydraulic capacity.
 - ii. Update existing lines⁵ and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
 - iii. Repairing leaks.

⁵Update existing lines includes replacing existing lines with new materials or pipes.

Routine maintenance does not include construction of new⁶ lines or facilities resulting from compliance with applicable codes, standards, and regulations.

Routine maintenance projects do not include those areas of maintenance projects that are outside of an existing right-of-way, franchise, easements, or agreements. When a project must secure new areas, those areas may be subject to this General Permit based on the area of disturbed land outside the original right-of-way, easement, or agreement.

- b. LUP construction activity does not include field activities associated with the planning and design of a project (e.g., activities associated with route selection).
- c. Tie-ins conducted immediately adjacent to “energized” or “pressurized” facilities by the discharger are not considered construction activities where all other LUP construction activities associated with the tie-in are covered by an NOI and SWPPP of a third party or municipal agency.

3. EPA’s Small Construction Rainfall Erosivity Waiver

EPA’s Storm Water Phase II Final Rule provides the option for a Small Construction Rainfall Erosivity Waiver. This waiver applies to small construction sites between 1 and 5 acres, and allows permitting authorities to waive those sites that do not have adverse water quality impacts.

Dischargers eligible for this waiver are exempt from Construction General Permit Coverage. In order to obtain the waiver, the discharger must certify to the State Water Board that small construction activity will occur only when the rainfall erosivity factor is less than 5 (“R” in the Revised Universal Soil Loss Equation). The period of construction activity begins at initial earth disturbance and ends with final stabilization. Where vegetation will be used for final stabilization, the date of installation of a practice that provides interim non-vegetative stabilization can be used for the end of the construction period. The operator must agree (as a condition waiver eligibility) to periodically inspect and properly maintain the area until the criteria for final stabilization as defined in the General Permit have been met. If use of this interim stabilization eligibility condition was relied on to qualify for the waiver, signature on the waiver with a certification statement constitutes acceptance of and commitment to complete the final stabilization process. The discharger must submit a waiver certification to the State Board prior to commencing construction activities.

USEPA funded a cooperative agreement with Texas A&M University to develop an online rainfall erosivity calculator. Dischargers can access the calculator from EPA’s website at: www.epa.gov/npdes/stormwater/cgp. Use of the calculator allows the discharger to determine potential eligibility for the rainfall erosivity waiver. It may also be useful in determining the time periods during which construction activity could be waived from permit coverage.

⁶New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

D. Obtaining and Terminating Permit Coverage

The appropriate Legally Responsible Person (LRP) must obtain coverage under this General Permit. To obtain coverage, the LRP or the LRP's Approved Signatory must file Permit Registration Documents (PRDs) prior to the commencement of construction activity. Failure to obtain coverage under this General Permit for storm water discharges to waters of the United States is a violation of the CWA and the California Water Code.

To obtain coverage under this General Permit, LRPs must electronically file the PRDs, which include a Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and other documents required by this General Permit, and mail the appropriate permit fee to the State Water Board. It is expected that as the storm water program develops, the Regional Water Boards may issue General Permits or Individual Permits that contain more specific permit provisions. When this occurs, this General Permit will no longer regulate those dischargers that obtain coverage under Individual Permits.

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

The application requirements of the General Permit establish a mechanism to clearly identify the responsible parties, locations, and scope of operations of dischargers covered by the General Permit and to document the discharger's knowledge of the General Permit's requirements.

This General Permit provides a grandfathering exception to existing dischargers subject to Water Quality Order No. 99-08-DWQ. Construction projects covered under Water Quality Order No. 99-08-DWQ shall obtain permit coverage at Risk Level 1. LUP projects covered under Water Quality Order No. 2003-0007-DWQ shall obtain permit coverage at LUP Type 1. The Regional Water Boards have the authority to require Risk Determination to be performed on projects currently covered under Water Quality Order No. 99-08-DWQ and 2003-0007-DWQ where they deem necessary.

LRPs must file a Notice of Termination (NOT) with the Regional Water Board when construction is complete and final stabilization has been reached or ownership has been transferred. The discharger must certify that all State and local requirements have been met in accordance with this General Permit. In order for construction to be found complete, the discharger must install post-construction storm water management measures and establish a long-term maintenance plan. This requirement is intended to ensure that the post-construction conditions at the project site do not cause or contribute to direct or indirect water quality impacts (i.e., pollution and/or hydromodification) upstream and downstream. Specifically, the discharger must demonstrate compliance with the post-construction standards set forth in this General Permit (Section XIII). The discharger is responsible for all compliance issues including all annual fees until the NOT has been filed and approved by the local Regional Water Board.

E. Discharge Prohibitions

This General Permit authorizes the discharge of storm water to surface waters from construction activities that result in the disturbance of one or more acres of land, provided that the discharger satisfies all permit conditions set forth in the Order. This General Permit prohibits the discharge of pollutants other than storm water and non-storm water discharges authorized by this General Permit or another NPDES permit. This General Permit also prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges. In addition, this General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the nine Regional Water Boards. Discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.

Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural BMPs. The State Water Board recognizes, however, that certain non-storm water discharges may be necessary for the completion of construction projects. Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water dewatering, and other discharges not subject to a separate general NPDES permit adopted by a region. Therefore this General Permit authorizes such discharges provided they meet the following conditions.

These authorized non-storm water discharges must:

1. be infeasible to eliminate;
2. comply with BMPs as described in the SWPPP;
3. filter or treat, using appropriate technology, all dewatering discharges from sedimentation basins;
4. meet the NALs for pH and turbidity; and
5. not cause or contribute to a violation of water quality standards.

Additionally, authorized non-storm water discharges must not be used to clean up failed or inadequate construction or post-construction BMPs designed to keep materials onsite. Authorized non-storm water dewatering discharges may require a permit because some Regional Water Boards have adopted General Permits for dewatering discharges.

This General Permit prohibits the discharge of storm water that causes or threatens to cause pollution, contamination, or nuisance.

F. Effluent Standards for All Types of Discharges

1. Technology-Based Effluent Limitations

Permits for storm water discharges associated with construction activity must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize best available technology economically achievable (BAT) for toxic pollutants and non conventional pollutants and best conventional pollutant control technology (BCT) for conventional pollutants. Additionally, these provisions require controls of pollutant discharges to reduce pollutants and any more stringent controls necessary to meet water quality standards. The USEPA has already established such limitations, known as effluent limitation guidelines (ELGs), for some industrial categories. This is not the case with construction discharges. In instances where there are no ELGs the permit writer is to use best professional judgment (BPJ) to establish requirements that the discharger must meet using BAT/BCT technology. This General Permit contains only narrative effluent limitations and does not contain numeric effluent limitations, except for Active Treatment Systems (ATS).

Order No. 2009-0009-DWQ, as originally adopted by the State Water Board on September 2, 2009, contained numeric effluent limitations for pH (within the range of 6.0 and 9.0 pH units) and turbidity (500 NTU) that applied only to Risk Level 3 and LUP Type 3 construction sites. The State Water Board adopted the numeric effluent limitations as technology-based effluent limitations based upon its best professional judgment. The California Building Industry Association, the Building Industry Legal Defense

Foundation, and the California Business Properties Association (petitioners) challenged Order No. 2009-0009-DWQ in *California Building Industry Association et al. v. State Water Resources Control Board*. On December 27, 2011, the Superior Court issued a judgment and writ of mandamus. The Superior Court ruled in favor of the State Water Board on almost all of the issues the petitioners raised, but the Superior Court invalidated the numeric effluent limitations for pH and turbidity for Risk Level 3 and LUP Type 3 sites because it determined that the State Water Board did not have sufficient BMP performance data to support those numeric effluent limitations. Therefore, the Superior Court concluded that the State Water Board did not comply with the federal regulations that apply to the use of best professional judgment. In invalidating the numeric effluent limitations, the Superior Court also suspended two ancillary requirements (a compliance storm event provision and receiving water monitoring at Risk Level 3 and LUP Type 3 sites that violated the numeric effluent limitations) that related solely to the invalidated numeric effluent limitations.

As a result of the Superior Court's writ of mandamus, this Order no longer contains numeric effluent limitations for pH and turbidity, except for ATS. In addition, as a result of the Superior Court's writ of mandamus, the receiving water monitoring requirements for Risk Level 3 and LUP Type 3 sites were suspended until the State Water Board amended this Order to restore the receiving water monitoring requirements. As amended, this Order now requires Risk Level 3 and LUP Type 3 Dischargers with direct discharges to surface waters to conduct receiving water monitoring whenever their effluent exceeds specified receiving water monitoring triggers. The receiving water monitoring triggers were established at the same levels as the previous numeric effluent limitations (effluent pH outside the range of 6.0 and 9.0 pH units or turbidity exceeding 500 NTU). In restoring the receiving water monitoring requirements, the State Water Board determined that it was appropriate to require receiving water monitoring for these types of sites with direct discharges to surface waters that exceeded the receiving water monitoring triggers under any storm event scenarios, because these sites represent the highest threat to receiving water quality. An exceedance of a receiving water monitoring trigger does not constitute a violation of this General Permit. These receiving water monitoring requirements take effect on the effective date of the amendment to this Order.

BAT/BCT technologies not only include passive systems such as conventional runoff and sediment control, but also treatment systems such as coagulation/flocculation using sand filtration, when appropriate. Such technologies allow for effective treatment of soil particles less 0.02 mm (medium silt) in diameter. The discharger must install structural controls, as necessary, such as erosion and sediment controls that meet BAT and BCT to achieve compliance with water quality standards. The narrative effluent limitations constitute compliance with the requirements of the CWA.

Because the permit is an NPDES permit, there is no legal requirement to address the factors set forth in Water Code sections 13241 and 13263, unless the permit is more stringent than what federal law requires. (See *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 618, 627.) None of the requirements in this permit are more stringent than the minimum federal requirements, which include technology-based requirements achieving BAT/BCT and strict compliance with water quality standards. The inclusion of numeric effluent limitations (NELs) in the permit for Active Treatment Systems does not cause the permit to be more stringent than current federal law. NELs and best management practices are simply two different methods of achieving the same federal requirement: strict compliance with state water quality standards. Federal law authorizes both narrative and numeric effluent limitations to meet state water quality standards. The use of NELs to achieve compliance with water quality standards is not a more stringent requirement than the use of BMPs. (State Water Board Order No. WQ 2006-0012 (*Boeing*)). Accordingly, the State Water Board does not need to take into account the factors in Water Code sections 13241 and 13263.

The State Water Board has concluded that the establishment of BAT/BCT will not create or aggravate other environmental problems through increases in air pollution, solid waste generation, or energy consumption.—While there may be a slight increase in non-water quality impacts due to the implementation of additional monitoring or the construction of additional BMPs, these impacts will be negligible in comparison with the construction activities taking place on site and would be justified by the water quality benefits associated with compliance.

pH Receiving Water Monitoring Trigger

Given the potential contaminants, the minimum standard method for control of pH in runoff requires the use of preventive measures such as avoiding concrete pours during rainy weather, covering concrete and directing flow away from fresh concrete if a pour occurs during rain, covering scrap drywall and stucco materials when stored outside and potentially exposed to rain, and other housekeeping measures. If necessary, pH-impaired storm water from construction sites can be treated in a filter or settling pond or basin, with additional natural or chemical treatment required to meet pH limits set forth in this permit. The basin or pond acts as a collection point and holds storm water for a sufficient period for the contaminants to be settled out, either naturally or artificially, and allows any additional treatment to take place. The State Water Board considers these techniques to be equivalent to BCT. In determining the pH concentration trigger for discharges, the State Water Board used BPJ to set these limitations.

The chosen trigger was established by calculating three standard deviations above and below the mean pH of runoff from highway construction sites⁷ in California. Proper implementation of BMPs should result in discharges that are within the range of 6.0 to 9.0 pH Units.

Turbidity Receiving Water Monitoring Trigger

The Turbidity receiving water monitoring trigger of 500 NTU is a technology-based trigger and was developed using three different analyses aimed at finding the appropriate threshold to set the technology-based limit to ensure environmental protection, effluent quality and cost-effectiveness. The analyses fell into three, main types: (1) an ecoregion-specific dataset developed by Simon et. al. (2004)⁸; (2) Statewide Regional Water Quality Control Board enforcement data; and (3) published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites.

A 1:3 relationship between turbidity (expressed as NTU) and suspended sediment concentration (expressed as mg/L) is assumed based on a review of suspended sediment and turbidity data from three gages used in the USGS National Water Quality Assessment Program:

USGS 11074000 SANTA ANA R BL PRADO DAM CA
USGS 11447650 SACRAMENTO R A FREEPORT CA
USGS 11303500 SAN JOAQUIN R NR VERNALIS CA

The receiving water monitoring trigger represents staff determination that the trigger value is the most practicable based on available data. The turbidity receiving water monitoring trigger represents a bridge between the narrative effluent limitations and receiving water limitations. To support this receiving water monitoring trigger, State Water Board staff analyzed construction site discharge information (monitoring data, estimates) and receiving water monitoring information.

Since the turbidity receiving water monitoring trigger represents an appropriate threshold level expected at a site, compliance with this value does not necessarily represent compliance with either the narrative effluent limitations (as enforced through the BAT/BCT standard) or the receiving water limitations. In the San Diego region, some inland surface waters have a receiving water objective for turbidity equal to 20 NTU. Obviously a discharge up to, but not exceeding, the turbidity receiving water monitoring trigger of

⁷ Caltrans Construction Sites Runoff Characterization Study, 2002. Available at: <http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf>.

500 NTU may still cause or contribute to the exceedance of the 20 NTU standard. Most of the waters of the State are protected by turbidity objectives based on background conditions.

Table 1 - Regional Water Board Basin Plans, Water Quality Objectives for Turbidity

REGIONAL WATER BOARD	WQ Objective	Background/Natural Turbidity	Maximum Increase
1	Based on background	All levels	20%
2	Based on background	> 50 NTU	10%
3	Based on background	0-50 JTU 50-100 JTU > 100 JTU	20% 10 NTU 10%
4	Based on background	0-50 NTU > 50 NTU	20% 10%
5	Based on background	0-5 NTU 5-50 NTU 50-100 NTU >100 NTU	1 NTU 20% 10 NTU 10%
6	Based on background	All levels	10%
7	Based on background	N/A	N/A
8	Based on background	0-50 NTU 50-100 NTU >100 NTU	20% 10 NTU 10%
9	Inland Surface Waters, 20 NTU All others, based on background	0-50 NTU 50-100 NTU >100 NTU	20% 10 NTU 10%

Table 2 shows the suspended sediment concentrations at the 1.5 year flow recurrence interval for the 12 ecoregions in California from Simon et. al (2004).

Table 2 - Results of Ecoregion Analysis

Ecoregion	Percent of California Land Area	Median Suspended Sediment Concentration (mg/L)
1	9.1	874
4	0.2	120
5	8.8	35.6
6	20.7	1530
7	7.7	122
8	3.0	47.4
9	9.4	284
13	5.2	143
14	21.7	5150
78	8.1	581
80	2.4	199
81	3.7	503
Area-weighted average		1633

If a 1:3 relationship between turbidity and suspended sediment is assumed, the median turbidity is 544 NTU.

The following table is composed of turbidity readings measured in NTUs from administrative civil liability (ACL) actions for construction sites from 2003 - 2009. This data was derived from the complete listing of construction-related ACLs for the six year period. All ACLs were reviewed and those that included turbidimeter readings at the point of storm water discharge were selected for this dataset.

Table 3 – ACL Sampling Data taken by Regional Water Board Staff

WDID#	Region	Discharger	Turbidity (NTU)
5S34C331884	5S	Bradshaw Interceptor Section 6B	1800
5S05C325110	5S	Bridalwood Subdivision	1670
5S48C336297	5S	Cheyenne at Browns Valley	1629
5R32C314271	5R	Grizzly Ranch Construction	1400
6A090406008	6T	El Dorado County Department of Transportation, Angora Creek	97.4
5S03C346861	5S	TML Development, LLC	1600
6A31C325917	6T	Northstar Village	See Subdata Set

Subdata Set - Turbidity for point of storm water runoff discharge at Northstar Village

Date	Turbidity (NTU)	Location
10/5/2006	900	Middle Martis Creek
11/2/2006	190	Middle Martis Creek
01/04/2007	36	West Fork, West Martis Creek
02/08/2007	180	Middle Martis Creek
02/09/2007	130	Middle Martis Creek
02/09/2007	290	Middle Martis Creek
02/09/2007	100	West Fork, West Martis Creek
02/10/2007	28	Middle Martis Creek
02/10/2007	23	Middle Martis Creek
02/10/2007	32	Middle Martis Creek
02/10/2007	12	Middle Martis Creek
02/10/2007	60	West Fork, West Martis Creek
02/10/2007	34	West Fork, West Martis Creek

A 95% confidence interval for mean turbidity in an ACL order was constructed. The data set used was a small sample size, so the 500 NTU (the value derived as the receiving water monitoring trigger for this General Permit) needed to be verified as a possible population mean. In this case, the population refers to a hypothetical population of turbidity measurements of which our sample of 20 represents. A t-distribution was assumed due to the small sample size:

Mean: 512.23 NTU Standard Deviation: 686.85 Margin of Error: 321.45 Confidence Interval: 190.78 NTU (Low) 833.68 NTU (High)

Based on a constructed 95% confidence interval, an ACL order turbidity measurement will be between 190.78 – 833.68 NTU. 500 NTU falls within this range. Using the same data set, a small-sample hypothesis test was also performed to test if the ACL turbidity data set contains enough information to cast doubt on choosing a 500 NTU as a mean. 500 NTU was again chosen due to its proposed use as an acceptable value. The test was carried out using a 95% confidence interval. Results indicated that the ACL turbidity data set *does not* contain significant sample evidence to reject the claim of 500 NTU as an acceptable mean for the ACL turbidity population.

There are not many published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites. The most often cited study is a report titled, “Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control” (Horner, Guedry, and Korten Hof 1990, <http://www.wsdot.wa.gov/Research/Reports/200/200.1.htm>). In a comment letter summarizing this report sent to the State Water Board, the primary author, Dr. Horner, states:

“The most effective erosion control product was wood fiber mulch applied at two different rates along with a bonding agent and grass seed in sufficient time before the tests to achieve germination. Plots treated in this way reduced influent turbidity by more than 97 percent and discharged effluent exhibiting mean and maximum turbidity values of 21 and 73 NTU, respectively. Some other mulch and blanket materials performed nearly as well. These tests demonstrated the control ability of widely available BMPs over a very broad range of erosion potential.”

Other technologies studied in this report produced effluent quality at or near 100 NTU. It is the BPJ of the State Water Board staff that erosion control, while preferred, is not always an option on construction sites and that technology performance in a controlled study showing effluent quality directly leaving a BMP is always easier and cheaper to control than effluent being discharged from the project (edge of property, etc.). As a result, it is the BPJ of the State Water Board staff that it is not cost effective or feasible, at this time, for all risk level and type 3 sites in California to achieve effluent discharges with turbidity values that are less than 100 NTU.

To summarize, the analysis showed that: (1) results of the Simon et. al dataset reveals turbidity values in background receiving water in California’s ecoregions range from 16 NTU to 1716 NTU (with a mean of 544 NTU); (2) based on a constructed 95% confidence interval, construction sites will be subject to administrative civil liability (ACL) when their turbidity measurement falls between 190.78 – 833.68 NTU; and (3) sites with highly controlled discharges employing and maintaining good erosion control practices can discharge effluent from the BMP with turbidity values less than 100 NTU. State Water Board staff has determined, using its BPJ, that it is most cost effective to set the receiving water monitoring trigger for turbidity at 500 NTU.

i. Compliance Storm Event

While this General Permit no longer contains “compliance storm event” exceptions from technology-based NELs, the “compliance storm event” exception from the ATS NELs remain in effect. See Section K of this Fact Sheet, and Attachment F of this General Permit for more information.

a. TMDLs and Waste Load Allocations

Dischargers located within the watershed of a CWA § 303(d) impaired water body, for which a TMDL for sediment has been adopted by the Regional Water Board or USEPA, must comply with the approved TMDL if it identifies “construction activity” or land disturbance as a source of sediment. If it does, the

TMDL should include a specific waste load allocation for this activity/source. The discharger, in this case, may be required by a separate Regional Water Board order to implement additional BMPs, conduct additional monitoring activities, and/or comply with an applicable waste load allocation and implementation schedule. If a specific waste load allocation has been established that would apply to a specific discharge, the Regional Water Board may adopt an order requiring specific implementation actions necessary to meet that allocation. In the instance where an approved TMDL has specified a general waste load allocation to construction storm water discharges, but no specific requirements for construction sites have been identified in the TMDL, dischargers must consult with the state TMDL authority⁹ to confirm that adherence to a SWPPP that meets the requirements of the General Permit will be consistent with the approved TMDL.

2. Determining Compliance with Effluent Standards

a. Technology-Based Numeric Action Levels (NALs)

This General Permit contains technology-based NALs for pH and turbidity, and requirements for effluent monitoring at all Risk level 2 & 3, and LUP Type 2 & 3 sites. Numeric action levels are essentially numeric benchmark values for certain parameters that, if exceeded in effluent sampling, trigger the discharger to take actions. Exceedance of an NAL does not itself constitute a violation of the General Permit. If the discharger fails to take the corrective action required by the General Permit, though, that may constitute a violation.

The primary purpose of NALs is to assist dischargers in evaluating the effectiveness of their on-site measures. Construction sites need to employ many different systems that must work together to achieve compliance with the permit's requirements. The NALs chosen should indicate whether the systems are working as intended.

Another purpose of NALs is to provide information regarding construction activities and water quality impacts. This data will provide the State and Regional Water Boards and the rest of the storm water community with more information about levels and types of pollutants present in runoff and how effective the dischargers BMPs are at reducing pollutants in effluent. The State Water Board also hopes to learn more about the linkage between effluent and receiving water quality. In addition, these requirements will provide information on the mechanics needed to establish compliance monitoring programs at construction sites in future permit deliberations.

i. **pH**

The chosen limits were established by calculating one standard deviation above and below the mean pH of runoff from highway construction sites¹⁰ in California. Proper implementation of BMPs should result in discharges that are within the range of 6.5 to 8.5 pH Units.

⁹ <http://www.waterboards.ca.gov/tmdl/tmdl.html>.

¹⁰ Caltrans Construction Sites Runoff Characterization Study, 2002. Available at: <http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf>.

The Caltrans study included 33 highway construction sites throughout California over a period of four years, which included 120 storm events. All of these sites had BMPs in place that would be generally implemented at all types of construction sites in California.

ii. *Turbidity*

BPJ was used to develop an NAL that can be used as a learning tool to help dischargers improve their site controls, and to provide meaningful information on the effectiveness of storm water controls. A statewide turbidity NAL has been set at 250 NTU.

G. Receiving Water Limitations

Construction-related activities that cause or contribute to an exceedance of water quality standards must be addressed. The dynamic nature of construction activity gives the discharger the ability to quickly identify and monitor the source of the exceedances. This is because when storm water mobilizes sediment, it provides visual cues as to where corrective actions should take place and how effective they are once implemented.

This General Permit requires that storm water discharges and authorized non-storm water discharges must not contain pollutants that cause or contribute to an exceedance of any applicable water quality objective or water quality standards. The monitoring requirements in this General Permit for sampling and analysis procedures will help determine whether BMPs installed and maintained are preventing pollutants in discharges from the construction site that may cause or contribute to an exceedance of water quality standards.

Water quality standards consist of designated beneficial uses of surface waters and the adoption of ambient criteria necessary to protect those uses. When adopted by the State Water Board or a Regional Water Board, the ambient criteria are termed “water quality objectives.” If storm water runoff from construction sites contains pollutants, there is a risk that those pollutants could enter surface waters and cause or contribute to an exceedance of water quality standards. For that reason, dischargers should be aware of the applicable water quality standards in their receiving waters. (The best method to ensure compliance with receiving water limitations is to implement BMPs that prevent pollutants from contact with storm water or from leaving the construction site in runoff.)

In California, water quality standards are published in the Basin Plans adopted by each Regional Water Board, the California Toxics Rule (CTR), the National Toxics Rule (NTR), and the Ocean Plan.

Dischargers can determine the applicable water quality standards by contacting Regional Water Board staff or by consulting one of the following sources. The actual Basin Plans that contain the water quality standards can be viewed at the website of the appropriate Regional Water Board. (<http://www.waterboards.ca.gov/regions.html>), the State Water Board site for statewide plans (<http://www.waterboards.ca.gov/plnspols/index.html>), or the USEPA regulations for the NTR and CTR (40 C.F.R. §§ 131.36-38). Basin Plans and statewide plans are also available by mail from the appropriate Regional Water Board or the State Water Board. The USEPA regulations are available at <http://www.epa.gov/>. Additional information concerning water quality standards can be accessed through http://www.waterboards.ca.gov/stormwtr/gen_const.html.

H. Training Qualifications and Requirements

The Blue Ribbon Panel (BRP) made the following observation about the lack of industry-specific training requirements:

“Currently, there is no required training or certification program for contractors, preparers of soil erosion and sediment control Storm Water Pollution Prevention Plans, or field inspectors.”

Order 99-08-DWQ required that all dischargers train their employees on how to comply with the permit, but it did not specify a curriculum or certification program. This has resulted in inconsistent implementation by all affected parties - the dischargers, the local governments where the construction activity occurs, and the regulators required to enforce 99-08-DWQ. This General Permit requires Qualified SWPPP Developers and practitioners to obtain appropriate training, and makes this curriculum mandatory two years after adoption, to allow time for course completion. The State and Regional Water Board are working with many stakeholders to develop the curriculum and mechanisms needed to develop and deliver the courses.

To ensure that the preparation, implementation, and oversight of the SWPPP is sufficient for effective pollution prevention, the Qualified SWPPP Developer and Qualified SWPPP Practitioners responsible for creating, revising, overseeing, and implementing the SWPPP must attend a State Water Board-sponsored or approved Qualified SWPPP Developer and Qualified SWPPP Practitioner training course.

I. Sampling, Monitoring, Reporting and Record Keeping

1. Traditional Construction Monitoring Requirements

This General Permit requires visual monitoring at all sites, and effluent water quality at all Risk Level 2 & 3 sites. It requires receiving water monitoring at some Risk Level 3 sites. All sites are required to submit annual reports, which contain various types of information, depending on the site characteristics and events. A summary of the monitoring and reporting requirements is found in Table 4.

Table 4 - Required Monitoring Elements for Risk Levels

	Visual	Non-visible Pollutant	Effluent	Receiving Water
Risk Level 1			where applicable	not required
Risk Level 2			pH, turbidity	not required
Risk Level 3	three types required for all Risk Levels: non-storm water, pre-rain and post-rain	As needed for all Risk Levels (see below)	pH, turbidity	(if Receiving Water Monitoring Trigger exceeded) pH, turbidity and SSC. Bioassessment for sites 30 acres or larger.

a. Visual

All dischargers are required to conduct quarterly, non-storm water visual inspections. For these inspections, the discharger must visually observe each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources. For storm-related inspections, dischargers must visually observe storm water discharges at all discharge locations within two business days after a qualifying event. For this requirement, a qualifying rain event is one producing precipitation of ½ inch or more of discharge. Dischargers must conduct a post-storm event inspection to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify any additional BMPs necessary and revise the SWPPP accordingly. Dischargers must maintain on-site records of all visual observations, personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

b. Non-Visible Pollutant Monitoring

This General Permit requires that all dischargers develop a sampling and analysis strategy for monitoring pollutants that are not visually detectable in storm water. Monitoring for non-visible pollutants must be required at any construction site when the exposure of construction materials occurs and where a discharge can cause or contribute to an exceedance of a water quality objective.

Of significant concern for construction discharges are the pollutants found in materials used in large quantities at construction sites throughout California and exposed throughout the rainy season, such as cement, flyash, and other recycled materials or by-products of combustion. The water quality standards that apply to these materials will depend on their composition. Some of the more common storm water pollutants from construction activity are not CTR pollutants. Examples of non-visible pollutants include glyphosate (herbicides), diazinon and chlorpyrifos (pesticides), nutrients (fertilizers), and molybdenum (lubricants). The use of diazinon and chlorpyrifos is a common practice among landscaping professionals and may trigger sampling and analysis requirements if these materials come into contact with storm water. High pH values from cement and gypsum, high pH and SSC from wash waters, and chemical/fecal contamination from portable toilets, also are not CTR pollutants. Although some of these constituents do have numeric water quality objectives in individual Basin Plans, many do not and are subject only to narrative water quality standards (i.e. not causing toxicity). Dischargers are encouraged to discuss these issues with Regional Water Board staff and other storm water quality professionals.

The most effective way to avoid the sampling and analysis requirements, and to ensure permit compliance, is to avoid the exposure of construction materials to precipitation and storm water runoff. Materials that are not exposed do not have the potential to enter storm water runoff, and therefore receiving waters sampling is not required. Preventing contact between storm water and construction materials is one of the most important BMPs at any construction site.

Preventing or eliminating the exposure of pollutants at construction sites is not always possible. Some materials, such as soil amendments, are designed to be used in a manner that will result in exposure to storm water. In these cases, it is important to make sure that these materials are applied according to the manufacturer's instructions and at a time when they are unlikely to be washed away. Other construction materials can be exposed when storage, waste disposal or the application of the material is done in a manner not protective of water quality. For these situations, sampling is required unless there is capture and containment of all storm water that has been exposed. In cases where construction materials may be exposed to storm water, but the storm water is contained and is not allowed to run off the site, sampling will only be required when inspections show that the containment failed or is breached, resulting in potential exposure or discharge to receiving waters.

The discharger must develop a list of potential pollutants based on a review of potential sources, which will include construction materials soil amendments, soil treatments, and historic contamination at the site. The discharger must review existing environmental and real estate documentation to determine the potential for pollutants that could be present on the construction site as a result of past land use activities.

Good sources of information on previously existing pollution and past land uses include:

- i. Environmental Assessments;
- ii. Initial Studies;
- iii. Phase 1 Assessments prepared for property transfers; and
- iv. Environmental Impact Reports or Environmental Impact Statements prepared under the requirements of the National Environmental Policy Act or the California Environmental Quality Act.

In some instances, the results of soil chemical analyses may be available and can provide additional information on potential contamination.

The potential pollutant list must include all non-visible pollutants that are known or should be known to occur on the construction site including, but not limited to, materials that:

- i. are being used in construction activities;
- ii. are stored on the construction site;
- iii. were spilled during construction operations and not cleaned up;
- iv. were stored (or used) in a manner that created the potential for a release of the materials during past land use activities;
- v. were spilled during previous land use activities and not cleaned up; or
- vi. were applied to the soil as part of past land use activities.

C. Effluent Monitoring

Federal regulations¹¹ require effluent monitoring for discharges subject to NALs. Subsequently, all Risk Level 2 and 3 dischargers must perform sampling and analysis of effluent discharges to characterize discharges associated with construction activity from the entire area disturbed by the project. Dischargers must collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.

Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level

	Frequency	Effluent Monitoring (Section E, below)
Risk Level 1	when applicable	non-visible pollutant parameters (if applicable)
Risk Level 2	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters (if applicable)
Risk Level 3	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters if applicable

Risk Level 1 dischargers must analyze samples for:

- i. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment C contained in the General Permit.

¹¹ 40 C.F.R. § 122.44.

Risk Level 2 dischargers must analyze samples for:

- i. pH and turbidity;
- ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment D contained in the General Permit, and
- iii. any additional parameters for which monitoring is required by the Regional Water Board.

Risk Level 3 dischargers must analyze samples for:

- i. pH, turbidity;
- ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment E contained in the General Permit, and
- iii. any additional parameters for which monitoring is required by the Regional Water Board.

2. Linear Monitoring and Sampling Requirements

Attachment A, establishes minimum monitoring and reporting requirements for all LUPs. It establishes different monitoring requirements depending on project complexity and risk to water quality. The monitoring requirements for Type 1 LUPs are less than Type 2 & 3 projects because Type 1 projects have a lower potential to impact water quality.

A discharger shall prepare a monitoring program prior to the start of construction and immediately implement the program at the start of construction for LUPs. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the project.

a. Type 1 LUP Monitoring Requirements

A discharger must conduct daily visual inspections of Type 1 LUPs during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be conducted in conjunction with other daily activities. Inspections will be conducted to ensure the BMPs are adequate, maintained, and in place at the end of the construction day. The discharger will revise the SWPPP, as appropriate, based on the results of the daily inspections. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures have been installed, and successful final vegetative cover or other stabilization criteria have been met).

A discharger shall implement the monitoring program for inspecting Type 1 LUPs. This program requires temporary and permanent stabilization BMPs after active construction is completed. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where re-vegetation is chosen until minimum vegetative coverage has been established. Photographs shall be taken during site inspections and submitted to the State Water Board.

b. Type 2 & 3 LUP Monitoring Requirements

A discharger must conduct daily visual inspections of Type 2 & 3 LUPs during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be in conjunction with other daily activities.

All dischargers of Type 2 & 3 LUPs are required to conduct inspections by qualified personnel of the construction site during normal working hours prior to all anticipated storm events and after actual storm events. During extended storm events, the discharger shall conduct inspections during normal working hours for each 24-hour period. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures installed, and successful vegetative cover or other stabilization criteria have been met).

The goals of these inspections are (1) to identify areas contributing to a storm water discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the General Permit; and (3) to determine whether additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible, depending upon worker safety.

All dischargers shall develop and implement a monitoring program for inspecting Type 2 & 3 LUPs that require temporary and permanent stabilization BMPs after active construction is completed. Inspections will be conducted to ensure the BMPs are adequate and maintained. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where revegetation is chosen until minimum vegetative coverage has been established.

A log of inspections conducted before, during, and after the storm events must be maintained in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection. Photographs must be taken during site inspections and submitted to the State Water Board.

C. Sampling Requirements for all LUP Project Types

LUPs are also subject to sampling and analysis requirements for visible pollutants (i.e., sedimentation/siltation, turbidity) and for non-visible pollutants.

Sampling for visible pollutants is required for Type 2 & 3 LUPs.

Non-visible pollutant monitoring is required for pollutants associated with construction sites and activities that (1) are not visually detectable in storm water discharges, and (2) are known or should be known to occur on the construction site, and (3) could cause or contribute to an exceedance of water quality objectives in the receiving waters. Sample collection for non-visible pollutants must only be required (1) during a storm event when pollutants associated with construction activities may be discharged with storm water runoff due to a spill, or in the event there was a breach, malfunction, failure, and/or leak of any BMP, and (2) when the discharger has failed to adequately clean the area of material and pollutants. Failure to implement appropriate BMPs will trigger the same sampling requirements as those required for a breach, malfunction and/or leak, or when the discharger has failed to implement appropriate BMPs prior to the next storm event.

Additional monitoring parameters may be required by the Regional Water Boards.

It is not anticipated that many LUPs will be required to collect samples for pollutants not visually detected in runoff due to the nature and character of the construction site and activities as previously described in this fact sheet. Most LUPs are constructed in urban areas with public access (e.g., existing roadways, road shoulders, parking areas, etc.). This raises a concern regarding the potential contribution of pollutants from vehicle use and/or from normal activities of the public (e.g., vehicle washing, landscape fertilization, pest spraying, etc.) in runoff from the project site. Since the dischargers are not the land owners of the project area and are not able to control the presence of these pollutants in the storm water that runs through their projects, it is not the intent of this General Permit to require dischargers to sample for these pollutants. This General Permit does not require the discharger to sample for these types of pollutants except where the discharger has brought materials onsite that contain these pollutants and when a condition (e.g., breach, failure, etc.) described above occurs.

3. Receiving Water Monitoring

In order to ensure that receiving water limitations are met, discharges subject to receiving water monitoring triggers (i.e., Risk Level 3 and LUP Type 3 sites) or numeric effluent limitations (i.e., Risk Level 3 and LUP Type 3 sites utilizing ATS with direct discharges into receiving waters) must also monitor the downstream receiving water(s) for turbidity, SSC, and pH (if applicable) when a receiving water monitoring trigger or NEL is exceeded.

a. Bioassessment Monitoring

This General Permit requires a bioassessment of receiving waters for dischargers of Risk Level 3 or LUP Type 3 construction projects equal to or larger than 30 acres with direct discharges into receiving waters. Benthic macroinvertebrate samples will be taken upstream and downstream of the site's discharge point in the receiving water. Bioassessments measure the quality of the stream by analyzing the aquatic life present. Higher levels of appropriate aquatic species tend to indicate a healthy stream; whereas low levels of organisms can indicate stream degradation. Active construction sites have the potential to discharge large amounts of sediment and pollutants into receiving waters. Requiring a bioassessment for large project sites, with the most potential to impact water quality, provides a snapshot of the health of the receiving water prior to initiation of construction activities. This snapshot can be used in comparison to the health of the receiving water after construction has commenced.

Each ecoregion (biologically and geographically related area) in the State has a specific yearly peak time where stream biota is in a stable and abundant state. This time of year is called an Index Period. The bioassessment requirements in this General Permit, requires benthic macroinvertebrate sampling within a sites index period. The State Water Board has developed a map designating index periods for the ecoregions in the State (see State Water Board Website).

This General Permit requires the bioassessment methods to be in accordance with the Surface Water Ambient Monitoring Program (SWAMP) in order to provide data consistency within the state as well as generate useable biological stream data.

Table 6 - Receiving Water Monitoring Requirements

	Receiving Water Monitoring Parameters
Risk Level 1 /LUP Type 1	not required
Risk Level 2 / LUP Type 2	not required
Risk Level 3 / LUP Type 3	If Receiving Water Monitoring Trigger exceeded: pH (if applicable), turbidity, and SSC. Bioassessment for sites 30 acres or larger.

4. Reporting Requirements

a. NAL Exceedance Report

All Risk Level 3 and LUP Type 3 dischargers must electronically submit all storm event sampling results to the State And Regional Boards, via the electronic data system, no later than 10 days after the conclusion of the storm event.

b. Annual Report

All dischargers must prepare and electronically submit an annual report no later than September 1 of each year using the Storm water Multi-Application Reporting and Tracking System (SMARTS). The

Annual Report must include a summary and evaluation of all sampling and analysis results, original laboratory reports, chain of custody forms, a summary of all corrective actions taken during the compliance year, and identification of any compliance activities or corrective actions that were not implemented.

5. Record Keeping

According to 40 C.F.R. Parts 122.21(p) and 122.41(j), the discharger is required to retain paper or electronic copies of all records required by this General Permit for a period of at least three years from the date generated or the date submitted to the State Water Board or Regional Water Boards. A discharger must retain records for a period beyond three years as directed by Regional Water Board.

J. Risk Determination

1. Traditional Projects

a. Overall Risk Determination

There are two major requirements related to site planning and risk determination in this General Permit. The project's overall risk is broken up into two elements – (1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details) and (2) receiving water risk (the risk sediment discharges pose to the receiving waters).

Project Sediment Risk:

Project Sediment Risk is determined by multiplying the R, K, and LS factors from the Revised Universal Soil Loss Equation (RUSLE) to obtain an estimate of project-related bare ground soil loss expressed in tons/acre. The RUSLE equation is as follows:

$$A = (R)(K)(LS)(C)(P)$$

Where: A = the rate of sheet and rill erosion

R = rainfall-runoff erosivity factor

K = soil erodibility factor

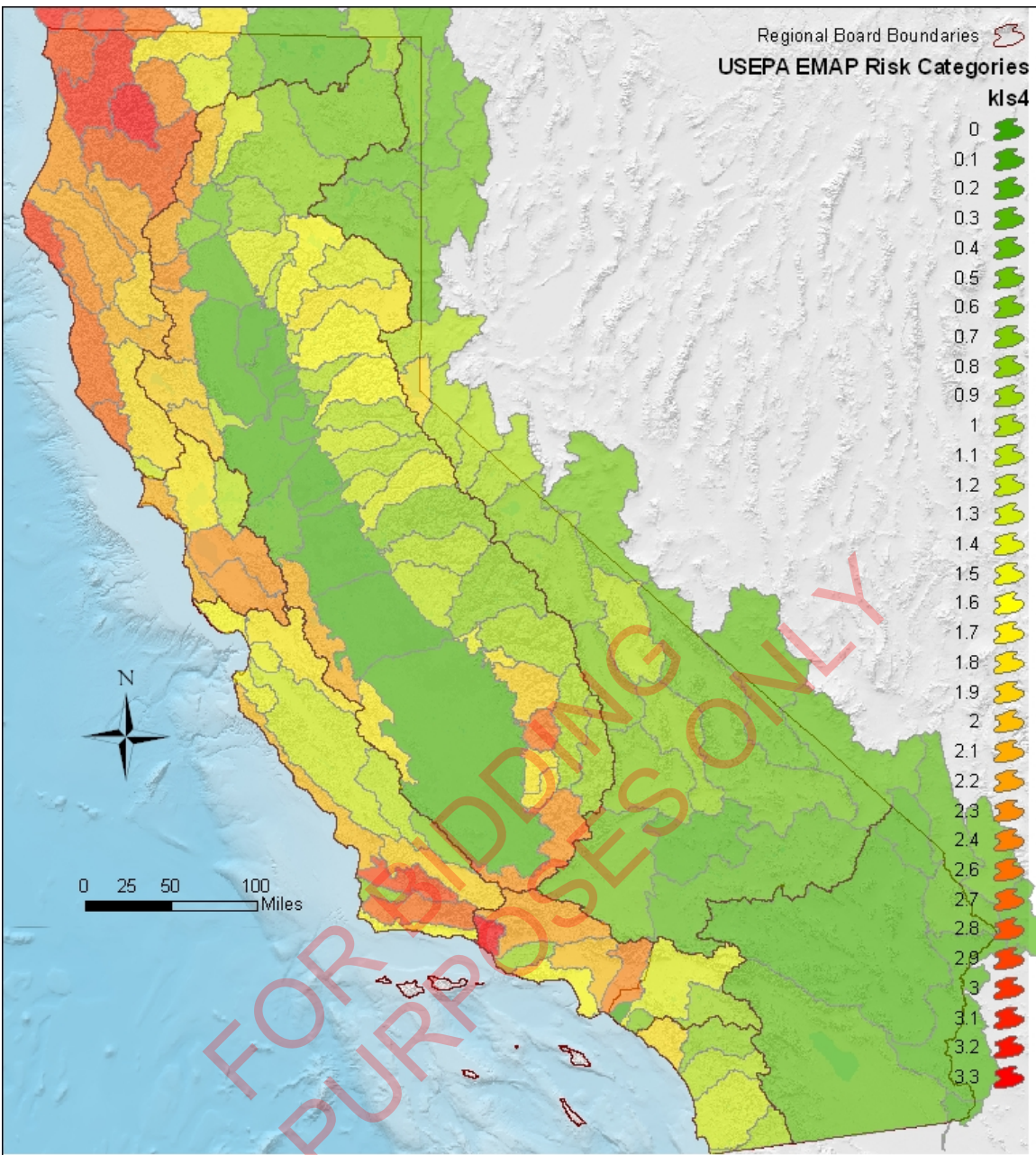
LS = length-slope factor

C = cover factor (erosion controls)

P = management operations and support practices (sediment controls)

The C and P factors are given values of 1.0 to simulate bare ground conditions.

There is a map option and a manual calculation option for determining soil loss. For the map option, the R factor for the project is calculated using the online calculator at <http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm>. The product of K and LS are shown on Figure 1. To determine soil loss in tons per acre, the discharger multiplies the R factor times the value for K times LS from the map.



State Water Resources Control Board, January 15, 2008

Figure 1 -Statewide Map of K * LS

For the manual calculation option, the R factor for the project is calculated using the online calculator at <http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm>. The K and LS factors are determined using Appendix 1.

Soil loss of less than 15 tons/acre is considered **low** sediment risk.
 Soil loss between 15 and 75 tons/acre is **medium** sediment risk.
 Soil loss over 75 tons/acre is considered **high** sediment risk.

The soil loss values and risk categories were obtained from mean and standard deviation RKLS values from the USEPA EMAP program. High risk is the mean RKLS value plus two standard deviations. Low risk is the mean RKLS value minus two standard deviations.

Receiving Water Risk:

Receiving water risk is based on whether a project drains to a sediment-sensitive waterbody. A sediment-sensitive waterbody is either

- on the most recent 303d list for waterbodies impaired for sediment;
- has a USEPA-approved Total Maximum Daily Load implementation plan for sediment; **or**
- has the beneficial uses of COLD, SPAWN, and MIGRATORY.

A project that meets at least one of the three criteria has a high receiving water risk. A list of sediment-sensitive waterbodies will be posted on the State Water Board's website. It is anticipated that an interactive map of sediment sensitive water bodies in California will be available in the future.

The Risk Levels have been altered by eliminating the possibility of a Risk Level 4, and expanding the constraints for Risk Levels 1, 2, and 3. Therefore, projects with high receiving water risk and high sediment risk will be considered a Risk Level 3 risk to water quality.

In response to public comments, the Risk Level requirements have also been changed such that Risk Level 1 projects will be subject to minimum BMP and visual monitoring requirements, Risk Level 2 projects will be subject to NALs and some additional monitoring requirements, and Risk Level 3 projects will be subject to NALs, and more rigorous monitoring requirements such as receiving water monitoring and in some cases bioassessment.

Table 7 - Combined Risk Level Matrix

Combined Risk Level Matrix			
Receiving Water Risk		Sediment Risk	
		Low	Medium
	Low	Level 1	Level 2
High	Level 2		Level 3

b. Effluent Standards

All dischargers are subject to the narrative effluent limitations specified in the General Permit. The narrative effluent limitations require storm water discharges associated with construction activity to meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize BAT and BCT to reduce pollutants and any more stringent controls necessary to meet water quality standards.

Risk Level 2 dischargers that pose a medium risk to water quality are subject to technology-based NALs for pH and turbidity. Risk Level 3 dischargers that pose a high risk to water quality are also subject to technology-based NALs for pH and turbidity.

c. Good Housekeeping

Proper handling and managing of construction materials can help minimize threats to water quality. The discharger must consider good housekeeping measures for: construction materials, waste management, vehicle storage & maintenance, landscape materials, and potential pollutant sources. Examples include; conducting an inventory of products used, implementing proper storage & containment, and properly cleaning all leaks from equipment and vehicles.

d. Non-Storm Water Management

Non-storm water discharges directly connected to receiving waters or the storm drain system have the potential to negatively impact water quality. The discharger must implement measures to control all non-storm water discharges during construction, and from dewatering activities associated with construction. Examples include; properly washing vehicles in contained areas, cleaning streets, and minimizing irrigation runoff.

e. Erosion Control

The best way to minimize the risk of creating erosion and sedimentation problems during construction is to disturb as little of the land surface as possible by fitting the development to the terrain. When development is tailored to the natural contours of the land, little grading is necessary and, consequently, erosion potential is lower.¹⁴ Other effective erosion control measures include: preserving existing vegetation where feasible, limiting disturbance, and stabilizing and re-vegetating disturbed areas as soon as possible after grading or construction activities. Particular attention must be paid to large, mass-graded sites where the potential for soil exposure to the erosive effects of rainfall and wind is great and where there is potential for significant sediment discharge from the site to surface waters. Until permanent vegetation is established, soil cover is the most cost-effective and expeditious method to protect soil particles from detachment and transport by rainfall. Temporary soil stabilization can be the single most important factor in reducing erosion at construction sites. The discharger is required to consider measures such as: covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. These erosion control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed. Erosion control BMPs should be the primary means of preventing storm water contamination, and sediment control techniques should be used to capture any soil that becomes eroded.¹²

Risk Level 3 dischargers pose a higher risk to water quality and are therefore additionally required to ensure that post-construction soil loss is equivalent to or less than the pre-construction levels.

f. Sediment Control

Sediment control BMPs should be the secondary means of preventing storm water contamination. When erosion control techniques are ineffective, sediment control techniques should be used to capture any soil that becomes eroded. The discharger is required to consider perimeter control measures such as: installing silt fences or placing straw wattles below slopes. These sediment control measures are only

¹² U.S. Environmental Protection Agency. 2007. Developing Your Storm Water Pollution Prevention Plan: A Guide for Construction Sites.

examples of what should be considered and should not preclude new or innovative approaches currently available or being developed.

Because Risk Level 2 and 3 dischargers pose a higher risk to water quality, additional requirements for the application of sediment controls are imposed on these projects. This General Permit also authorizes the Regional Water Boards to require Risk Level 3 dischargers to implement additional site-specific sediment control requirements if the implementation of other erosion or sediment controls are not adequately protecting the receiving waters.

g. Run-on and Runoff Control

Inappropriate management of run-on and runoff can result in excessive physical impacts to receiving waters from sediment and increased flows. The discharger is required to manage all run-on and runoff from a project site. Examples include: installing berms and other temporary run-on and runoff diversions.

Risk Level 1 dischargers with lower risks to impact water quality are not subject to the run-on and runoff control requirements unless an evaluation deems them necessary or visual inspections show that such controls are required.

h. Inspection, Maintenance and Repair

All measures must be periodically inspected, maintained and repaired to ensure that receiving water quality is protected. Frequent inspections coupled with thorough documentation and timely repair is necessary to ensure that all measures are functioning as intended.

i. Rain Event Action Plan (REAP)

A Rain Event Action Plan (REAP) is a written document, specific for each rain event. A REAP should be designed that when implemented it protects all exposed portions of the site within 48 hours of any likely precipitation event forecast of 50% or greater probability.

This General Permit requires Risk Level 2 and 3 dischargers to develop and implement a REAP designed to protect all exposed portions of their sites within 48 hours prior to any likely precipitation event. The REAP requirement is designed to ensure that the discharger has adequate materials, staff, and time to implement erosion and sediment control measures that are intended to reduce the amount of sediment and other pollutants generated from the active site. A REAP must be developed when there is likely a forecast of 50% or greater probability of precipitation in the project area. (The National Oceanic and Atmospheric Administration (NOAA) defines a chance of precipitation as a probability of precipitation of 30% to 50% chance of producing precipitation in the project area.¹³ NOAA defines the probability of precipitation (PoP) as the likelihood of occurrence (expressed as a percent) of a measurable amount (0.01 inch or more) of liquid precipitation (or the water equivalent of frozen precipitation) during a specified period of time at any given point in the forecast area.) Forecasts are normally issued for 12-hour time periods. Descriptive terms for uncertainty and aerial coverage are used as follows:

Table 8 -National Oceanic and Atmospheric Administration (NOAA) Definition of Probability of Precipitation (PoP)

¹³ <http://www.crh.noaa.gov/lot/severe/wxterms.php>.

PoP	Expressions of Uncertainty	Aerial Coverage
0%	none used	none used
10%	none used	isolated
20%	slight chance	isolated
30-50%	chance	scattered
60-70%	likely	numerous
80-100%	none used	none used

The discharger must obtain the precipitation forecast information from the National Weather Service Forecast Office (<http://www.srh.noaa.gov/>).

2. Linear Projects

a. Linear Risk Determination

LUPs vary in complexity and water quality concerns based on the type of project. This General Permit has varying application requirements based on the project's risk to water quality. Factors that lead to the characterization of the project include location, sediment risk, and receiving water risk.

Based on the location and complexity of a project area or project section area, LUPs are separated into project types. As described below, LUPs have been categorized into three project types.

i. *Type 1 LUPs*

Type 1 LUPs are those construction projects where:

- (1) 70 percent or more of the construction activity occurs on a paved surface and where areas disturbed during construction will be returned to preconstruction conditions or equivalent protection established at the end of the construction activities for the day, or
- (2) greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them where:

Areas disturbed during construction will be returned to pre-construction conditions or equivalent protection established at the end of the construction activities for the day to minimize the potential for erosion and sediment deposition, and

Areas where established vegetation was disturbed during construction will be stabilized and re-vegetated by the end of project. When required, adequate temporary stabilization Best Management Practices (BMPs) will be installed and maintained until vegetation is established to meet minimum cover requirements established in this General Permit for final stabilization.

Type 1 LUPs typically do not have a high potential to impact storm water quality because (1) these construction activities are not typically conducted during a rain event, (2) these projects are normally constructed over a short period of time¹⁴, minimizing the duration that pollutants could potentially be exposed to rainfall; and (3) disturbed soils such as those from trench excavation are required to be hauled away, backfilled into the trench, and/or covered (e.g., metal plates, pavement, plastic covers over spoil piles) at the end of the construction day.

Type 1 LUPs are determined during the risk assessment found in Attachment A.1 to be 1) low sediment risk and low receiving water risk; 2) low sediment risk and medium receiving water risk; and 3) medium sediment risk and low receiving water risk.

This General Permit requires the discharger to ensure a SWPPP is developed for these construction activities that is specific to project type, location and characteristics.

ii. **Type 2 LUPs:**

Type 2 projects are determined to have a combination of High, Medium, and Low project sediment risk along with High, Medium, and Low receiving water risk. Like Type 1 projects, Type 2 projects are typically constructed over a short period of time. However, these projects have a higher potential to impact water quality because they:

- (1) typically occur outside the more urban/developed areas;
- (2) have larger areas of soil disturbance that are not closed or restored at the end of the day;
- (3) may have onsite stockpiles of soil, spoil and other materials;
- (4) cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and
- (5) have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup and/or reclamation occurs.

This General Permit requires the discharger to develop and implement a SWPPP for these construction activities that are specific for project type, location and characteristics.

iii. **Type 3 LUPs:**

¹⁴ Short period of time refers to a project duration of weeks to months, but typically less than one year in duration.

Type 3 projects are determined to have a combination of High and Medium project sediment risk along with High and Medium receiving water risk. Similar to Type 2 projects, Type 3 projects have a higher potential to impact water quality because they:

- (1) typically occur outside of the more urban/developed areas;
- (2) have larger areas of soil disturbance that are not closed or restored at the end of the day;
- (3) may have onsite stockpiles of soil, spoil and other materials;
- (4) cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and
- (5) have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup and/or reclamation occurs.

This General Permit requires the discharger to develop and implement a SWPPP for these construction activities that are specific for project type, location, and characteristics.

b. Linear Effluent Standards

All LUPs are subject to the narrative effluent limitations specified in the General Permit.

Type 2 and Type 3 projects are subject to technology-based NALs for pH and turbidity.

c. Linear Good Housekeeping

Improper use and handling of construction materials could potentially cause a threat to water quality. In order to ensure proper site management of these construction materials, all LUP dischargers must comply with a minimum set of Good Housekeeping measures specified in Attachment A of this General Permit.

d. Linear Non-Storm Water Management

In order to ensure control of all non-storm water discharges during construction, all LUP dischargers must comply with the Non-Storm Water Management measures specified in Attachment A of this General Permit.

e. Linear Erosion Control

This General Permit requires all LUP dischargers to implement effective wind erosion control measures, and soil cover for inactive areas. Type 3 LUPs posing a higher risk to water quality are additionally required to ensure the post-construction soil loss is equivalent to or less than the pre-construction levels.

f. Linear Sediment Control

In order to ensure control and containment of all sediment discharges, all LUP dischargers must comply with the general Sediment Control measures specified in Attachment A or this General Permit. Additional requirements for sediment controls are imposed on Type 2 & 3 LUPs due to their higher risk to water quality.

g. Linear Run-on and Runoff Control

Discharges originating outside of a project's perimeter and flowing onto the property can adversely affect the quantity and quality of discharges originating from a project site. In order to ensure proper management of run-on and runoff, all LUPs must comply with the run-on and runoff control measures specified in Attachment A of this General Permit. Due to the lower risk of impacting water quality, Type 1 LUPs are not required to implement run-on and runoff controls unless deemed necessary by the discharger.

h. Linear Inspection, Maintenance and Repair

Proper inspection, maintenance, and repair activities are important to ensure the effectiveness of on-site measures to control water quality. In order to ensure that inspection, maintenance, and repair activities are adequately performed, the all LUP dischargers are required to comply with the Inspection, Maintenance, and Repair requirements specified in Attachment A of this General Permit.

K. ATS¹⁵ Requirements

There are instances on construction sites where traditional erosion and sediment controls do not effectively control accelerated erosion. Under such circumstances, or under circumstances where storm water discharges leaving the site may cause or contribute to an exceedance of a water quality standard, the use of an Active Treatment System (ATS) may be necessary. Additionally, it may be appropriate to use an ATS when site constraints inhibit the ability to construct a correctly sized sediment basin, when clay and/or highly erosive soils are present, or when the site has very steep or long slope lengths.¹⁶

Although treatment systems have been in use in some form since the mid-1990s, the ATS industry in California is relatively young, and detailed regulatory standards have not yet been developed. Many developers are using these systems to treat storm water discharges from their construction sites. The new ATS requirements set forth in this General Permit are based on those in place for small wastewater treatment systems, ATS regulations from the Central Valley Regional Water Quality Control Board (September 2005 memorandum "2005/2006 Rainy Season – Monitoring Requirements for Storm Water Treatment Systems that Utilize Chemical Additives to Enhance Sedimentation"), the Construction Storm Water Program at the State of Washington's Department of Ecology, as well as recent advances in technology and knowledge of coagulant performance and aquatic safety.

The effective design of an ATS requires a detailed survey and analysis of site conditions. With proper planning, ATS performance can provide exceptional water quality discharge and prevent significant impacts to surface water quality, even under extreme environmental conditions.

These systems can be very effective in reducing the sediment in storm water runoff, but the systems that use additives/polymers to enhance sedimentation also pose a potential risk to water quality (e.g., operational failure, equipment failure, additive/polymer release, etc.). The State Water Board is concerned about the potential acute and chronic impacts that the polymers and other chemical additives may have on fish and aquatic organisms if released in sufficient quantities or concentrations. In addition

¹⁵ An ATS is a treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation in order to reduce turbidity caused by fine suspended sediment.

¹⁶ Pitt, R., S. Clark, and D. Lake. 2006. Construction Site Erosion and Sediment Controls: Planning, Design, and Performance. DEStech Publications. Lancaster, PA. 370pp.

to anecdotal evidence of polymer releases causing aquatic toxicity in California, the literature supports this concern.¹⁷ For example, cationic polymers have been shown to bind with the negatively charged gills of fish, resulting in mechanical suffocation.¹⁸ Due to the potential toxicity impacts, which may be caused by the release of additives/polymers into receiving waters, this General Permit establishes residual polymer monitoring and toxicity testing requirements have been established in this General Permit for discharges from construction sites that utilize an ATS in order to protect receiving water quality and beneficial uses.

The primary treatment process in an ATS is coagulation/flocculation. ATS's operate on the principle that the added coagulant is bound to suspended sediment, forming floc, which is gravitationally settled in tanks or a basin, or removed by sand filters. A typical installation utilizes an injection pump upstream from the clarifier tank, basin, or sand filters, which is electronically metered to both flow rate and suspended solids level of the influent, assuring a constant dose. The coagulant mixes and reacts with the influent, forming a dense floc. The floc may be removed by gravitational setting in a clarifier tank or basin, or by filtration. Water from the clarifier tank, basin, or sand filters may be routed through cartridge(s) and/or bag filters for final polishing. Vendor-specific systems use various methods of dose control, sediment/floc removal, filtration, etc., that are detailed in project-specific documentation. The particular coagulant/flocculant to be used for a given project is determined based on the water chemistry of the site because the coagulants are specific in their reactions with various types of sediments. Appropriate selection of dosage must be carefully matched to the characteristics of each site.

ATS's are operated in two differing modes, either Batch or Flow-Through. Batch treatment can be defined as Pump-Treat-Hold-Test-Release. In Batch treatment, water is held in a basin or tank, and is not discharged until treatment is complete. Batch treatment involves holding or recirculating the treated water in a holding basin or tank(s) until treatment is complete or the basin or storage tank(s) is full. In Flow-Through treatment, water is pumped into the ATS directly from the runoff collection system or storm water holding pond, where it is treated and filtered as it flows through the system, and is then directly discharged. "Flow-Through Treatment" is also referred to as "Continuous Treatment."

1. Effluent Standards

This General Permit establishes NELs for discharges from construction sites that utilize an ATS. These systems lend themselves to NELs for turbidity and pH because of their known reliable treatment. Advanced systems have been in use in some form since the mid-1990s. An ATS is considered reliable, can consistently produce a discharge of less than 10 NTU, and has been used successfully at many sites in several states since 1995 to reduce turbidity to very low levels.¹⁹

This General Permit contains "compliance storm event" exceptions from the technology-based NELs for ATS discharges. The rationale is that technology-based requirements are developed assuming a certain design storm. In the case of ATS the industry-standard design storm is 10-year, 24-hour (as stated in

¹⁷ Romøen, K., B. Thu, and Ø. Evensen. 2002. Immersion delivery of plasmid DNA II. A study of the potentials of a chitosan based delivery system in rainbow trout (*Oncorhynchus mykiss*) fry. *Journal of Controlled Release* **85**: 215-225.

¹⁸ Bullock, G., V. Blazer, S. Tsukuda, and S. Summerfelt. 2000. Toxicity of acidified chitosan for cultured rainbow trout (*Oncorhynchus mykiss*). *Aquaculture* **185**:273-280.

¹⁹ Currier, B., G. Minton, R. Pitt, L. Roesner, K. Schiff, M. Stenstrom, E. Strassler, and E. Strecker. 2006. The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities.

Attachment F of this General Permit), so the compliance storm event has been established as the 10-year 24-hour event as well to provide consistency.

2. Training

Operator training is critical to the safe and efficient operation and maintenance of the ATS, and to ensure that all State Water Board monitoring and sampling requirements are met. The General Permit requires that all ATS operators have training specific to using ATS's liquid coagulants.

L. Post-Construction Requirements

Under past practices, new and redevelopment construction activities have resulted in modified natural watershed and stream processes. This is caused by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, increasing drainage density through pipes and channels, and altering the condition of stream channels through straightening, deepening, and armoring. These changes result in a drainage system where sediment transport capacity is increased and sediment supply is decreased. A receiving channel's response is dependent on dominant channel materials and its stage of adjustment.

Construction activity can lead to impairment of beneficial uses in two main ways. First, during the actual construction process, storm water discharges can negatively affect the chemical, biological, and physical properties of downstream receiving waters. Due to the disturbance of the landscape, the most likely pollutant is sediment, however pH and other non-visible pollutants are also of great concern. Second, after most construction activities are completed at a construction site, the finished project may result in significant modification of the site's response to precipitation. New development and redevelopment projects have almost always resulted in permanent post-construction water quality impacts because more precipitation ends up as runoff and less precipitation is intercepted, evapotranspired, and infiltrated.

General Permit 99-08-DWQ required the SWPPP to include a description of all post-construction BMPs on a site and a maintenance schedule. An effective storm water management strategy must address the full suite of storm events (water quality, channel protection, overbank flood protection, extreme flood protection) (Figure 2).

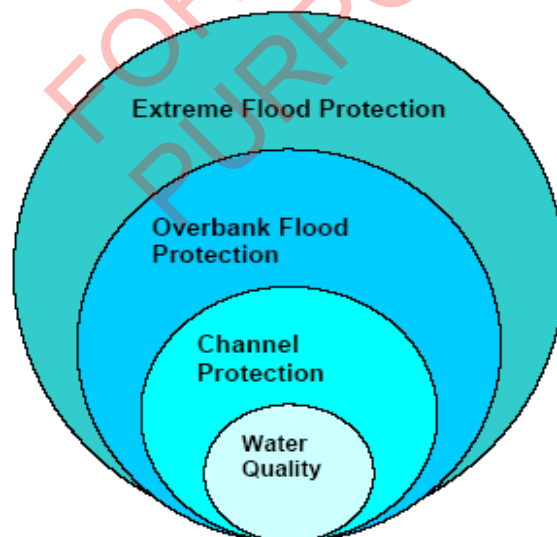


Figure 2 - Suite of Storm Events

The post-construction storm water performance standards in this General Permit specifically address water quality and channel protection events. Overbank flood protection and extreme flood protection events are traditionally dealt with in local drainage and flood protection ordinances. However, measures in this General Permit to address water quality and channel protection also reduce overbank and extreme flooding impacts. This General Permit aims to match post-construction runoff to pre-construction runoff for the 85th percentile storm event, which not only reduces the risk of impact to the receiving water's channel morphology but also provides some protection of water quality.

This General Permit clarifies that its runoff reduction requirements only apply to projects that lie outside of jurisdictions covered by a Standard Urban Storm water Management Plan (SUSMP) (or other more protective) post-construction requirements in either Phase I or Phase II permits.

Figures 3 and 4, below, show the General Permit enrollees (to Order 99-08-DWQ, as of March 10, 2008) overlaid upon a map with SUSMP (or more protective) areas in blue and purple. Areas without blue or purple indicate where the General Permit's runoff reduction requirements would actually apply.

FOR BIDDING
PURPOSES ONLY

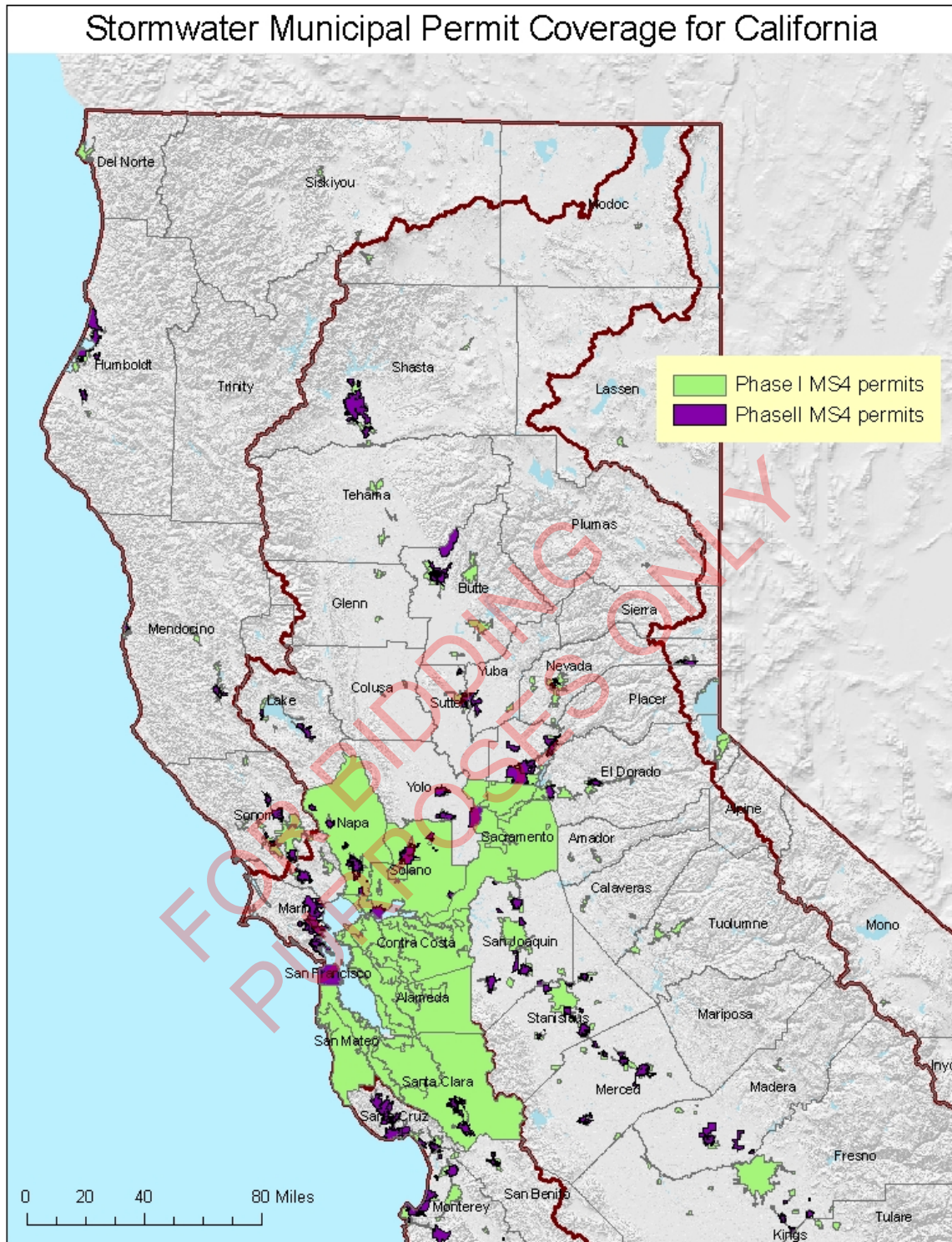


Figure 3 - Northern CA (2009) Counties / Cities With SUSMP-Plus Coverage



Figure 4 - Southern CA (2009) Counties / Cities With SUSMP-Plus Coverage

Water Quality:

This General Permit requires dischargers to replicate the pre-project runoff water balance (defined as the amount of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event, or the smallest storm event that generates runoff, whichever is larger. Contemporary storm water management generally routes these flows directly to the drainage system, increasing pollutant loads and potentially causing adverse effects on receiving waters. These smaller water quality events happen much more frequently than larger events and generate much higher pollutant loads on an annual basis. There are other adverse hydrological impacts that result from not designing according to the site's pre-construction water balance. In Maryland, Klein²⁰ noted that baseflow decreases as the extent of urbanization increases. Ferguson and Suckling²¹ noted a similar relation in watersheds in Georgia. On Long Island, Spinello and Simmons²² noted substantial decreases in base flow in intensely urbanized watersheds.

The permit emphasizes runoff reduction through on-site storm water reuse, interception, evapotranspiration and infiltration through non-structural controls and conservation design measures (e.g., downspout disconnection, soil quality preservation/enhancement, interceptor trees). Employing these measures close to the source of runoff generation is the easiest and most cost-effective way to comply with the pre-construction water balance standard. Using low-tech runoff reduction techniques close to the source is consistent with a number of recommendations in the literature.²³ In many cases, BMPs implemented close to the source of runoff generation cost less than end-of the pipe measures.²⁴ Dischargers are given the option of using Appendix 2 to calculate the required runoff volume or a watershed process-based, continuous simulation model such as the EPA's Storm Water Management Model (SWMM) or Hydrologic Simulation Program Fortran (HSPF). Such methods used by the discharger will be reviewed by the Regional Water Board upon NOT application.

Channel Protection:

In order to address channel protection, a basic understanding of fluvial geomorphic concepts is necessary. A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bankfull discharge (1.5 to 2 year recurrence interval). The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which the moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels.²⁵ Lane (1955 as cited in Rosgen 1996²⁶) showed the generalized relationship between sediment load, sediment size, stream discharge and stream slope in

²⁰ Klein 1979 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.

²¹ Ferguson and Suckling 1990 as cited Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.

²² Center for Watershed Protection (CWP). 2000. The Practice of Watershed Protection: Techniques for protecting our nation's streams, lakes, rivers, and estuaries. Ellicott City, MD. 741 pp.

²³ Bay Area Storm Water Management Agencies Association (BASMAA). 1997. Start at the Source: Residential Site Planning and Design Guidance Manual for Storm Water Quality Protection. Palo Alto, CA; McCuen, R.H. 2003 Smart Growth: hydrologic perspective. Journal of Professional Issues in Engineering Education and Practice. Vol (129), pp.151-154;

Moglen, G.E. and S. Kim. 2007. Impervious imperviousness-are threshold based policies a good idea? Journal of the American Planning Association, Vol 73 No. 2. pp 161-171.

²⁴ Delaware Department of natural Resources (DDNR). 2004. Green technology: The Delaware urban Runoff Management Approach. Dover, DE. 117 pp.

²⁵ Dunne, T and L.B. Leopold. 1978. Water in Environmental Planning. San Francisco W.H. Freeman and Company

²⁶ Rosgen. D.L. 1996. Applied River Morphology. Pagosa Springs. Wildland Hydrology

Figure 5. A change in any one of these variables sets up a series of mutual adjustments in the companion variables with a resulting direct change in the physical characteristics of the stream channel.

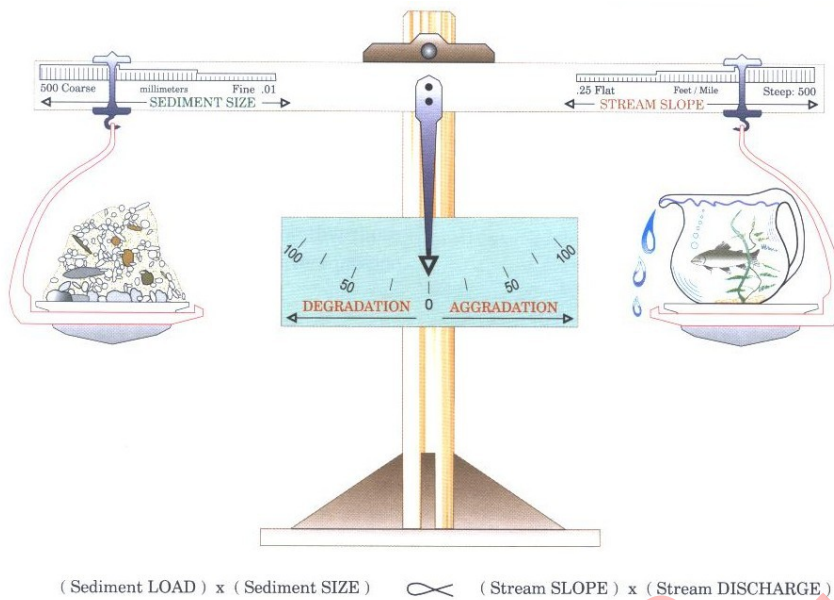


Figure 5 - Schematic of the Lane Relationship
After Lane (1955) as cited in Rosgen (1996)

Stream slope multiplied by stream discharge (the right side of the scale) is essentially an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (sediment load and sediment size represented on the left side of the scale).

During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels.²⁷ Most of this sediment is delivered to stream channels during large, episodic rain events.²⁸ This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et. al (1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 6).

²⁷ Goldman S.J., K. Jackson, and T.A. Bursztynsky. 1986. Erosion and Sediment Control Handbook. McGraw Hill. San Francisco.

²⁸ Wolman 1967 as cited in Paul, M.P. and J.L. Meyer. 2001. Streams in the Urban Landscape. *Annu. Rev.Ecol. Syst.* 32: 333-365.

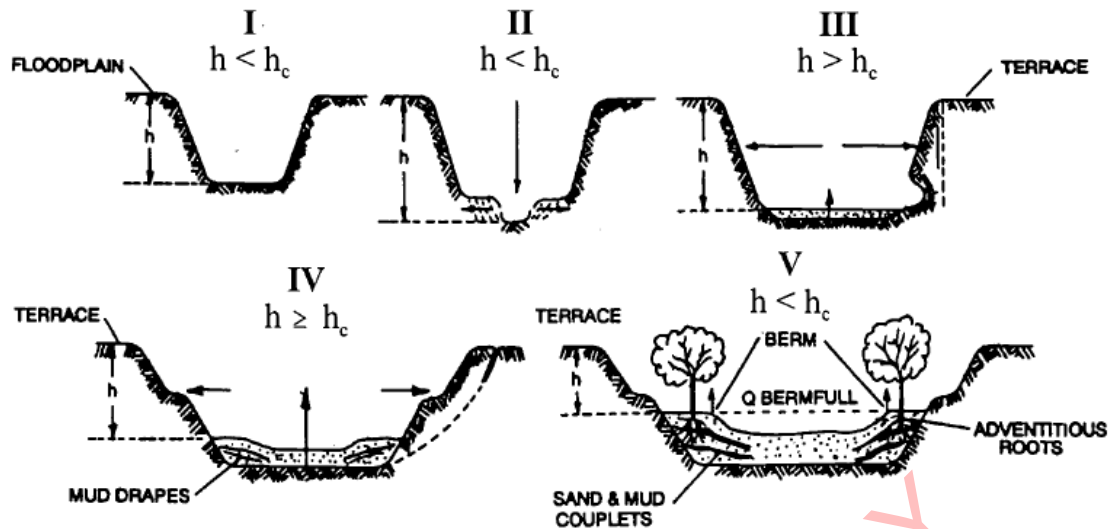


Figure 6 - Channel Changes Associated with Urbanization

After Incised Channel Evolution Sequence in Schumm et. al 1984

Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious area and compaction of pervious surfaces increase the frequency and volume of bankfull discharges.²⁹ Increased drainage density (miles of stream length per square mile of watershed) also negatively impacts receiving stream channels.³⁰ Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bankfull discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often "sediment starved" and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization.³¹ This means

²⁹ Booth, D. B. and C. R. Jackson. 1997. Urbanization of Aquatic Systems: Degradation Thresholds, Storm Water Detection, and the Limits of Mitigation. *Journal of the American Water Resources Association* Vol. 33, No.5, pp. 1077-1089.

³⁰ May, C.W. 1998. Cumulative effects of urbanization on small streams in the Puget Sound Lowland ecoregion. Conference proceedings from Puget Sound Research '98 held March 12, 13 1998 in Seattle, WA;

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2002. Hydromodification Management Plan Literature Review. 80 pp.

³¹ Finkenbine, J.K., D.S. Atwater, and D.S. Mavinic. 2000. Stream health after urbanization. *J. Am. Water Resour. Assoc.* 36:1149-60;

that even if pre- and post-development stream power are the same, more erosion will occur in the post-development stage because the smaller particles are less resistant (provided they are non-cohesive).

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power³² and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel. After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening.³³ At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution. Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies

FOR BIDDING
PURPOSES ONLY

Pizzuto, J.E. W.S. Hession, and M. McBride. 2000. Comparing gravel-bed rivers in paired urban and rural catchments of southeastern Pennsylvania. *Geology* 28:79-82.

³² Hammer 1973 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp;

Booth, D.B. 1990. Stream Channel Incision Following Drainage Basin Urbanization. *Water Resour. Bull.* 26:407-417.

³³ Trimble, S.W. 1997. Contribution of Stream Channel Erosion to Sediment Yield from an Urbanizing Watershed. *Science*: Vol. 278 (21), pp. 1442-1444.

must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein and Zaleski 2005).³⁴

Traditional structural water quality BMPs (e.g. detention basins and other devices used to store volumes of runoff) unless they are highly engineered to provide adequate flow duration control, do not adequately protect receiving waters from accelerated channel bed and bank erosion, do not address post-development increases in runoff volume, and do not mitigate the decline in benthic macroinvertebrate communities in the receiving waters³⁵ suggest that structural BMPs are not as effective in protecting aquatic communities as a continuous riparian buffer of native vegetation. This is supported by the findings of Zucker and White³⁶, where instream biological metrics were correlated with the extent of forested buffers.

This General Permit requires dischargers to maintain pre-development drainage densities and times of concentration in order to protect channels and encourages dischargers to implement setbacks to reduce channel slope and velocity changes that can lead to aquatic habitat degradation.

There are a number of other approaches for modeling fluvial systems, including statistical and physical models and simpler stream power models.³⁷ The use of these models in California is described in Stein and Zaleski (2005).³⁸ Rather than prescribe a specific one-size-fits-all modeling method in this permit, the State Water Board intends to develop a stream power and channel evolution model-based framework to assess channels and develop a hierarchy of suitable analysis methods and management strategies. In time, this framework may become a State Water Board water quality control policy.

Permit Linkage to Overbank and Extreme Flood Protection

Site design BMPs (e.g. rooftop and impervious disconnection, vegetated swales, setbacks and buffers) filter and settle out pollutants and provide for more infiltration than is possible for traditional centralized structural BMPs placed at the lowest point in a site. They provide source control for runoff and lead to a reduction in pollutant loads. When implemented, they also help reduce the magnitude and volume of larger, less frequent storm events (e.g., 10-yr, 24-hour storm and larger), thereby reducing the need for expensive flood control infrastructure. Nonstructural BMPs can also be a landscape amenity, instead of a large isolated structure requiring substantial area for ancillary access, buffering, screening and maintenance facilities.²⁵ The multiple benefits of using non-structural benefits will be critically important as the state's population increases and imposes strains upon our existing water resources.

Maintaining predevelopment drainage densities and times of concentration will help reduce post-development peak flows and volumes in areas not covered under a municipal permit. The most effective way to preserve drainage areas and maximize time of concentration is to implement landform grading,

³⁴ Stein, E.S. and S. Zaleski. 2005. Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475. 26 pp.

³⁵ Horner, R.R. 2006. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices (LID) for the San Diego Region. Available at: http://www.projectcleanwater.org/pdf/permit/case-study_lid.pdf.

³⁶ Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.

³⁷ Finlayson, D.P. and D.R. Montgomery. 2003. Modeling large-scale fluvial erosion in geographic information systems. *Geomorphology* (53), pp. 147-164).

³⁸ Stein, E.S. and S. Zaleski. 2005. Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475. 26 pp.

incorporate site design BMPs and implement distributed structural BMPs (e.g., bioretention cells, rain gardens, rain cisterns).

M. Storm Water Pollution Prevention Plans

USEPA's Construction General Permit requires that qualified personnel conduct inspections. USEPA defines qualified personnel as "a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity."³⁹ USEPA also suggests that qualified personnel prepare SWPPPs and points to numerous states that require certified professionals to be on construction sites at all times. States that currently have certification programs are Washington, Georgia, Florida, Delaware, Maryland, and New Jersey. The Permit 99-08-DWQ did not require that qualified personnel prepare SWPPPs or conduct inspections. However, to ensure that water quality is being protected, this General Permit requires that all SWPPPs be written, amended, and certified by a Qualified SWPPP Developer. A Qualified SWPPP Developer must possess one of the eight certifications and or registrations specified in this General Permit and effective two years after the adoption date of this General Permit, must have attended a State Water Board-sponsored or approved Qualified SWPPP Developer training course. Table 9 provides an overview of the criteria used in determining qualified certification titles for a QSD and QSP.

FOR BIDDING
PURPOSES ONLY

39 US Environmental Protection Agency. Stormwater Pollution Prevention Plans for Construction Activities. <<http://cfpub.epa.gov/npdes/stormwater/swppp.cfm>> and <http://www.epa.gov/npdes/pubs/sw_swppp_guide.pdf>.

Table 9 - Qualified SWPPP Developer/ Qualified SWPPP Practitioner Certification Criteria

Certification/ Title	Registered By	QSD/QSP	Certification Criteria
Professional Civil Engineer	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Professional Geologist or Engineering Geologist	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Landscape Architect	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Professional Hydrologist	American Institute of Hydrology	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Certified Professional in Erosion and Sediment Control™ (CPESC)	Enviro Cert International Inc.	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Inspector of Sediment and Erosion Control™ (CISEC)	Certified Inspector of Sediment and Erosion Control, Inc.	QSP	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Erosion, Sediment and Storm Water Inspector™ (CESSWI)	Enviro Cert International Inc.	QSP	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Professional in Storm Water Quality™ (CPSWQ)	Enviro Cert International Inc.	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education

The previous versions of the General Permit required development and implementation of a SWPPP as the primary compliance mechanism. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm water and non-storm water discharges. The SWPPP must include BMPs that address source control, BMPs that address pollutant control, and BMPs that address treatment control.

This General Permit shifts some of the measures that were covered by this general requirement to specific permit requirements, each individually enforceable as a permit term. This General Permit emphasizes the use of appropriately selected, correctly installed and maintained pollution reduction BMPs. This approach provides the flexibility necessary to establish BMPs that can effectively address source control of pollutants during changing construction activities. These specific requirements also improve both the clarity and the enforceability of the General Permit so that the dischargers understand, and the public can determine whether the discharges are in compliance with, permit requirements.

The SWPPP must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The SWPPP must remain on the site during construction activities, commencing with the initial mobilization and ending with the termination of coverage under the General Permit. For LUPs the discharger 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 Municipal 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 or telephone. Once construction activities are complete, until stabilization is achieved, the SWPPP shall be available from the SWPPP contact listed in the PRDs

A SWPPP must be appropriate for the type and complexity of a project and will be developed and implemented to address project specific conditions. Some projects may have similarities or complexities, yet each project is unique in its progressive state that requires specific description and selection of BMPs needed to address all possible generated pollutants

N. Regional Water Board Authorities

Because this General Permit will be issued to thousands of construction sites across the State, the Regional Water Boards retain discretionary authority over certain issues that may arise from the discharges in their respective regions. This General Permit does not grant the Regional Water Boards any authority they do not otherwise have; rather, it merely emphasizes that the Regional Water Boards can take specific actions related to this General Permit. For example, the Regional Water Boards will be enforcing this General Permit and may need to adjust some requirements for a discharger based on the discharger's compliance history.



Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Division of Water Quality

1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5463 • <http://www.waterboards.ca.gov>



Arnold Schwarzenegger
Governor

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE
ACTIVITIES

ORDER NO. 2009-0009-DWQ
NPDES NO. **CAS000002**

This Order was adopted by the State Water Resources Control Board on:	September 2, 2009
This Order shall become effective on:	July 1, 2010
This Order shall expire on:	September 2, 2014

IT IS HEREBY ORDERED, that this Order supersedes Order No. 99-08-DWQ [as amended by Order No. 2010-0014-DWQ] except for enforcement purposes. The Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on September 2, 2009.

AYE: Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

NAY: Chairman Charles R. Hoppin

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board



Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board



Arnold Schwarzenegger
Governor

Division of Water Quality

1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5463 • <http://www.waterboards.ca.gov>

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

**ORDER NO. 2010-0014-DWQ
NPDES NO. CAS000002**

Order No. 2009-0009-DWQ was adopted by the State Water Resources Control Board on:	September 2, 2009
Order No. 2009-0009-DWQ became effective on:	July 1, 2010
Order No. 2009-0009-DWQ shall expire on:	September 2, 2014
This Order, which amends Order No. 2009-0009-DWQ, was adopted by the State Water Resources Control Board on:	November 16, 2010
This Order shall become effective on:	February 14, 2011

IT IS HEREBY ORDERED that this Order amends Order No. 2009-0009-DWQ. Additions to Order No. 2009-0009-DWQ are reflected in [blue-underline](#) text and deletions are reflected in ~~red-strikeout~~ text.

IT IS FURTHER ORDERED that staff are directed to prepare and post a conformed copy of Order No. 2009-0009-DWQ incorporating the revisions made by this Order.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on **November 16, 2010**.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

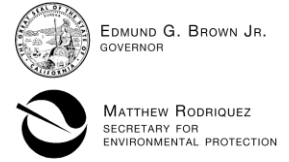
NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board



State Water Resources Control Board

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

ORDER NO. 2012-0006-DWQ
NPDES NO. CAS000002

Table with 2 columns: Description of Order/Amendment and Effective Date. Rows include: Order No. 2009-0009-DWQ adopted on September 2, 2009; Order No. 2009-0009-DWQ became effective on July 1, 2010; Order No. 2010-0014-DWQ became effective on February 14, 2011; Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ shall expire on September 2, 2014; This Order, which amends Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ, was adopted by the State Water Resources Control Board on July 17, 2012; This Order No. 2012-0006-DWQ shall become effective on July 17, 2012.

IT IS HEREBY ORDERED that this Order amends Order No. 2009-0009-DWQ. Additions to Order No. 2009-0009-DWQ are reflected in blue-underline text and deletions are reflected in red-strikeout text.

IT IS FURTHER ORDERED that staff are directed to prepare and post a conformed copy of Order No. 2009-000-DWQ incorporating the revisions made by this Order.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on July 17, 2012.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Felicia Marcus

NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend (handwritten signature)
Jeanine Townsend
Clerk to the Board

TABLE OF CONTENTS

I.	FINDINGS	1
II.	CONDITIONS FOR PERMIT COVERAGE.....	14
III.	DISCHARGE PROHIBITIONS.....	20
IV.	SPECIAL PROVISIONS.....	22
V.	EFFLUENT STANDARDS & RECEIVING WATER MONITORING.....	28
VI.	RECEIVING WATER LIMITATIONS	31
VII.	TRAINING QUALIFICATIONS AND CERTIFICATION REQUIREMENTS.....	32
VIII.	RISK DETERMINATION	33
IX.	RISK LEVEL 1 REQUIREMENTS.....	34
X.	RISK LEVEL 2 REQUIREMENTS.....	34
XI.	RISK LEVEL 3 REQUIREMENTS.....	34
XII.	ACTIVE TREATMENT SYSTEMS (ATS).....	34
XIII.	POST-CONSTRUCTION STANDARDS	35
XIV.	SWPPP REQUIREMENTS	37
XV.	REGIONAL WATER BOARD AUTHORITIES.....	38
XVI.	ANNUAL REPORTING REQUIREMENTS.....	39

LIST OF ATTACHMENTS

Attachment A – Linear Underground/Overhead Requirements
Attachment A.1 – LUP Type Determination
Attachment A.2 – LUP Permit Registration Documents
Attachment B – Permit Registration Documents
Attachment C – Risk Level 1 Requirements
Attachment D – Risk Level 2 Requirements
Attachment E – Risk Level 3 Requirements
Attachment F – Active Treatment System (ATS) Requirements

LIST OF APPENDICES

Appendix 1 – Risk Determination Worksheet
Appendix 2 – Post-Construction Water Balance Performance Standard
Appendix 2.1 – Post-Construction Water Balance Performance Standard Spreadsheet
Appendix 3 – Bioassessment Monitoring Guidelines
Appendix 4 – Adopted/Implemented Sediment TMDLs
Appendix 5 – Glossary
Appendix 6 – Acronyms
Appendix 7 – State and Regional Water Resources Control Board Contacts

**STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2009-0009-DWQ
[AS AMENDED BY ORDER NO. 2010-0014-DWQ]
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT NO. CAS000002**

**WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH
CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES**

I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The federal Clean Water Act (CWA) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit (Title 33 United States Code (U.S.C.) §§ 1311 and 1342(p); also referred to as Clean Water Act (CWA) §§ 301 and 402(p)). The U.S. Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the CWA's mandate to control pollutants in storm water runoff discharges. (Title 40 Code of Federal Regulations (C.F.R.) Parts 122, 123, and 124). The federal statutes and regulations require discharges to surface waters comprised of storm water associated with construction activity, including demolition, clearing, grading, and excavation, and other land disturbance activities (except operations that result in disturbance of less than one acre of total land area and which are not part of a larger common plan of development or sale), to obtain coverage under an NPDES permit. The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate pollutants in storm water runoff. The NPDES permit must also include additional requirements necessary to implement applicable water quality standards.
2. This General Permit authorizes discharges of storm water associated with construction activity so long as the dischargers comply with all requirements, provisions, limitations and prohibitions in the permit. In addition, this General Permit regulates the discharges of storm water associated with construction activities from all Linear

Underground/Overhead Projects resulting in the disturbance of greater than or equal to one acre (Attachment A).

3. This General Permit regulates discharges of pollutants in storm water associated with construction activity (storm water discharges) to waters of the United States from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface.
4. This General Permit does not preempt or supersede the authority of local storm water management agencies to prohibit, restrict, or control storm water discharges to municipal separate storm sewer systems or other watercourses within their jurisdictions.
5. This action to adopt a general NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), pursuant to Section 13389 of the California Water Code.
6. Pursuant to 40 C.F.R. § 131.12 and State Water Board [Resolution No. 68-16](#),¹ which incorporates the requirements of § 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality standards, and are therefore consistent with those provisions. Compliance with this General Permit will result in improvements in water quality.
7. This General Permit serves as an NPDES permit in compliance with CWA § 402 and will take effect on July 1, 2010 by the State Water Board provided the Regional Administrator of the U.S. EPA has no objection. If the U.S. EPA Regional Administrator objects to its issuance, the General Permit will not become effective until such objection is withdrawn.
8. Following adoption and upon the effective date of this General Permit, the Regional Water Quality Control Boards (Regional Water Boards) shall enforce the provisions herein.
9. Regional Water Boards establish water quality standards in Basin Plans. The State Water Board establishes water quality standards in various statewide plans, including the California Ocean Plan. U.S. EPA establishes water quality standards in the National Toxic Rule (NTR) and the California Toxic Rule (CTR).

¹ Resolution No. 68-16 generally requires that existing water quality be maintained unless degradation is justified based on specific findings.

10. This General Permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA § 404 and does not constitute a waiver of water quality certification under CWA § 401.
11. The primary storm water pollutant at construction sites is excess sediment. Excess sediment can cloud the water, which reduces the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways. Sediment also transports other pollutants such as nutrients, metals, and oils and greases.
12. Construction activities can impact a construction site's runoff sediment supply and transport characteristics. These modifications, which can occur both during and after the construction phase, are a significant cause of degradation of the beneficial uses established for water bodies in California. Dischargers can avoid these effects through better construction site design and activity practices.
13. This General Permit recognizes four distinct phases of construction activities. The phases are Grading and Land Development Phase, Streets and Utilities Phase, Vertical Construction Phase, and Final Landscaping and Site Stabilization Phase. Each phase has activities that can result in different water quality effects from different water quality pollutants. This General Permit also recognizes inactive construction as a category of construction site type.
14. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable requirements.
15. Following public notice in accordance with State and Federal laws and regulations, the State Water Board heard and considered all comments and testimony in a public hearing on 06/03/2009. The State Water Board has prepared written responses to all significant comments.
16. Construction activities obtaining coverage under the General Permit may have multiple discharges subject to requirements that are specific to general, linear, and/or active treatment system discharge types.
17. The State Water Board may reopen the permit if the U.S. EPA adopts a final effluent limitation guideline for construction activities.

B. Activities Covered Under the General Permit

18. Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre.
19. Construction activity that results in land surface disturbances of less than one acre if the construction activity is part of a larger common plan of development or the sale of one or more acres of disturbed land surface.
20. Construction activity related to residential, commercial, or industrial development on lands currently used for agriculture including, but not limited to, the construction of buildings related to agriculture that are considered industrial pursuant to U.S. EPA regulations, such as dairy barns or food processing facilities.
21. Construction activity associated with Linear Underground/Overhead Utility Projects (LUPs) including, but not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.
22. Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities.²
23. Storm water discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction sites that intend to disturb one or more acres of land within the jurisdictional boundaries of

² Pursuant to the Ninth Circuit Court of Appeals' decision in *NRDC v. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the U.S. EPA's petition for reconsideration in November 2008, oil and gas construction activities discharging storm water contaminated only with sediment are no longer exempt from the NPDES program.

a CWA § 404 permit should contact the appropriate Regional Water Board to determine whether this permit applies to the site.

C. Activities Not Covered Under the General Permit

24. Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.
25. Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation.
26. Discharges of storm water from areas on tribal lands; construction on tribal lands is regulated by a federal permit.
27. Construction activity and land disturbance involving discharges of storm water within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Board has adopted its own permit to regulate storm water discharges from construction activity in the Lake Tahoe Hydrologic Unit (Regional Water Board 6SLT). Owners of construction sites in this watershed must apply for the Lahontan Regional Water Board permit rather than the statewide Construction General Permit.
28. Construction activity that disturbs less than one acre of land surface, and that is not part of a larger common plan of development or the sale of one or more acres of disturbed land surface.
29. Construction activity covered by an individual NPDES Permit for storm water discharges.
30. Discharges from small (1 to 5 acre) construction activities with an approved Rainfall Erosivity Waiver authorized by U.S. EPA Phase II regulations certifying to the State Board that small construction activity will occur only when the Rainfall Erosivity Factor is less than 5 ("R" in the Revised Universal Soil Loss Equation).
31. Landfill construction activity that is subject to the Industrial General Permit.
32. Construction activity that discharges to Combined Sewer Systems.
33. Conveyances that discharge storm water runoff combined with municipal sewage.
34. Discharges of storm water identified in CWA § 402(l)(2), 33 U.S.C. § 1342(l)(2).

35. Discharges occurring in basins that are not tributary or hydrologically connected to waters of the United States (for more information contact your Regional Water Board).

D. Obtaining and Modifying General Permit Coverage

36. This General Permit requires all dischargers to electronically file all Permit Registration Documents (PRDs), Notices of Termination (NOT), changes of information, annual reporting, and other compliance documents required by this General Permit through the State Water Board's Storm water Multi-Application and Report Tracking System (SMARTS) website.
37. Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.
38. This General Permit grants an exception from the Risk Determination requirements for existing sites covered under Water Quality Orders No. 99-08-DWQ, and [No. 2003-0007-DWQ](#). For certain sites, adding additional requirements may not be cost effective. Construction sites covered under Water Quality Order No. 99-08-DWQ shall obtain permit coverage at the Risk Level 1. LUPs covered under Water Quality Order No. 2003-0007-DWQ shall obtain permit coverage as a Type 1 LUP. The Regional Water Boards have the authority to require Risk Determination to be performed on sites currently covered under Water Quality Orders No. 99-08-DWQ and No. 2003-0007-DWQ where they deem it necessary. The State Water Board finds that there are two circumstances when it may be appropriate for the Regional Water Boards to require a discharger that had filed an NOI under State Water Board Order No. 99-08-DWQ to recalculate the site's risk level. These circumstances are: (1) when the discharger has a demonstrated history of noncompliance with State Water Board Order No. 99-08-DWQ or; (2) when the discharger's site poses a significant risk of causing or contributing to an exceedance of a water quality standard without the implementation of the additional Risk Level 2 or 3 requirements.

E. Prohibitions

39. All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit. Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may

contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural Best Management Practices (BMPs)³. The State Water Board recognizes, however, that certain non-storm water discharges may be necessary for the completion of construction.

40. This General Permit prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
41. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the State Water Board and the nine Regional Water Boards.
42. Pursuant to the Ocean Plan, discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.
43. This General Permit prohibits the discharge of any debris⁴ from construction sites. Plastic and other trash materials can cause negative impacts to receiving water beneficial uses. The State Water Board encourages the use of more environmentally safe, biodegradable materials on construction sites to minimize the potential risk to water quality.

F. Training

44. In order to improve compliance with and to maintain consistent enforcement of this General Permit, all dischargers are required to appoint two positions - the Qualified SWPPP Developer (QSD) and the Qualified SWPPP Practitioner (QSP) - who must obtain appropriate training. Together with the key stakeholders, the State and Regional Water Boards are leading the development of this curriculum through a collaborative organization called The Construction General Permit (CGP) Training Team.
45. The Professional Engineers Act (Bus. & Prof. Code section 6700, et seq.) requires that all engineering work must be performed by a California licensed engineer.

³ BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practice to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

⁴ Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

G. Determining and Reducing Risk

46. The risk of accelerated erosion and sedimentation from wind and water depends on a number of factors, including proximity to receiving water bodies, climate, topography, and soil type.
47. This General Permit requires dischargers to assess the risk level of a site based on both sediment transport and receiving water risk. This General Permit contains requirements for Risk Levels 1, 2 and 3, and LUP Risk Type 1, 2, and 3 (Attachment A). Risk levels are established by determining two factors: first, calculating the site's sediment risk; and second, receiving water risk during periods of soil exposure (i.e. grading and site stabilization). Both factors are used to determine the site-specific Risk Level(s). LUPs can be determined to be Type 1 based on the flowchart in Attachment A.1.
48. Although this General Permit does not mandate specific setback distances, dischargers are encouraged to set back their construction activities from streams and wetlands whenever feasible to reduce the risk of impacting water quality (e.g., natural stream stability and habitat function). Because there is a reduced risk to receiving waters when setbacks are used, this General Permit gives credit to setbacks in the risk determination and post-construction storm water performance standards. The risk calculation and runoff reduction mechanisms in this General Permit are expected to facilitate compliance with any Regional Water Board and local agency setback requirements, and to encourage voluntary setbacks wherever practicable.
49. Rain events can occur at any time of the year in California. Therefore, a Rain Event Action Plan (REAP) is necessary for Risk Level 2 and 3 traditional construction projects (LUPs exempt) to ensure that active construction sites have adequate erosion and sediment controls implemented prior to the onset of a storm event, even if construction is planned only during the dry season.
50. Soil particles smaller than 0.02 millimeters (mm) (i.e., finer than medium silt) do not settle easily using conventional measures for sediment control (i.e., sediment basins). Given their long settling time, dislodging these soils results in a significant risk that fine particles will be released into surface waters and cause unacceptable downstream impacts. If operated correctly, an Active Treatment System (ATS⁵) can prevent or reduce the release of fine particles from construction sites.

⁵ An ATS is a treatment system that employs chemical coagulation, chemical flocculation, or electro coagulation in order to reduce turbidity caused by fine suspended sediment.

Use of an ATS can effectively reduce a site's risk of impacting receiving waters.

51. Dischargers located in a watershed area where a Total Maximum Daily Load (TMDL) has been adopted or approved by the Regional Water Board or U.S. EPA may be required by a separate Regional Water Board action to implement additional BMPs, conduct additional monitoring activities, and/or comply with an applicable waste load allocation and implementation schedule. Such dischargers may also be required to obtain an individual Regional Water Board permit specific to the area.

H. Effluent Standards

52. The State Water Board convened a blue ribbon panel of storm water experts that submitted a report entitled, "The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities," dated June 19, 2006. The panel concluded that numeric limits or action levels are technically feasible to control construction storm water discharges, provided that certain conditions are considered. The panel also concluded that numeric effluent limitations (NELs) are feasible for discharges from construction sites that utilize an ATS. The State Water Board has incorporated the expert panel's suggestions into this General Permit, which includes numeric action levels (NALs) for pH and turbidity, and special numeric limits for ATS discharges.

Determining Compliance with Numeric Limitations

53. This General Permit sets a pH NAL of 6.5 to 8.5, and a turbidity NAL of 250 NTU. The purpose of the NAL and its associated monitoring requirement is to provide operational information regarding the performance of the measures used at the site to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges. An exceedance of a NAL does not constitute a violation of this General Permit.
54. This General Permit requires dischargers with NAL exceedances to immediately implement additional BMPs and revise their Storm Water Pollution Prevention Plans (SWPPPs) accordingly to either prevent pollutants and authorized non-storm water discharges from contaminating storm water, or to substantially reduce the pollutants to levels consistently below the NALs. NAL exceedances are reported in the State Water Boards SMARTS system, and the discharger is

required to provide an NAL Exceedance Report when requested by a Regional Water Board.

I. Receiving Water Limitations

55. This General Permit requires all enrolled dischargers to determine the receiving waters potentially affected by their discharges and to comply with all applicable water quality standards, including any more stringent standards applicable to a water body.

J. Sampling, Monitoring, Reporting and Record Keeping

56. Visual monitoring of storm water and non-storm water discharges is required for all sites subject to this General Permit.

57. Records of all visual monitoring inspections are required to remain on-site during the construction period and for a minimum of three years.

58. For all Risk Level 3/LUP Type 3 and Risk Level 2/LUP Type 2 sites, this General Permit requires effluent monitoring for pH and turbidity. Sampling, analysis and monitoring requirements for effluent monitoring for pH and turbidity are contained in this General Permit.

59. Risk Level 3 and LUP Type 3 sites with effluent that exceeds the Receiving Water Monitoring Triggers contained in this General Permit and with direct discharges to receiving water are required to conduct receiving water monitoring. An exceedance of a Receiving Water Monitoring Trigger does not constitute a violation of this General Permit.

60. This General Permit establishes a 5 year, 24 hour (expressed in inches of rainfall) as an exemptions to the receiving water monitoring requirements for Risk Level 3 and LUP Type 3 dischargers.

61. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

62. For Risk Level 3 and LUP Type 3 sites larger than 30 acres and with direct discharges to receiving waters, this General Permit requires bioassessment sampling before and after site completion to determine if significant degradation to the receiving water's biota has occurred. Bioassessment sampling guidelines are contained in this General Permit.

63. A summary and evaluation of the sampling and analysis results will be submitted in the Annual Reports.
64. This General Permit contains sampling, analysis and monitoring requirements for non-visible pollutants at all sites subject to this General Permit.
65. Compliance with the General Permit relies upon dischargers to electronically self-report any discharge violations and to comply with any Regional Water Board enforcement actions.
66. This General Permit requires that all dischargers maintain a paper or electronic copy of all required records for three years from the date generated or date submitted, whichever is last. These records must be available at the construction site until construction is completed. For LUPs, these documents may be retained in a crew member's vehicle and made available upon request.

K. Active Treatment System (ATS) Requirements

67. Active treatment systems add chemicals to facilitate flocculation, coagulation and filtration of suspended sediment particles. The uncontrolled release of these chemicals to the environment can negatively affect the beneficial uses of receiving waters and/or degrade water quality (e.g., acute and chronic toxicity). Additionally, the batch storage and treatment of storm water through an ATS' can potentially cause physical impacts on receiving waters if storage volume is inadequate or due to sudden releases of the ATS batches and improperly designed outfalls.
68. If designed, operated and maintained properly an ATS can achieve very high removal rates of suspended sediment (measured as turbidity), albeit at sometimes significantly higher costs than traditional erosion/sediment control practices. As a result, this General Permit establishes NELs consistent with the expected level of typical ATS performance.
69. This General Permit requires discharges of storm water associated with construction activity that undergo active treatment to comply with special operational and effluent limitations to ensure that these discharges do not adversely affect the beneficial uses of the receiving waters or cause degradation of their water quality.
70. For ATS discharges, this General Permit establishes technology-based NELs for turbidity.

71. This General Permit establishes a 10 year, 24 hour (expressed in inches of rainfall) Compliance Storm Event exemption from the technology-based numeric effluent limitations for ATS discharges. Exceedances of the ATS turbidity NEL constitutes a violation of this General Permit.

L. Post-Construction Requirements

72. This General Permit includes performance standards for post-construction that are consistent with State Water Board [Resolution No. 2005-0006](#), "Resolution Adopting the Concept of Sustainability as a Core Value for State Water Board Programs and Directing Its Incorporation," and [2008-0030](#), "Requiring Sustainable Water Resources Management." The requirement for all construction sites to match pre-project hydrology will help ensure that the physical and biological integrity of aquatic ecosystems are sustained. This "runoff reduction" approach is analogous in principle to Low Impact Development (LID) and will serve to protect related watersheds and waterbodies from both hydrologic-based and pollution impacts associated with the post-construction landscape.
73. LUP projects are not subject to post-construction requirements due to the nature of their construction to return project sites to pre-construction conditions.

M. Storm Water Pollution Prevention Plan Requirements

74. This General Permit requires the development of a site-specific SWPPP. The SWPPP must include the information needed to demonstrate compliance with all requirements of this General Permit, and must be kept on the construction site and be available for review. The discharger shall ensure that a QSD develops the SWPPP.
75. To ensure proper site oversight, this General Permit requires a Qualified SWPPP Practitioner to oversee implementation of the BMPs required to comply with this General Permit.

N. Regional Water Board Authorities

76. Regional Water Boards are responsible for implementation and enforcement of this General Permit. A general approach to permitting is not always suitable for every construction site and environmental circumstances. Therefore, this General Permit recognizes that Regional Water Boards must have some flexibility and authority to alter, approve, exempt, or rescind permit authority granted under this

General Permit in order to protect the beneficial uses of our receiving waters and prevent degradation of water quality.

FOR BIDDING
PURPOSES ONLY

IT IS HEREBY ORDERED that all dischargers subject to this General Permit shall comply with the following conditions and requirements (including all conditions and requirements as set forth in Attachments A, B, C, D, E and F)⁶:

II. CONDITIONS FOR PERMIT COVERAGE

A. Linear Underground/Overhead Projects (LUPs)

1. Linear Underground/Overhead Projects (LUPs) include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g. telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, (a) those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment, and associated ancillary facilities); and include, but are not limited to, (b) underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/ or pavement repair or replacement, and stockpile/borrow locations.
2. The Legally Responsible Person is responsible for obtaining coverage under the General Permit where the construction of pipelines, utility lines, fiber-optic cables, or other linear underground/overhead projects will occur across several properties unless the LUP construction activities are covered under another construction storm water permit.
3. Only LUPs shall comply with the conditions and requirements in Attachment A, A.1 & A.2 of this Order. The balance of this Order is not applicable to LUPs except as indicated in Attachment A.

⁶ These attachments are part of the General Permit itself and are not separate documents that are capable of being updated independently by the State Water Board.

B. Obtaining Permit Coverage Traditional Construction Sites

1. The Legally Responsible Person (LRP) (see Special Provisions, Electronic Signature and Certification Requirements, Section IV.I.1) must obtain coverage under this General Permit.
2. To obtain coverage, the LRP must electronically file Permit Registration Documents (PRDs) prior to the commencement of construction activity. Failure to obtain coverage under this General Permit for storm water discharges to waters of the United States is a violation of the CWA and the California Water Code.
3. PRDs shall consist of:
 - a. Notice of Intent (NOI)
 - b. Risk Assessment (Section VIII)
 - c. Site Map
 - d. Storm Water Pollution Prevention Plan (Section XIV)
 - e. Annual Fee
 - f. Signed Certification Statement

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

Attachment B contains additional PRD information. Dischargers must electronically file the PRDs, and mail the appropriate annual fee to the State Water Board.

4. This permit is effective on July 1, 2010.
 - a. **Dischargers Obtaining Coverage On or After July 1, 2010:** All dischargers requiring coverage on or after July 1, 2010, shall electronically file their PRDs prior to the commencement of construction activities, and mail the appropriate annual fee no later than seven days prior to the commencement of construction activities. Permit coverage shall not commence until the PRDs and the annual fee are received by the State Water Board, and a WDID number is assigned and sent by SMARTS.
 - b. **Dischargers Covered Under 99-08-DWQ and 2003-0007-DWQ:** Existing dischargers subject to State Water Board Order No. 99-08-DWQ (existing dischargers) will continue coverage under 99-08-DWQ until July 1, 2010. After July 1, 2010, all NOIs subject to State Water Board Order No. 99-08-DWQ will be terminated.

Existing dischargers shall electronically file their PRDs no later than July 1, 2010. If an existing discharger's site acreage subject to the annual fee has changed, it shall mail a revised annual fee no less than seven days after receiving the revised annual fee notification, **or else lose permit coverage**. All existing dischargers shall be exempt from the risk determination requirements in Section VIII of this General Permit until two years after permit adoption. All existing dischargers are therefore subject to Risk Level 1 requirements regardless of their site's sediment and receiving water risks. However, a Regional Board retains the authority to require an existing discharger to comply with the Section VIII risk determination requirements.

5. The discharger is only considered covered by this General Permit upon receipt of a Waste Discharger Identification (WDID) number assigned and sent by the State Water Board Storm water Multi-Application and Report Tracking System (SMARTS). In order to demonstrate compliance with this General Permit, the discharger must obtain a WDID number and must present documentation of a valid WDID upon demand.
6. During the period this permit is subject to review by the U.S. EPA, the prior permit (State Water Board Order No. 99-08-DWQ) remains in effect. Existing dischargers under the prior permit will continue to have coverage under State Water Board Order No. 99-08-DWQ until this General Permit takes effect on July 1, 2010. Dischargers who complete their projects and electronically file an NOT prior to July 1, 2010, are not required to obtain coverage under this General Permit.
7. Small Construction Rainfall Erosivity Waiver

EPA's Small Construction Erosivity Waiver applies to sites between one and five acres demonstrating that there are no adverse water quality impacts.

Dischargers eligible for a Rainfall Erosivity Waiver based on low erosivity potential shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Board's SMARTS system, certifying that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five. Where the LRP changes or another LRP is added during construction, the new LRP must also submit a waiver certification through the SMARTS system.

If a small construction site continues beyond the projected completion date given on the waiver certification, the LRP shall recalculate the

rainfall erosivity factor for the new project duration and submit this information through the SMARTS system. If the new R factor is below five (5), the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver onsite. The LRP shall submit the new waiver certification 30 days prior to the projected completion date listed on the original waiver form to assure exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, the LRP shall be required to apply for coverage under this Order.

8. In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

C. Revising Permit Coverage for Change of Acreage or New Ownership

1. The discharger may reduce or increase the total acreage covered under this General Permit when a portion of the site is complete and/or conditions for termination of coverage have been met (See Section II.D Conditions for Termination of Coverage); when ownership of a portion of the site is sold to a different entity; or when new acreage, subject to this General Permit, is added to the site.
2. Within 30 days of a reduction or increase in total disturbed acreage, the discharger shall electronically file revisions to the PRDs that include:
 - a. A revised NOI indicating the new project size;
 - b. A revised site map showing the acreage of the site completed, acreage currently under construction, acreage sold/transferred or added, and acreage currently stabilized in accordance with the Conditions for Termination of Coverage in Section II.D below.
 - c. SWPPP revisions, as appropriate; and
 - d. Certification that any new landowners have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address of the new landowner.
 - e. If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

3. The discharger shall continue coverage under the General Permit for any parcel that has not achieved “Final Stabilization” as defined in Section II.D.
4. When an LRP with active General Permit coverage transfers its LRP status to another person or entity that qualifies as an LRP, the existing LRP shall inform the new LRP of the General Permit’s requirements. In order for the new LRP to continue the construction activity on its parcel of property, the new LRP, or the new LRP’s approved signatory, must submit PRDs in accordance with this General Permit’s requirements.

D. Conditions for Termination of Coverage

1. Within 90 days of when construction is complete or ownership has been transferred, the discharger shall electronically file a Notice of Termination (NOT), a final site map, and photos through the State Water Boards SMARTS system. Filing a NOT certifies that all General Permit requirements have been met. The Regional Water Board will consider a construction site complete only when all portions of the site have been transferred to a new owner, or all of the following conditions have been met:
 - a. For purposes of “final stabilization,” the site will not pose any additional sediment discharge risk than it did prior to the commencement of construction activity;
 - b. There is no potential for construction-related storm water pollutants to be discharged into site runoff;
 - c. Final stabilization has been reached;
 - d. Construction materials and wastes have been disposed of properly;
 - e. Compliance with the Post-Construction Standards in Section XIII of this General Permit has been demonstrated;
 - f. Post-construction storm water management measures have been installed and a long-term maintenance plan⁷ has been established; and
 - g. All construction-related equipment, materials and any temporary BMPs no longer needed are removed from the site.

⁷ For the purposes of this requirement a long-term maintenance plan will be designed for a minimum of five years, and will describe the procedures to ensure that the post-construction storm water management measures are adequately maintained.

2. The discharger shall certify that final stabilization conditions are satisfied in their NOT. Failure to certify shall result in continuation of permit coverage and annual billing.
3. The NOT must demonstrate through photos, RUSLE or RUSLE2, or results of testing and analysis that the site meets all of the conditions above (Section II.D.1) and the final stabilization condition (Section II.D.1.a) is attained by one of the following methods:
 - a. "70% final cover method," no computational proof required

OR:

- b. "RUSLE or RUSLE2 method," computational proof required

OR:

- c. "Custom method", the discharger shall demonstrate in some other manner than a or b, above, that the site complies with the "final stabilization" requirement in Section II.D.1.a.

FOR BIDDING PURPOSES ONLY

III. DISCHARGE PROHIBITIONS

- A.** Dischargers shall not violate any discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans. Waste discharges to Areas of Special Biological Significance (ASBS) are prohibited by the California Ocean Plan, unless granted an exception issued by the State Water Board.
- B.** All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit.
- C.** Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. The discharge of non-storm water is authorized under the following conditions:
1. The discharge does not cause or contribute to a violation of any water quality standard;
 2. The discharge does not violate any other provision of this General Permit;
 3. The discharge is not prohibited by the applicable Basin Plan;
 4. The discharger has included and implemented specific BMPs required by this General Permit to prevent or reduce the contact of the non-storm water discharge with construction materials or equipment.
 5. The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;
 6. The discharge is monitored and meets the applicable NALs; and
 7. The discharger reports the sampling information in the Annual Report.

If any of the above conditions are not satisfied, the discharge is not authorized by this General Permit. The discharger shall notify the Regional Water Board of any anticipated non-storm water discharges not already authorized by this General Permit or another NPDES permit, to determine whether a separate NPDES permit is necessary.

- D. Debris resulting from construction activities are prohibited from being discharged from construction sites.
- E. When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the discharger shall have those soils sampled and tested to ensure proper handling and public safety measures are implemented. The discharger shall notify the appropriate local, State, and federal agency(ies) when contaminated soil is found at a construction site, and will notify the appropriate Regional Water Board.

FOR BIDDING
PURPOSES ONLY

IV. SPECIAL PROVISIONS

A. Duty to Comply

1. The discharger shall comply with all of the conditions of this General Permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General Permit coverage.
2. The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

B. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.
2. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the dischargers so notified.

C. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

D. Duty to Mitigate

The discharger shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a discharger when necessary to achieve compliance with the conditions of this General Permit.

F. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

G. Duty to Maintain Records and Provide Information

1. The discharger shall maintain a paper or electronic copy of all required records, including a copy of this General Permit, for three years from the date generated or date submitted, whichever is last. These records shall be available at the construction site until construction is completed.
2. The discharger shall furnish the Regional Water Board, State Water Board, or U.S. EPA, within a reasonable time, any requested information to determine compliance with this General Permit. The discharger shall also furnish, upon request, copies of records that are required to be kept by this General Permit.

H. Inspection and Entry

The discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;
3. Inspect at reasonable times the complete construction site, including any off-site staging areas or material storage areas, and the erosion/sediment controls; and
4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

I. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) and Notices of Termination (NOTs) shall be electronically signed, certified, and submitted via SMARTS to the State Water Board. Either the Legally Responsible Person (LRP), as defined in Appendix 5 – Glossary, or a person legally authorized to sign and certify PRDs and NOTs on behalf of the LRP (the LRP's Approved Signatory, as defined in Appendix 5 - Glossary) must submit all information electronically via SMARTS.
2. Changes to Authorization. If an Approved Signatory's authorization is no longer accurate, a new authorization satisfying the requirements of paragraph (a) of this section must be submitted via SMARTS prior to or together with any reports, information or applications to be signed by an Approved Signatory.
3. All Annual Reports, or other information required by the General Permit (other than PRDs and NOTs) or requested by the Regional Water Board, State Water Board, U.S. EPA, or local storm water management agency shall be certified and submitted by the LRP or the LRP's Approved Signatory.

J. Certification

Any person signing documents under Section IV.I above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

K. Anticipated Noncompliance

The discharger shall give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity, which may result in noncompliance with General Permit requirements.

L. Bypass

Bypass⁸ is prohibited. The Regional Water Board may take enforcement action against the discharger for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage;⁹
2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventative maintenance;
3. The discharger submitted a notice at least ten days in advance of the need for a bypass to the Regional Water Board; or
4. The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. In such a case, the above bypass conditions are not applicable. The discharger shall submit notice of an unanticipated bypass as required.

M. Upset

1. A discharger that wishes to establish the affirmative defense of an upset¹⁰ in an action brought for noncompliance shall demonstrate,

⁸ The intentional diversion of waste streams from any portion of a treatment facility

⁹ Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

¹⁰ An exceptional incident in which there is unintentional and temporary noncompliance the technology based numeric effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

through properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An upset occurred and that the discharger can identify the cause(s) of the upset
 - b. The treatment facility was being properly operated by the time of the upset
 - c. The discharger submitted notice of the upset as required; and
 - d. The discharger complied with any remedial measures required
2. No determination made before an action of noncompliance occurs, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.
 3. In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof

N. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the CWA.

P. Severability

The provisions of this General Permit are severable; and, if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Reopener Clause

This General Permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

R. Penalties for Violations of Permit Conditions

1. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this General Permit is subject to a civil penalty not to exceed \$37,500¹¹ per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.
2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA.

S. Transfers

This General Permit is not transferable.

T. Continuation of Expired Permit

This General Permit continues in force and effect until a new General Permit is issued or the SWRCB rescinds this General Permit. Only those dischargers authorized to discharge under the expiring General Permit are covered by the continued General Permit.

¹¹ May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

V. EFFLUENT STANDARDS & RECEIVING WATER MONITORING

A. Narrative Effluent Limitations

- Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
- Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

Table 1- Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level
pH	Field test with calibrated portable instrument	Risk Level 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5
		Risk Level 3			lower NAL = 6.5 upper NAL = 8.5
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2	1	NTU	250 NTU
		Risk Level 3			250 NTU

B. Numeric Action Levels (NALs)

- For Risk Level 2 and 3 dischargers, the lower storm event average NAL for pH is 6.5 pH units and the upper storm event average NAL for

pH is 8.5 pH units. The discharger shall take actions as described below if the discharge is outside of this range of pH values.

2. For Risk Level 2 and 3 dischargers, the NAL storm event daily average for turbidity is 250 NTU. The discharger shall take actions as described below if the discharge is outside of this range of turbidity values.
3. Whenever the results from a storm event daily average indicate that the discharge is below the lower NAL for pH, exceeds the upper NAL for pH, or exceeds the turbidity NAL (as listed in Table 1), the discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL exceedance and shall immediately implement corrective actions if they are needed.
4. The site evaluation shall be documented in the SWPPP and specifically address whether the source(s) of the pollutants causing the exceedance of the NAL:
 - a. Are related to the construction activities and whether additional BMPs are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) determine what corrective action(s) were taken or will be taken and with a description of the schedule for completion.

AND/OR:

- b. Are related to the run-on associated with the construction site location and whether additional BMPs measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) what corrective action(s) were taken or will be taken with a description of the schedule for completion.

C. Receiving Water Monitoring Triggers

1. The receiving water monitoring triggers for Risk Level 3 dischargers with direct discharges to surface waters are triggered when the daily average effluent pH values during any site phase when there is a high risk of pH discharge¹² fall outside of the range of 6.0 and 9.0 pH units, or when the daily average effluent turbidity exceeds 500 NTU.

2. Risk Level 3 dischargers with direct discharges to surface waters shall conduct receiving water monitoring whenever their effluent monitoring results exceed the receiving water monitoring triggers. If the pH trigger is exceeded, the receiving water shall be monitored for pH for the duration of coverage under this General Permit. If the turbidity trigger is exceeded, the receiving water shall be monitored for turbidity and SSC for the duration of coverage under this general permit.

3. Risk Level 3 dischargers with direct discharges to surfaces waters shall initiate receiving water monitoring when the triggers are exceeded unless the storm event causing the exceedance is determined after the fact to equal to or greater than the 5-year 24-hour storm (expressed in inches of rainfall) as determined by using these maps:

<http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif>
<http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif>

Verification of the 5-year 24-hour storm event shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

4. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

FOR BIDDING ONLY
PURPOSES ONLY

¹² A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

VI. RECEIVING WATER LIMITATIONS

- A.** The discharger shall ensure that storm water discharges and authorized non-storm water discharges to any surface or ground water will not adversely affect human health or the environment.
- B.** The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants in quantities that threaten to cause pollution or a public nuisance.
- C.** The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable Regional Water Board's Water Quality Control Plan (Basin Plan).
- D.** Dischargers located within the watershed of a CWA § 303(d) impaired water body, for which a TMDL has been approved by the U.S. EPA, shall comply with the approved TMDL if it identifies "construction activity" or land disturbance as a source of the pollution.

FOR BIDDING ONLY
PURPOSES

VII. TRAINING QUALIFICATIONS AND CERTIFICATION REQUIREMENTS

A. General

The discharger shall ensure that all persons responsible for implementing requirements of this General Permit shall be appropriately trained in accordance with this Section. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. Those responsible for preparing and amending SWPPPs shall comply with the requirements in this Section VII.

The discharger shall provide documentation of all training for persons responsible for implementing the requirements of this General Permit in the Annual Reports.

B. SWPPP Certification Requirements

1. **Qualified SWPPP Developer:** The discharger shall ensure that SWPPPs are written, amended and certified by a Qualified SWPPP Developer (QSD). A QSD shall have one of the following registrations or certifications, and appropriate experience, as required for:
 - a. A California registered professional civil engineer;
 - b. A California registered professional geologist or engineering geologist;
 - c. A California registered landscape architect;
 - d. A professional hydrologist registered through the American Institute of Hydrology;
 - e. A Certified Professional in Erosion and Sediment Control (CPESC)[™] registered through Enviro Cert International, Inc.;
 - f. A Certified Professional in Storm Water Quality (CPSWQ)[™] registered through Enviro Cert International, Inc.; or
 - g. A professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET).

Effective two years after the adoption date of this General Permit, a QSD shall have attended a State Water Board-sponsored or approved QSD training course.

2. The discharger shall list the name and telephone number of the currently designated Qualified SWPPP Developer(s) in the SWPPP.
3. **Qualified SWPPP Practitioner:** The discharger shall ensure that all BMPs required by this General Permit are implemented by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-storm water and storm water visual observations, sampling and analysis. Effective two years from the date of adoption of this General Permit, a QSP shall be either a QSD or have one of the following certifications:
 - a. A certified erosion, sediment and storm water inspector registered through Enviro Cert International, Inc.; or
 - b. A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

Effective two years after the adoption date of this General Permit, a QSP shall have attended a State Water Board-sponsored or approved QSP training course.

4. The LRP shall list in the SWPPP, the name of any Approved Signatory, and provide a copy of the written agreement or other mechanism that provides this authority from the LRP in the SWPPP.
5. The discharger shall include, in the SWPPP, a list of names of all contractors, subcontractors, and individuals who will be directed by the Qualified SWPPP Practitioner. This list shall include telephone numbers and work addresses. Specific areas of responsibility of each subcontractor and emergency contact numbers shall also be included.
6. The discharger shall ensure that the SWPPP and each amendment will be signed by the Qualified SWPPP Developer. The discharger shall include a listing of the date of initial preparation and the date of each amendment in the SWPPP.

VIII. RISK DETERMINATION

The discharger shall calculate the 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. For any site that spans two or more planning watersheds,¹³ the discharger shall calculate a separate Risk Level for each planning watershed. The discharger shall notify the State Water Board of the site's Risk Level determination(s) and shall include this determination as a part of submitting the PRDs. If a discharger ends up with more than one Risk Level determination, the Regional Water Board may choose to break the project into separate levels of implementation.

IX. RISK LEVEL 1 REQUIREMENTS

Risk Level 1 Dischargers shall comply with the requirements included in Attachment C of this General Permit.

X. RISK LEVEL 2 REQUIREMENTS

Risk Level 2 Dischargers shall comply with the requirements included in Attachment D of this General Permit.

XI. RISK LEVEL 3 REQUIREMENTS

Risk Level 3 Dischargers shall comply with the requirements included in Attachment E of this General Permit.

XII. ACTIVE TREATMENT SYSTEMS (ATS)

Dischargers choosing to implement an ATS on their site shall comply with all of the requirements in Attachment F of this General Permit.

¹³ Planning watershed: defined by the Calwater Watershed documents as a watershed that ranges in size from approximately 3,000 to 10,000 acres <http://cain.ice.ucdavis.edu/calwater/calwfaq.html>, <http://gis.ca.gov/catalog/BrowseRecord.epi?id=22175> .

XIII. POST-CONSTRUCTION STANDARDS

- A. All dischargers shall comply with the following runoff reduction requirements unless they are located within an area subject to post-construction standards of an active Phase I or II municipal separate storm sewer system (MS4) permit that has an approved Storm Water Management Plan.
1. This provision shall take effect three years from the adoption date of this permit, or later at the discretion of the Executive Officer of the Regional Board.
 2. The discharger shall demonstrate compliance with the requirements of this section by submitting with their NOI a map and worksheets in accordance with the instructions in Appendix 2. The discharger shall use non-structural controls unless the discharger demonstrates that non-structural controls are infeasible or that structural controls will produce greater reduction in water quality impacts.
 3. The discharger shall, through the use of non-structural and structural measures as described in Appendix 2, replicate the pre-project water balance (for this permit, defined as the volume of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event (or the smallest storm event that generates runoff, whichever is larger). Dischargers shall inform Regional Water Board staff at least 30 days prior to the use of any structural control measure used to comply with this requirement. Volume that cannot be addressed using non-structural practices shall be captured in structural practices and approved by the Regional Water Board. When seeking Regional Board approval for the use of structural practices, dischargers shall document the infeasibility of using non-structural practices on the project site, or document that there will be fewer water quality impacts through the use of structural practices.
 4. For sites whose disturbed area exceeds two acres, the discharger shall preserve the pre-construction drainage density (miles of stream length per square mile of drainage area) for all drainage areas within the area serving a first order stream¹⁴ or larger stream and ensure that post-project time of runoff concentration is equal or greater than pre-project time of concentration.

¹⁴ A first order stream is defined as a stream with no tributaries.

- B.** All dischargers shall implement BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed at the site (Post-construction BMPs).

FOR BIDDING
PURPOSES ONLY

XIV. SWPPP REQUIREMENTS

- A.** The discharger shall ensure that the Storm Water Pollution Prevention Plans (SWPPPs) for all traditional project sites are developed and amended or revised by a QSD. 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-storm water discharges are identified and either eliminated, controlled, or treated;
 3. Site BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the 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.
- B.** To demonstrate compliance with requirements of this General Permit, the QSD shall include information in the SWPPP that supports the conclusions, selections, use, and maintenance of BMPs.
- C.** The discharger 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 Municipal 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.

XV. REGIONAL WATER BOARD AUTHORITIES

- A.** In the case where the Regional Water Board does not agree with the discharger's self-reported risk level (e.g., they determine themselves to be a Level 1 Risk when they are actually a Level 2 Risk site), Regional Water Boards may either direct the discharger to reevaluate the Risk Level(s) for their site or terminate coverage under this General Permit.
- B.** Regional Water Boards may terminate coverage under this General Permit for dischargers who fail to comply with its requirements or where they determine that an individual NPDES permit is appropriate.
- C.** Regional Water Boards may require dischargers to submit a Report of Waste Discharge / NPDES permit application for Regional Water Board consideration of individual requirements.
- D.** Regional Water Boards may require additional Monitoring and Reporting Program Requirements, including sampling and analysis of discharges to sediment-impaired water bodies.
- E.** Regional Water Boards may require dischargers to retain records for more than the three years required by this General Permit.

FOR BIDDING ONLY
PURPOSES ONLY

XVI. ANNUAL REPORTING REQUIREMENTS

- A.** All dischargers shall prepare and electronically submit an Annual Report no later than September 1 of each year.
- B.** The discharger shall certify each Annual Report in accordance with the Special Provisions.
- C.** The discharger shall retain an electronic or paper copy of each Annual Report for a minimum of three years after the date the annual report is filed.
- D.** The discharger shall include storm water monitoring information in the Annual Report consisting of:
 - 1. a summary and evaluation of all sampling and analysis results, including copies of laboratory reports;
 - 2. 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");
 - 3. a summary of all corrective actions taken during the compliance year;
 - 4. identification of any compliance activities or corrective actions that were not implemented;
 - 5. a summary of all violations of the General Permit;
 - 6. the names of individual(s) who performed the facility inspections, sampling, visual observation (inspections), and/or measurements;
 - 7. the date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge); and
 - 8. the visual observation and sample collection exception records and reports specified in Attachments C, D, and E.
- E.** The discharger shall provide training information in the Annual Report consisting of:
 - 1. documentation of all training for individuals responsible for all activities associated with compliance with this General Permit;

2. documentation of all training for individuals responsible for BMP installation, inspection, maintenance, and repair; and
3. documentation of all training for individuals responsible for overseeing, revising, and amending the SWPPP.

FOR BIDDING
PURPOSES ONLY

**ATTACHMENT A
Linear Underground/ Overhead Requirements**

A. DEFINITION OF LINEAR UNDERGROUND/OVERHEAD PROJECTS 1
 B. LINEAR PROJECT PERMIT REGISTRATION DOCUMENTS (PRDs)3
 C. LINEAR PROJECT TERMINATION OF COVERAGE REQUIREMENTS..4
 D. DISCHARGE PROHIBITIONS6
 E. SPECIAL PROVISIONS.....8
 F. EFFLUENT STANDARDS & RECEIVING WATER MONITORING 13
 G. RECEIVING WATER LIMITATIONS 16
 H. TRAINING QUALIFICATIONS 17
 I. TYPES OF LINEAR PROJECTS 19
 J. LUP TYPE-SPECIFIC REQUIREMENTS20
 K. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS28
 L. REGIONAL WATER BOARD AUTHORITIES29
 M. MONITORING AND REPORTING REQUIREMENTS31

All Linear Underground/Overhead project dischargers who submit permit registration documents (PRDs) indicating their intention to be regulated under the provisions of this General Permit shall comply with the following:

A. DEFINITION OF LINEAR UNDERGROUND/OVERHEAD PROJECTS

1. Linear Underground/Overhead Projects (LUPs) include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio, or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, (a) those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment, and associated ancillary facilities); and include, but are not limited to, (b) underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/ or pavement repair or replacement, and stockpile/borrow locations.

2. LUP evaluation shall consist of two tasks:

- a. Confirm that the project or project section(s) qualifies as an LUP. The State Water Board website contains a project determination guidance flowchart.
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constructionpermits.shtml
 - b. Identify which Type(s) (1, 2 or 3 described in Section I below) are applicable to the project or project sections based on project sediment and receiving water risk. (See Attachment A.1)
- 3.** A Legally Responsible Person (LRP) for a Linear Underground/Overhead project is required to obtain CGP coverage under one or more permit registration document (PRD) electronic submittals to the State Water Board's Storm Water Multi-Application and Report Tracking (SMARTs) system. Attachment A.1 contains a flow chart to be used when determining if a linear project qualifies for coverage and to determine LUP Types. Since a LUP may be constructed within both developed and undeveloped locations and portions of LUPs may be constructed by different contractors, LUPs may be broken into logical permit sections. Sections may be determined based on portions of a project conducted by one contractor. Other situations may also occur, such as the time period in which the sections of a project will be constructed (e.g. project phases), for which separate permit coverage is possible. For projects that are broken into separate sections, a description of how each section relates to the overall project and the definition of the boundaries between sections shall be clearly stated.
- 4.** Where construction activities transverse or enter into different Regional Water Board jurisdictions, LRPs shall obtain permit coverage for each Regional Water Board area involved prior to the commencement of construction activities.
- 5.** Small Construction Rainfall Erosivity Waiver

EPA's Small Construction Erosivity Waiver applies to sites between one and five acres demonstrating that there are no adverse water quality impacts.

Dischargers eligible for a Rainfall Erosivity Waiver based on low erosivity potential shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Board's SMARTS system, certifying that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five. Where the LRP changes or another LRP is added during construction, the new LRP must also submit a waiver certification through the SMARTS system.

If a small linear construction site continues beyond the projected completion date given on the waiver certification, the LRP shall recalculate the rainfall erosivity factor for the new project duration and submit this information through the SMARTS system. If the new R factor is below five (5), the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver onsite. The LRP shall submit the new waiver certification 30 days prior to the projected completion date listed on the original waiver form to assure exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, the LRP shall be required to apply for coverage under this Order.

B. LINEAR PROJECT PERMIT REGISTRATION DOCUMENTS (PRDs)

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted. PRDs shall consist of the following:

1. Notice of Intent (NOI)

Prior to construction activities, the LRP of a proposed linear underground/overhead project shall utilize the processes and methods provided in Attachment A.2, Permit Registration Documents (PRDs) – General Instructions for Linear Underground/Overhead Projects to comply with the Construction General Permit.

2. Site Maps

LRPs submitting PRDs shall include at least 3 maps. The first map will be a zoomed¹ 1000-1500 ft vicinity map that shows the starting point of the project. The second will be a zoomed map of 1000-1500 ft showing the ending location of the project. The third will be a larger view vicinity map, 1000 ft to 2000 ft, displaying the entire project location depending on the project size, and indicating the LUP type (1, 2 or 3) areas within the total project footprint.

3. Drawings

LRPs submitting PRDs shall include a construction drawing(s) or other appropriate drawing(s) or map(s) that shows the locations of storm drain

¹ An image with a close-up/enhanced detailed view of site features that show minute details such as streets and neighboring structures.

Or: An image with a close-up/enhanced detailed view of the site's surrounding infrastructure.

Or: An image with a close up detailed view of the project and its surroundings.

inlets and waterbodies² that may receive discharges from the construction activities and that shows the locations of BMPs to be installed for all those BMPs that can be illustrated on the revisable drawing(s) or map(s). If storm drain inlets, waterbodies, and/or BMPs cannot be adequately shown on the drawing(s) or map(s) they should be described in detail within the SWPPP.

4. Storm Water Pollution Prevention Plan (SWPPP)

LUP dischargers shall comply with the SWPPP Preparation, Implementation, and Oversight requirements in Section K of this Attachment.

5. Contact information

LUP dischargers shall include contact information for all contractors (or subcontractors) responsible for each area of an LUP project. This should include the names, telephone numbers, and addresses of contact personnel. Specific areas of responsibility of each contact, and emergency contact numbers should also be included.

6. In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

C. LINEAR PROJECT TERMINATION OF COVERAGE REQUIREMENTS

The LRP may terminate coverage of an LUP when construction activities are completed by submitting an electronic notice of termination (NOT) through the State Water Board's SMARTS system. Termination requirements are different depending on the complexity of the LUP. An LUP is considered complete when: (a) there is no potential for construction-related storm water pollution; (b) all elements of the SWPPP have been completed; (c) construction materials and waste have been disposed of properly; (d) the site is in compliance with all local storm water management requirements; and (e) the LRP submits a notice of termination (NOT) and has received approval for termination from the appropriate Regional Water Board office.

1. LUP Stabilization Requirements

The LUP discharger shall ensure that all disturbed areas of the construction site are stabilized prior to termination of coverage under this General Permit. Final stabilization for the purposes of submitting an NOT

² Includes basin(s) that the MS4 storm sewer systems may drain to for Hydromodification or Hydrological Conditional of Concerns under the MS4 permits.

is satisfied when all soil disturbing activities are completed and one of the following criteria is met:

- a. In disturbed areas that were vegetated prior to construction activities of the LUP, the area disturbed must be re-established to a uniform vegetative cover equivalent to 70 percent coverage of the preconstruction vegetative conditions. Where preconstruction vegetation covers less than 100 percent of the surface, such as in arid areas, the 70 percent coverage criteria is adjusted as follows: if the preconstruction vegetation covers 50 percent of the ground surface, 70 percent of 50 percent ($.70 \times .50 = .35$) would require 35 percent total uniform surface coverage; or
- b. Where no vegetation is present prior to construction, the site is returned to its original line and grade and/or compacted to achieve stabilization; or
- c. Equivalent stabilization measures have been employed. These measures include, but are not limited to, the use of such BMPs as blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion resistant soil coverings or treatments.

2. LUP Termination of Coverage Requirements

The LRP shall file an NOT through the State Water Board's SMARTS system. By submitting an NOT, the LRP is certifying that construction activities for an LUP are complete and that the project is in full compliance with requirements of this General Permit and that it is now compliant with soil stabilization requirements where appropriate. Upon approval by the appropriate Regional Water Board office, permit coverage will be terminated.

3. Revising Coverage for Change of Acreage

When the LRP of a portion of an LUP construction project changes, or when a phase within a multi-phase project is completed, the LRP may reduce the total acreage covered by this General Permit. In reducing the acreage covered by this General Permit, the LRP shall electronically file revisions to the PRDs that include:

- a. a revised NOI indicating the new project size;
- b. a revised site map showing the acreage of the project completed, acreage currently under construction, acreage sold, transferred or added, and acreage currently stabilized.
- c. SWPPP revisions, as appropriate; and
- d. certification that any new LRPs have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address (if known) of the new LRP.

If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

D. DISCHARGE PROHIBITIONS

1. LUP dischargers shall not violate any discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans. Waste discharges to Areas of Special Biological Significance (ASBS) are prohibited by the California Ocean Plan, unless granted an exception issued by the State Water Board.
2. LUP dischargers are prohibited from discharging non-storm water that is not otherwise authorized by this General Permit. Non-storm water discharges authorized by this General Permit³ may include, fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, street cleaning, dewatering,⁴ uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. Such discharges are allowed by this General Permit provided they are not relied upon to clean up failed or inadequate construction or post-construction BMPs designed to keep materials on site. These authorized non-storm water discharges:

³ Dischargers must identify all authorized non-storm water discharges in the LUP's SWPPP and identify BMPs that will be implemented to either eliminate or reduce pollutants in non-storm water discharges. Regional Water Boards may direct the discharger to discontinue discharging such non-storm water discharges if determined that such discharges discharge significant pollutants or threaten water quality.

⁴ Dewatering activities may be prohibited or need coverage under a separate permit issued by the Regional Water Boards. Dischargers shall check with the appropriate Regional Water Boards for any required permit or basin plan conditions prior to initial dewatering activities to land, storm drains, or waterbodies.

- a. Shall not cause or contribute to a violation of any water quality standard;
- b. Shall not violate any other provision of this General Permit;
- c. Shall not violate any applicable Basin Plan;
- d. Shall comply with BMPs as described in the SWPPP;
- e. Shall not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;
- f. Shall be monitored and meets the applicable NALs; and
- g. Shall be reported by the discharger in the Annual Report.

If any of the above conditions are not satisfied, the discharge is not authorized by this General Permit. The discharger shall notify the Regional Water Board of any anticipated non-storm water discharges not authorized by this General Permit to determine the need for a separate NPDES permit.

Additionally, some LUP dischargers may be required to obtain a separate permit if the applicable Regional Water Board has adopted a General Permit for dewatering discharges. Wherever feasible, alternatives, that do not result in the discharge of non-storm water, shall be implemented in accordance with this Attachment's Section K.2 - SWPPP Implementation Schedule.

3. LUP dischargers shall ensure that trench spoils or any other soils disturbed during construction activities that are contaminated⁵ are not discharged with storm water or non-storm water discharges into any storm drain or water body except pursuant to an NPDES permit.

When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the LUP discharger shall have those soils sampled and tested to ensure that proper handling and public safety measures are

⁵ Contaminated soil contains pollutants in concentrations that exceed the appropriate thresholds that various regulatory agencies set for those substances. Preliminary testing of potentially contaminated soils will be based on odor, soil discoloration, or prior history of the site's chemical use and storage and other similar factors. When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the discharger shall have those soils sampled and tested to ensure proper handling and public safety measures are implemented. The legally responsible person will notify the appropriate local, State, or federal agency(ies) when contaminated soil is found at a construction site, and will notify the Regional Water Board by submitting an NOT at the completion of the project.

implemented. The LUP discharger shall notify the appropriate local, State, and federal agency(ies) when contaminated soil is found at a construction site, and will notify the appropriate Regional Water Board.

4. Discharging any pollutant-laden water that will cause or contribute to an exceedance of the applicable Regional Water Board's Basin Plan from a dewatering site or sediment basin into any receiving water or storm drain is prohibited.
5. Debris⁶ resulting from construction activities are prohibited from being discharged from construction project sites.

E. SPECIAL PROVISIONS

1. Duty to Comply

- a. The LUP discharger must comply with all of the conditions of this General Permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General Permit coverage.
- b. The LUP discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

- a. This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

⁶ Litter, rubble, discarded refuse, and remains of something destroyed.

- b. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the dischargers so notified.

3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an LUP discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

4. Duty to Mitigate

The LUP discharger shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The LUP discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this General Permit and with the requirements of the Storm Water Pollution Prevention Plan (SWPPP). Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a discharger when necessary to achieve compliance with the conditions of this General Permit.

6. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

7. Duty to Maintain Records and Provide Information

- a. The LUP discharger shall maintain a paper or electronic copy of all required records, including a copy of this General Permit, for three years from the date generated or date submitted, whichever is last. These records shall be kept at the construction site or in a crew

member's vehicle until construction is completed, and shall be made available upon request.

- b. The LUP discharger shall furnish the Regional Water Board, State Water Board, or USEPA, within a reasonable time, any requested information to determine compliance with this General Permit. The LUP discharger shall also furnish, upon request, copies of records that are required to be kept by this General Permit.

8. Inspection and Entry

The LUP discharger shall allow the Regional Water Board, State Water Board, USEPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this General Permit;
- b. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;
- c. Inspect at reasonable times the complete construction site, including any off-site staging areas or material storage areas, and the erosion/sediment controls; and
- d. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

9. Electronic Signature and Certification Requirements

- a. All Permit Registration Documents (PRDs) and Notices of Termination (NOTs) shall be electronically signed, certified, and submitted via SMARTS to the State Water Board. Either the Legally Responsible Person (LRP), as defined in Appendix 5 – Glossary, or a person legally authorized to sign and certify PRDs and NOTs on behalf of the LRP (the LRP's Approved Signatory, as defined in Appendix 5 - Glossary) must submit all information electronically via SMARTS.
- b. Changes to Authorization. If an Approved Signatory's authorization is no longer accurate, a new authorization satisfying the requirements of paragraph (a) of this section must be submitted via SMARTS prior to or

together with any reports, information or applications to be signed by an Approved Signatory.

- c. All SWPPP revisions, annual reports, or other information required by the General Permit (other than PRDs and NOTs) or requested by the Regional Water Board, State Water Board, USEPA, or local storm water management agency shall be certified and submitted by the LRP or the LRP's Approved Signatory.

10. Certification

Any person signing documents under Section E.9 above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Anticipated Noncompliance

The LUP discharger shall give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity, which may result in noncompliance with General Permit requirements.

12. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years or by both.

13. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the LUP discharger is or may be subject to under Section 311 of the CWA.

14. Severability

The provisions of this General Permit are severable; and, if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

15. Reopener Clause

This General Permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of USEPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

16. Penalties for Violations of Permit Conditions

- a. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this General Permit is subject to a civil penalty not to exceed \$37,500⁷ per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.
- b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA.

17. Transfers

This General Permit is not transferable. A new LRP of an ongoing construction activity must submit PRDs in accordance with the requirements of this General Permit to be authorized to discharge under this General Permit. An LRP who is a property owner with active General Permit coverage who sells a fraction or all the land shall inform the new property owner(s) of the requirements of this General Permit.

18. Continuation of Expired Permit

This General Permit continues in force and effect until a new General Permit is issued or the SWRCB rescinds this General Permit. Only those

⁷ May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act

dischargers authorized to discharge under the expiring General Permit are covered by the continued General Permit.

F. EFFLUENT STANDARDS & RECEIVING WATER MONITORING

1. Narrative Effluent Limitations

- a. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges regulated by this General Permit do not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
- b. LUP dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of structural or non-structural controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

FOR BIDDING
PURPOSES ONLY

Table 1. Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level
pH	Field test with calibrated portable instrument	LUP Type 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5
		LUP Type 3			lower NAL = 6.5 upper NAL = 8.5
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	LUP Type 2	1	NTU	250 NTU
		LUP Type 3			250 NTU

FOR BIDDING
PURPOSES ONLY

2. Numeric Action Levels (NALs)

- a. For LUP Type 2 and 3 dischargers, the lower storm event daily average NAL for pH is 6.5 pH units and the upper storm event daily average NAL for pH is 8.5 pH units. The LUP discharger shall take actions as described below if the storm event daily average discharge is outside of this range of pH values.
- b. For LUP Type 2 and 3 dischargers, the storm event daily average NAL for turbidity is 250 NTU. The discharger shall take actions as described below if the storm event daily average discharge is outside of this range of turbidity values.
- c. Whenever daily average analytical effluent monitoring results indicate that the discharge is below the lower NAL for pH, exceeds the upper NAL for pH, or exceeds the turbidity NAL (as listed in Table 1), the LUP discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL exceedance and shall immediately implement corrective actions if they are needed.
- d. The site evaluation will be documented in the SWPPP and specifically address whether the source(s) of the pollutants causing the exceedance of the NAL:
 - i. Are related to the construction activities and whether additional BMPs or SWPPP implementation measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) determine what corrective action(s) were taken or will be taken and with a description of the schedule for completion.

AND/OR:

- ii. Are related to the run-on associated with the construction site location and whether additional BMPs or SWPPP implementation measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) decide what corrective action(s) were taken or will be taken, including a description of the schedule for completion.

3. Receiving Water Monitoring Triggers

- a. The receiving water monitoring triggers for LUP Type 3 dischargers with direct discharges to surface waters are triggered when the daily average effluent pH values during any site phase when there is a high risk of pH discharge⁸ fall outside of the range of 6.0 and 9.0 pH units, or when the daily average effluent turbidity exceeds 500 NTU.
- b. LUP Type 3 dischargers with direct discharges to surface waters shall conduct receiving water monitoring whenever their effluent monitoring results exceed the receiving water monitoring triggers. If the pH trigger is exceeded, the receiving water shall be monitored for pH for the duration of coverage under this General Permit. If the turbidity trigger is exceeded, the receiving water shall be monitored for turbidity and SSC for the duration of coverage under this General Permit.
- c. LUP Type 3 dischargers with direct discharges to surface waters shall initiate receiving water monitoring when the triggers are exceeded unless the storm event causing the exceedance is determined after the fact to equal to or greater than the 5-year 24-hour storm (expressed in inches of rainfall) as determined by using these maps:

<http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif>
<http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif>

 Verification of the 5-year 24-hour storm event shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.
- d. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

G. RECEIVING WATER LIMITATIONS

1. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges to any surface or ground water will not adversely affect human health or the environment.
2. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants in quantities that threaten to cause pollution or a public nuisance.
3. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants that cause or

⁸ A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable Regional Water Board's Water Quality Control Plan (Basin Plan).

H. TRAINING QUALIFICATIONS

1. General

All persons responsible for implementing requirements of this General Permit shall be appropriately trained. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. Persons responsible for preparing, amending and certifying SWPPPs shall comply with the requirements in this Section H.

2. SWPPP Certification Requirements

- a. **Qualified SWPPP Developer:** The LUP discharger shall ensure that all SWPPPs be written, amended and certified by a Qualified SWPPP Developer (QSD). A QSD shall have one of the following registrations or certifications, and appropriate experience, as required for:
- i A California registered professional civil engineer;
 - ii A California registered professional geologist or engineering geologist;
 - iii A California registered landscape architect;
 - iv A professional hydrologist registered through the American Institute of Hydrology;
 - v A certified professional in erosion and sediment control (CPESC)TM registered through Enviro Cert International, Inc;
 - vi A certified professional in storm water quality (CPSWQ)TM registered through Enviro Cert International, Inc.; or
 - vii A certified professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET).

Effective two years after the adoption date of this General Permit, a QSD shall have attended a State Water Board-sponsored or approved QSD training course.

- b. The LUP discharger shall ensure that the SWPPP is written and amended, as needed, to address the specific circumstances for each construction site covered by this General Permit prior to commencement of construction activity for any stage.
- c. The LUP discharger shall list the name and telephone number of the currently designated Qualified SWPPP Developer(s) in the SWPPP.
- d. **Qualified SWPPP Practitioner:** The LUP discharger shall ensure that all elements of any SWPPP for each project will be implemented by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-storm water and storm water visual observations, sampling and analysis, and for ensuring full compliance with the permit and implementation of all elements of the SWPPP. Effective two years from the date of adoption of this General Permit, a QSP shall be either a QSD or have one of the following certifications:
 - i. A certified erosion, sediment and storm water inspector registered through Certified Professional in Erosion and Sediment Control, Inc.; or
 - ii. A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

Effective two years after the adoption date of this General Permit, a QSP shall have attended a State Water Board-sponsored or approved QSP training course.
- e. The LUP discharger shall ensure that the SWPPP include a list of names of all contractors, subcontractors, and individuals who will be directed by the Qualified SWPPP Practitioner, and who is ultimately responsible for implementation of the SWPPP. This list shall include telephone numbers and work addresses. Specific areas of responsibility of each subcontractor and emergency contact numbers shall also be included.
- f. The LUP discharger shall ensure that the SWPPP and each amendment be signed by the Qualified SWPPP Developer. The LUP discharger shall include a listing of the date of initial preparation and the dates of each amendment in the SWPPP.

I. TYPES OF LINEAR PROJECTS

This attachment establishes three types (Type 1, 2 & 3) of complexity for areas within an LUP or project section based on threat to water quality. Project area Types are determined through Attachment A.1.

The Type 1 requirements below establish the baseline requirements for all LUPs subject to this General Permit. Additional requirements for Type 2 and Type 3 LUPs are labeled.

1. Type 1 LUPs:

LUP dischargers with areas of a LUP designated as Type 1 shall comply with the requirements in this Attachment. Type 1 LUPs are:

- a. Those construction areas where 70 percent or more of the construction activity occurs on a paved surface and where areas disturbed during construction will be returned to preconstruction conditions or equivalent protection established at the end of the construction activities for the day; or
- b. Where greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them where:
 - i. Areas disturbed during construction will be returned to preconstruction conditions or equivalent protection is established at the end of the construction activities for the day to minimize the potential for erosion and sediment deposition, and
 - ii. Areas where established vegetation was disturbed during construction will be stabilized and re-vegetated by the end of project. When required, adequate temporary stabilization BMPs will be installed and maintained until vegetation is established to meet minimum cover requirements established in this General Permit for final stabilization.
- c. Where the risk determination is as follows:
 - i. Low sediment risk, low receiving water risk, or
 - ii. Low sediment risk, medium receiving water risk, or
 - iii. Medium sediment risk, low receiving water risk

2. Type 2 LUPs:

Type 2 LUPs are determined by the Combined Risk Matrix in Attachment A.1. Type 2 LUPs have the specified combination of risk:

- d. High sediment risk, low receiving water risk, or
- e. Medium sediment risk, medium receiving water risk, or
- f. Low sediment risk, high receiving water risk

Receiving water risk is either considered “Low” for those areas of the project that are not in close proximity to a sensitive receiving watershed, “Medium” for those areas of the project within a sensitive receiving watershed yet outside of the flood plain of a sensitive receiving water body, and “High” where the soil disturbance is within close proximity to a sensitive receiving water body. Project sediment risk is calculated based on the Risk Factor Worksheet in Attachment C of this General Permit.

3. Type 3 LUPs:

Type 3 LUPs are determined by the Combined Risk Matrix in Attachment A.1. Type 3 LUPs have the specified combination of risk:

- a. High sediment risk, high receiving water risk, or
- b. High sediment risk, medium receiving water risk, or
- c. Medium sediment risk, high receiving water risk

Receiving water risk is either considered “Medium” for those areas of the project within a sensitive receiving watershed yet outside of the flood plain of a sensitive receiving water body, or “High” where the soil disturbance is within close proximity to a sensitive receiving water body. Project sediment risk is calculated based on the Risk Factor Worksheet in Attachment C.

J. LUP TYPE-SPECIFIC REQUIREMENTS**1. Effluent Standards**

- a. Narrative – LUP dischargers shall comply with the narrative effluent standards below.

- i Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
 - ii LUP dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.
- b. Numeric – LUP Type 1 dischargers are not subject to a numeric effluent standard
 - c. Numeric –LUP Type 2 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.
 - d. Numeric – LUP Type 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

2. Good Site Management "Housekeeping"

- a. LUP dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, the good housekeeping measures shall consist of the following:
 - i Identify the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - ii Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).
 - iii Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
 - iv Minimize exposure of construction materials to precipitation (not applicable to materials designed to be outdoors and exposed to the environment).

- v Implement BMPs to control the off-site tracking of loose construction and landscape materials.
- b. LUP dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:
 - i Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.
 - ii Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.
 - iii Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.
 - iv Cover waste disposal containers at the end of every business day and during a rain event.
 - v Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.
 - vi Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.
 - vii Implement procedures that effectively address hazardous and non-hazardous spills.
 - viii Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:
 - (1) Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and
 - (2) Appropriate spill response personnel are assigned and trained.
 - ix Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

- c. LUP dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:
- i Prevent oil, grease, or fuel from leaking into the ground, storm drains or surface waters.
 - ii Implement appropriate BMPs whenever equipment or vehicles are fueled, maintained or stored.
 - iii Clean leaks immediately and disposing of leaked materials properly.
- d. LUP dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:
- i Contain stockpiled materials such as mulches and topsoil when they are not actively being used.
 - ii Contain fertilizers and other landscape materials when they are not actively being used.
 - iii Discontinue the application of any erodible landscape material at least 2 days before a forecasted rain event⁹ or during periods of precipitation.
 - iv Applying erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.
 - v Stacking erodible landscape material on pallets and covering or storing such materials when not being used or applied.
- e. LUP dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, LUP dischargers shall do the following:

⁹ 50% or greater chance of producing precipitation.

- i Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.
 - ii Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.
 - iii Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 - iv Ensure retention of sampling, visual observation, and inspection records.
 - v Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
- f. LUP dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations.

3. Non-Storm Water Management

- a. LUP dischargers shall implement measures to control all non-storm water discharges during construction.
- b. LUP dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.
- c. LUP dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

4. Erosion Control

- a. LUP dischargers shall implement effective wind erosion control.
- b. LUP dischargers shall provide effective soil cover for inactive¹⁰ areas and all finished slopes, and utility backfill.

¹⁰ Areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days

- c. LUP dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

5. Sediment Controls

- a. LUP dischargers shall establish and maintain effective perimeter controls as needed, and implement effective BMPs for all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
- b. On sites where sediment basins are to be used, LUP dischargers shall, at minimum, design sediment basins according to the guidance provided in CASQA’s Construction BMP Handbook.
- c. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths¹¹ in accordance with Table 2 below.

Table 2 – Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not to exceed
0-25%	20 feet
25-50%	15 feet
Over 50%	10 feet

- d. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent off-site tracking of sediment.
- e. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.
- f. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall inspect all immediate access roads. At a minimum daily and prior to any rain event, the discharger shall remove any

¹¹ Sheet flow length is the length that shallow, low velocity flow travels across a site.

sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).

- g. **Additional LUP Type 3 Requirement:** The Regional Water Board may require LUP Type 3 dischargers to implement additional site-specific sediment control requirements if the implementation of the other requirements in this section are not adequately protecting the receiving waters.

6. Run-on and Run-off Controls

- a. LUP dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this Attachment.
- b. Run-on and runoff controls are not required for Type 1 LUPs unless the evaluation of quantity and quality of run-on and runoff deems them necessary or visual inspections show that the site requires such controls.

7. Inspection, Maintenance and Repair

- a. All inspection, maintenance repair and sampling activities at the discharger's LUP location shall be performed or supervised by a QSP representing the discharger. The QSP may delegate any or all of these activities to an employee trained to do the task(s) appropriately, but shall ensure adequate deployment.
- b. LUP dischargers shall conduct visual inspections and observations daily during working hours (not recorded). At least once each 24-hour period during extended storm events, **LUP Type 2 & 3 dischargers** shall conduct visual inspections to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.
- c. Upon identifying failures or other shortcomings, as directed by the QSP, LUP dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.
- d. For each pre- and post-rain event inspection required, LUP dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format that includes the information described below.

- e. The LUP discharger shall ensure that the checklist remains on-site or with the SWPPP. At a minimum, an inspection checklist should include:
- i Inspection date and date the inspection report was written.
 - ii Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.
 - iii Site information, including stage of construction, activities completed, and approximate area of the site exposed.
 - iv A description of any BMPs evaluated and any deficiencies noted.
 - v If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.
 - vi Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.
 - vii Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.
 - viii Photographs taken during the inspection, if any.
 - ix Inspector's name, title, and signature.

K. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS

1. Objectives

SWPPPs for all LUPs shall be developed and amended or revised by a QSD. The SWPPP shall be designed to address the following objectives:

- a. All pollutants and their sources, including sources of sediment, associated with construction activities associated with LUP activity are controlled;
- b. All non-storm water discharges are identified and either eliminated, controlled, or treated;
- c. BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from LUPs during construction; and
- d. Stabilization BMPs installed to reduce or eliminate pollutants after construction is completed are effective and maintained.

2. SWPPP Implementation Schedule

- a. LUPs for which PRDs have been submitted to the State Water Board shall develop a site/project location SWPPP prior to the start of land-disturbing activity in accordance with this Section and shall implement the SWPPP concurrently with commencement of soil-disturbing activities.
- b. For an ongoing LUP involving a change in the LRP, the new LRP shall review the existing SWPPP and amend it, if necessary, or develop a new SWPPP within 15 calendar days to conform to the requirements set forth in this General Permit.

3. Availability

The SWPPP shall be available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, 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.

L. REGIONAL WATER BOARD AUTHORITIES

1. Regional Water Boards shall administer the provisions of this General Permit. Administration of this General Permit may include, but is not limited to, requesting the submittal of SWPPPs, reviewing SWPPPs, reviewing monitoring and sampling and analysis reports, conducting compliance inspections, gathering site information by any medium including sampling, photo and video documentation, and taking enforcement actions.
2. Regional Water Boards may terminate coverage under this General Permit for dischargers who fail to comply with its requirements or where they determine that an individual NPDES permit is appropriate.
3. Regional Water Boards may issue separate permits for discharges of storm water associated with construction activity to individual dischargers, categories of dischargers, or dischargers in a geographic area. Upon issuance of such permits by a Regional Water Board, dischargers subject to those permits shall no longer be regulated by this General Permit.
4. Regional Water Boards may direct the discharger to reevaluate the LUP Type(s) for the project (or elements/areas of the project) and impose the appropriate level of requirements.
5. Regional Water Boards may terminate coverage under this General Permit for dischargers who negligently or with willful intent incorrectly determine or report their LUP Type (e.g., they determine themselves to be a LUP Type 1 when they are actually a Type 2).
6. Regional Water Boards may review PRDs and reject or accept applications for permit coverage or may require dischargers to submit a Report of Waste Discharge / NPDES permit application for Regional Water Board consideration of individual requirements.
7. Regional Water Boards may impose additional requirements on dischargers to satisfy TMDL implementation requirements or to satisfy provisions in their Basin Plans.
8. Regional Water Boards may require additional Monitoring and Reporting Program Requirements, including sampling and analysis of discharges to sediment-impaired water bodies.
9. Regional Water Boards may require dischargers to retain records for more than the three years required by this General Permit.

- 10.** Based on an LUP's threat to water quality and complexity, the Regional Water Board may determine on a case-by-case basis that an LUP, or a portion of an LUP, is not eligible for the linear project requirements contained in this Attachment, and require that the discharger comply with all standard requirements in this General Permit.
- 11.** The Regional Water Board may require additional monitoring and reporting program requirements including sampling and analysis of discharges to CWA § 303(d)-listed water bodies. Additional requirements imposed by the Regional Water Board shall be consistent with the overall monitoring effort in the receiving waters.

FOR BIDDING
PURPOSES ONLY

M. MONITORING AND REPORTING REQUIREMENTS**Table 3. LUP Summary of Monitoring Requirements**

LUP Type	Visual Inspections				Sample Collection		
	Daily Site BMP	Pre-storm Event	Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water	Non-Visible (when applicable)
		Baseline					
1	X						X
2	X	X	X	X	X		X
3	X	X	X	X	X	X	X

1. Objectives

LUP dischargers shall prepare a monitoring and reporting program (M&RP) prior to the start of construction and immediately implement the program at the start of construction for LUPs. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The M&RP must be a part of the SWPPP, included as an appendix or separate SWPPP chapter.

2. M&RP Implementation Schedule

- a. LUP dischargers shall implement the requirements of this Section at the time of commencement of construction activity. LUP dischargers are responsible for implementing these requirements until construction activity is complete and the site is stabilized.
- b. LUP dischargers shall revise the M&RP when:
 - i. Site conditions or construction activities change such that a change in monitoring is required to comply with the requirements and intent of this General Permit.
 - ii. The Regional Water Board requires the discharger to revise its M&RP based on its review of the document. Revisions may include, but not be limited to, conducting additional site inspections, submitting reports, and certifications. Revisions shall be submitted via postal mail or electronic e-mail.

- iii The Regional Water Board may require additional monitoring and reporting program requirements including sampling and analysis of discharges to CWA § 303(d)-listed water bodies. Additional requirements imposed by the Regional Water Board shall be consistent with the overall monitoring effort in the receiving waters.

3. LUP Type 1 Monitoring and Reporting Requirements

a. LUP Type 1 Inspection Requirements

- i LUP Type 1 dischargers shall ensure that all inspections are conducted by trained personnel. The name(s) and contact number(s) of the assigned inspection personnel should be listed in the SWPPP.
- ii LUP Type 1 dischargers shall ensure that all visual inspections are conducted daily during working hours and in conjunction with other daily activities in areas where active construction is occurring.
- iii LUP Type 1 dischargers shall ensure that photographs of the site taken before, during, and after storm events are taken during inspections, and submitted through the State Water Board's SMARTS website once every three rain events.
- iv LUP Type 1 dischargers shall conduct daily visual inspections to verify that:
 - (1) Appropriate BMPs for storm water and non-storm water are being implemented in areas where active construction is occurring (including staging areas);
 - (2) Project excavations are closed, with properly protected spoils, and that road surfaces are cleaned of excavated material and construction materials such as chemicals by either removing or storing the material in protective storage containers at the end of every construction day;
 - (3) Land areas disturbed during construction are returned to pre-construction conditions or an equivalent protection is used at the end of each workday to eliminate or minimize erosion and the possible discharge of sediment or other pollutants during a rain event.
- v Inspections may be discontinued in non-active construction areas where soil-disturbing activities are completed and final soil stabilization is achieved (e.g., paving is completed, substructures

are installed, vegetation meets minimum cover requirements for final stabilization, or other stabilization requirements are met).

- vi Inspection programs are required for LUP Type 1 projects where temporary and permanent stabilization BMPs are installed and are to be monitored after active construction is completed. Inspection activities shall continue until adequate permanent stabilization is established and, in areas where re-vegetation is chosen, until minimum vegetative coverage is established in accordance with Section C.1 of this Attachment.

b. LUP Type 1 Monitoring Requirements for Non-Visible Pollutants

LUP Type 1 dischargers shall implement sampling and analysis requirements to monitor non-visible pollutants associated with (1) construction sites; (2) activities producing pollutants that are not visually detectable in storm water discharges; and (3) activities which could cause or contribute to an exceedance of water quality objectives in the receiving waters.

- i Sampling and analysis for non-visible pollutants is only required where the LUP Type 1 discharger believes pollutants associated with construction activities have the potential to be discharged with storm water runoff due to a spill or in the event there was a breach, malfunction, failure and/or leak of any BMP. Also, failure to implement BMPs may require sample collection.
 - (1) Visual observations made during the monitoring program described above will help the LUP Type 1 discharger determine when to collect samples.
 - (2) The LUP Type 1 discharger is not required to sample if one of the conditions described above (e.g., breach or spill) occurs and the site is cleaned of material and pollutants and/or BMPs are implemented prior to the next storm event.
- ii LUP Type 1 dischargers shall collect samples down-gradient from all discharge locations where the visual observations were made triggering the monitoring, and which can be safely accessed. For sites where sampling and analysis is required, personnel trained in water quality sampling procedures shall collect storm water samples.
- iii If sampling for non-visible pollutant parameters is required, LUP Type 1 dischargers shall ensure that samples be analyzed for parameters indicating the presence of pollutants identified in the pollutant source assessment required in Section J.2.a.i.

- iv LUP Type 1 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.
 - v LUP Type 1 dischargers shall ensure that a sufficiently large sample of storm water that has not come into contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample¹²) will be collected for comparison with the discharge sample. Samples shall be collected during the first two hours of discharge from rain events that occur during daylight hours and which generate runoff.
 - vi LUP Type 1 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis. Analyses may include, but are not limited to, indicator parameters such as: pH, specific conductance, dissolved oxygen, conductivity, salinity, and Total Dissolved Solids (TDS).
 - vii For laboratory analyses, all sampling, sample preservation, and other analyses must be conducted according to test procedures pursuant to 40 C.F.R. Part 136. LUP Type 1 dischargers shall ensure that field samples are collected and analyzed according to manufacturer specifications of the sampling devices employed. Portable meters shall be calibrated according to manufacturer's specification.
 - viii LUP Type 1 dischargers shall ensure that all field and/or analytical data are kept in the SWPPP document.
- c. LUP Type 1 Visual Observation Exceptions
- i LUP Type 1 dischargers shall be prepared to collect samples and conduct visual observation (inspections) to meet the minimum visual observation requirements of this Attachment. The Type 1 LUP discharger is not required to physically collect samples or conduct visual observation (inspections) under the following conditions:
 - (1) During dangerous weather conditions such as flooding and electrical storms;
 - (2) Outside of scheduled site business hours.
 - (3) When access to the site is unsafe due to storm events.

¹² Sample collected at a location unaffected by construction activities.

- ii If the LUP Type 1 discharger does not collect the required samples or visual observation (inspections) due to these exceptions, an explanation why the sampling or visual observation (inspections) were not conducted shall be included in both the SWPPP and the Annual Report.
- d. Particle Size Analysis for Risk Justification

LUP Type 1 dischargers utilizing justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

4. LUP Type 2 & 3 Monitoring and Reporting Requirements

- a. LUP Type 2 & 3 Inspection Requirements
- i LUP Type 2 & 3 dischargers shall ensure that all inspections are conducted by trained personnel. The name(s) and contact number(s) of the assigned inspection personnel should be listed in the SWPPP.
 - ii LUP Type 2 & 3 dischargers shall ensure that all visual inspections are conducted daily during working hours and in conjunction with other daily activities in areas where active construction is occurring.
 - iii LUP Type 2 & 3 dischargers shall ensure that photographs of the site taken before, during, and after storm events are taken during inspections, and submitted through the State Water Board's SMARTS website once every three rain events.
 - iv LUP Type 2 & 3 dischargers shall conduct daily visual inspections to verify that appropriate BMPs for storm water and non-storm water are being implemented and in place in areas where active construction is occurring (including staging areas).
 - v LUP Type 2 & 3 dischargers shall conduct inspections of the construction site prior to anticipated storm events, during extended storm events, and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity. Pre-storm inspections are to ensure that BMPs are properly installed and maintained; post-storm inspections are to assure that BMPs have functioned adequately. During

extended storm events, inspections shall be required during normal working hours for each 24-hour period.

- vi Inspections may be discontinued in non-active construction areas where soil-disturbing activities are completed and final soil stabilization is achieved (e.g., paving is completed, substructures are installed, vegetation meets minimum cover requirements for final stabilization, or other stabilization requirements are met).
- vii LUP Type 2 & 3 dischargers shall implement a monitoring program for inspecting projects that require temporary and permanent stabilization BMPs after active construction is complete. Inspections shall ensure that the BMPs are adequate and maintained. Inspection activities shall continue until adequate permanent stabilization is established and, in vegetated areas, until minimum vegetative coverage is established in accordance with Section C.1 of this Attachment.
- viii If possible, LUP Type 2 & 3 dischargers shall install a rain gauge on-site at an accessible and secure location with readings made during all storm event inspections. When readings are unavailable, data from the closest rain gauge with publically available data may be used.
- ix LUP Type 2 & 3 dischargers shall include and maintain a log of the inspections conducted in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection.

b. LUP Type 2 & 3 Storm Water Effluent Monitoring Requirements

Table 4. LUP Type 2 & 3 Effluent Monitoring Requirements

LUP Type	Frequency	Effluent Monitoring
2	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	Turbidity, pH, and non-visible pollutant parameters (if applicable)
3	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	turbidity, pH, and non-visible pollutant parameters (if applicable)

- i LUP Type 2 & 3 dischargers shall collect storm water grab samples from sampling locations characterizing discharges associated with activity from the LUP active areas of construction. At a minimum, 3 samples shall be collected per day of discharge.

- ii LUP Type 2 & 3 dischargers shall collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.
 - iii LUP Type 2 & 3 dischargers shall ensure that storm water grab sample(s) obtained be representative of the flow and characteristics of the discharge.
 - iv LUP Type 2 & 3 dischargers shall analyze their effluent samples for:
 - (1) pH and turbidity
 - (2) Any additional parameter for which monitoring is required by the Regional Water Board.
- c. LUP Type 2 & 3 Storm Water Effluent Sampling Locations
- i LUP Type 2 & 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire disturbed project or area.
 - ii LUP Type 2 & 3 dischargers may monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to exceedance of NALs.
 - iii LUP Type 2 & 3 dischargers shall select analytical test methods from the list provided in Table 5 below.
 - iv LUP Type 2 & 3 dischargers shall ensure that all storm water sample collection preservation and handling shall be conducted in accordance with the “Storm Water Sample Collection and Handling Instructions” below.
- d. LUP Type 3 Receiving Water Monitoring Requirements
- i In the event that an LUP Type 3 discharger’s effluent exceeds the receiving water monitoring triggers of 500 NTU turbidity or pH range of 6.0-9.0, contained in this General Permit and has a direct discharge to receiving waters, the LUP discharger shall subsequently sample Receiving Waters (RWs) for turbidity, pH (if applicable) and SSC for the duration of coverage under this General Permit. In the event that an LUP Tupe 3 discharger utilizing ATS with direct discharges into receiving waters discharges effluent that exceeds the NELs in this permit, the discharger shall

subsequently sample RWs for turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit.

- ii LUP Type 3 dischargers that meet the project criteria in Appendix 3 of this General Permit and have more than 30 acres of soil disturbance in the project area or project section area designated as Type 3, shall comply with the Bioassessment requirements prior to commencement of construction activity.
 - iii LUP Type 3 dischargers shall obtain RW samples in accordance with the requirements of the Receiving Water Sampling Locations section (Section M.4.c. of this Attachment).
- e. LUP Type 3 Receiving Water Sampling Locations
- i **Upstream/up-gradient RW samples:** LUP Type 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible to and upstream from the effluent discharge point.
 - ii **Downstream/down-gradient RW samples:** LUP Type 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible to and downstream from the effluent discharge point.
 - iii If two or more discharge locations discharge to the same receiving water, LUP Type 3 dischargers may sample the receiving water at a single upstream and downstream location.
- f. LUP Type 2 & 3 Monitoring Requirements for Non-Visible Pollutants
- LUP Type 2 & 3 dischargers shall implement sampling and analysis requirements to monitor non-visible pollutants associated with (1) construction sites; (2) activities producing pollutants that are not visually detectable in storm water discharges; and (3) activities which could cause or contribute to an exceedance of water quality objectives in the receiving waters.
- i Sampling and analysis for non-visible pollutants is only required where LUP Type 2 & 3 dischargers believe pollutants associated with construction activities have the potential to be discharged with storm water runoff due to a spill or in the event there was a breach, malfunction, failure and/or leak of any BMP. Also, failure to implement BMPs may require sample collection.

- (1) Visual observations made during the monitoring program described above will help LUP Type 2 & 3 dischargers determine when to collect samples.
 - (2) LUP Type 2 & 3 dischargers are not required to sample if one of the conditions described above (e.g., breach or spill) occurs and the site is cleaned of material and pollutants and/or BMPs are implemented prior to the next storm event.
- ii LUP Type 2 & 3 dischargers shall collect samples down-gradient from the discharge locations where the visual observations were made triggering the monitoring and which can be safely accessed. For sites where sampling and analysis is required, personnel trained in water quality sampling procedures shall collect storm water samples.
 - iii If sampling for non-visible pollutant parameters is required, LUP Type 2 & 3 dischargers shall ensure that samples be analyzed for parameters indicating the presence of pollutants identified in the pollutant source assessment required in Section J.2.a.i.
 - iv LUP Type 2 & 3 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.
 - v LUP Type 2 & 3 dischargers shall ensure that a sufficiently large sample of storm water that has not come into contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample¹³) will be collected for comparison with the discharge sample. Samples shall be collected during the first two hours of discharge from rain events that occur during daylight hours and which generate runoff.
 - vi LUP Type 2 & 3 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis. Analyses may include, but are not limited to, indicator parameters such as: pH, specific conductance, dissolved oxygen, conductivity, salinity, and Total Dissolved Solids (TDS).
 - vii For laboratory analyses, all sampling, sample preservation, and other analyses must be conducted according to test procedures pursuant to 40 C.F.R. Part 136. LUP Type 2 & 3 dischargers shall ensure that field samples are collected and analyzed according to manufacturer specifications of the sampling devices employed.

¹³ Sample collected at a location unaffected by construction activities

Portable meters shall be calibrated according to manufacturer's specification.

viii LUP Type 2 & 3 dischargers shall ensure that all field and/or analytical data are kept in the SWPPP document.

g. LUP Type 2 & 3 Visual Observation and Sample Collection Exceptions

i LUP Type 2 & 3 dischargers shall be prepared to collect samples and conduct visual observation (inspections) to meet the minimum visual observation requirements of this Attachment. Type 2 & 3 LUP dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

(1) During dangerous weather conditions such as flooding and electrical storms;

(2) Outside of scheduled site business hours.

(3) When access to the site is unsafe due to storm events.

ii If the LUP Type 2 or 3 discharger does not collect the required samples or visual observation (inspections) due to these exceptions, an explanation why the sampling or visual observation (inspections) were not conducted shall be included in both the SWPPP and the Annual Report.

h. LUP Type 2 & 3 Storm Water Sample Collection and Handling Instructions

LUP Type 2 & 3 dischargers shall refer to Table 5 below for test Methods, detection Limits, and reporting Units. During storm water sample collection and handling, the LUP Type 2 & 3 discharger shall:

i Identify the parameters required for testing and the number of storm water discharge points that will be sampled. Request the laboratory to provide the appropriate number of sample containers, types of containers, sample container labels, blank chain of custody forms, and sample preservation instructions.

ii Determine how to ship the samples to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The options are to either deliver the samples to the laboratory, arrange to have the laboratory pick them up, or ship them overnight to the laboratory.

- iii Use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers could contaminate your samples.
- iv Prevent sample contamination, by not touching, or putting anything into the sample containers before collecting storm water samples.
- v Not overfilling sample containers. Overfilling can change the analytical results.
- vi Tightly screw the cap of each sample container without stripping the threads of the cap.
- vii Complete and attach a label to each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.
- viii Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into the shipping container. Samples should be kept as close to 4° C (39° F) as possible until arriving at the laboratory. Do not freeze samples.
- ix Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the discharger's name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.
- x Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.
- xi Designate and train personnel to collect, maintain, and ship samples in accordance with the above sample protocols and good laboratory practices.
- xii Refer to the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP) for more

information on sampling collection and analysis. See http://www.waterboards.ca.gov/water_issues/programs/swamp/¹⁴

Table 5. Test Methods, Detection Limits, Reporting Units and Applicable NALs

Parameter	Test Method	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Levels	(LUP Type 3) Receiving Water Monitoring Trigger
pH	Field test with calibrated portable instrument	Type 2 & 3	0.2	pH units	Lower = 6.5 upper = 8.5	Lower = 6.0 upper = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Type 2 & 3	1	NTU	250 NTU	500 NTU
SSC	ASTM Method D 3977-97 ¹⁵	Type 3 if Receiving Water Monitoring Trigger is exceeded	5	Mg/L	N/A	N/A
Bioassessment	(STE) Level I of (SAFIT), ¹⁶ fixed-count of 600 org/sample	Type 3 LUPs > 30 acres	N/A	N/A	N/A	N/A

i. LUP Type 2 & 3 Monitoring Methods

- i The LUP Type 2 or 3 discharger's project M&RP shall include a description of the following items:

- (1) Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

¹⁴ Additional information regarding SWAMP's QAPrP can be found at: http://www.waterboards.ca.gov/water_issues/programs/swamp/.

¹⁵ ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394

¹⁶ The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

- (2) Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program a copy of the Chain of Custody form used when handling and shipping samples.
 - (3) Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section M.4.f above.
- ii LUP Type 2 & 3 dischargers shall ensure that all sampling and sample preservation be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses shall be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services (SSC exception). The LUP discharger shall conduct its own field analysis of pH and may conduct its own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.
- j. LUP Type 2 & 3 Analytical Methods

LUP Type 2 & 3 dischargers shall refer to Table 5 above for test Methods, detection Limits, and reporting Units.

- i **pH:** LUP Type 2 & 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or pH test kit. The LUP discharger shall record pH monitoring results on paper and retain these records in accordance with Section M.4.o, below.
- ii **Turbidity:** LUP Type 2 & 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results shall

be recorded in the site log book in Nephelometric Turbidity Units (NTU).

- iii **Suspended sediment concentration (SSC):** LUP Type 3 dischargers exceeding the turbidity Receiving Water Monitoring Trigger, shall perform SSC analysis using ASTM Method D3977-97.
- iv **Bioassessment:** LUP Type 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

k. Watershed Monitoring Option

If an LUP Type 2 or 3 discharger is part of a qualified regional watershed-based monitoring program the LUP Type 2 or 3 discharger may be eligible for relief from the monitoring requirements in this Attachment. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program if it determines that the watershed-based monitoring program will provide information to determine each discharger's compliance with the requirements of this General Permit.

l. Particle Size Analysis for Risk Justification

LUP Type 2 & 3 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

m. NAL Exceedance Report

- i In the event that any effluent sample exceeds an applicable NAL, the Regional Water Boards may require LUP Type 2 & 3 dischargers to submit NAL Exceedance Reports.
- ii LUP Type 2 & 3 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity.
- iii LUP Type 2 & 3 dischargers shall retain an electronic or paper copy of each NAL Exceedance Report for a minimum of three years after the date the exceedance report is filed.
- iv LUP Type 2 & 3 dischargers shall include in the NAL Exceedance Report:

- (1) 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”); and
- (2) the date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.
- (3) Description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

n. Monitoring Records

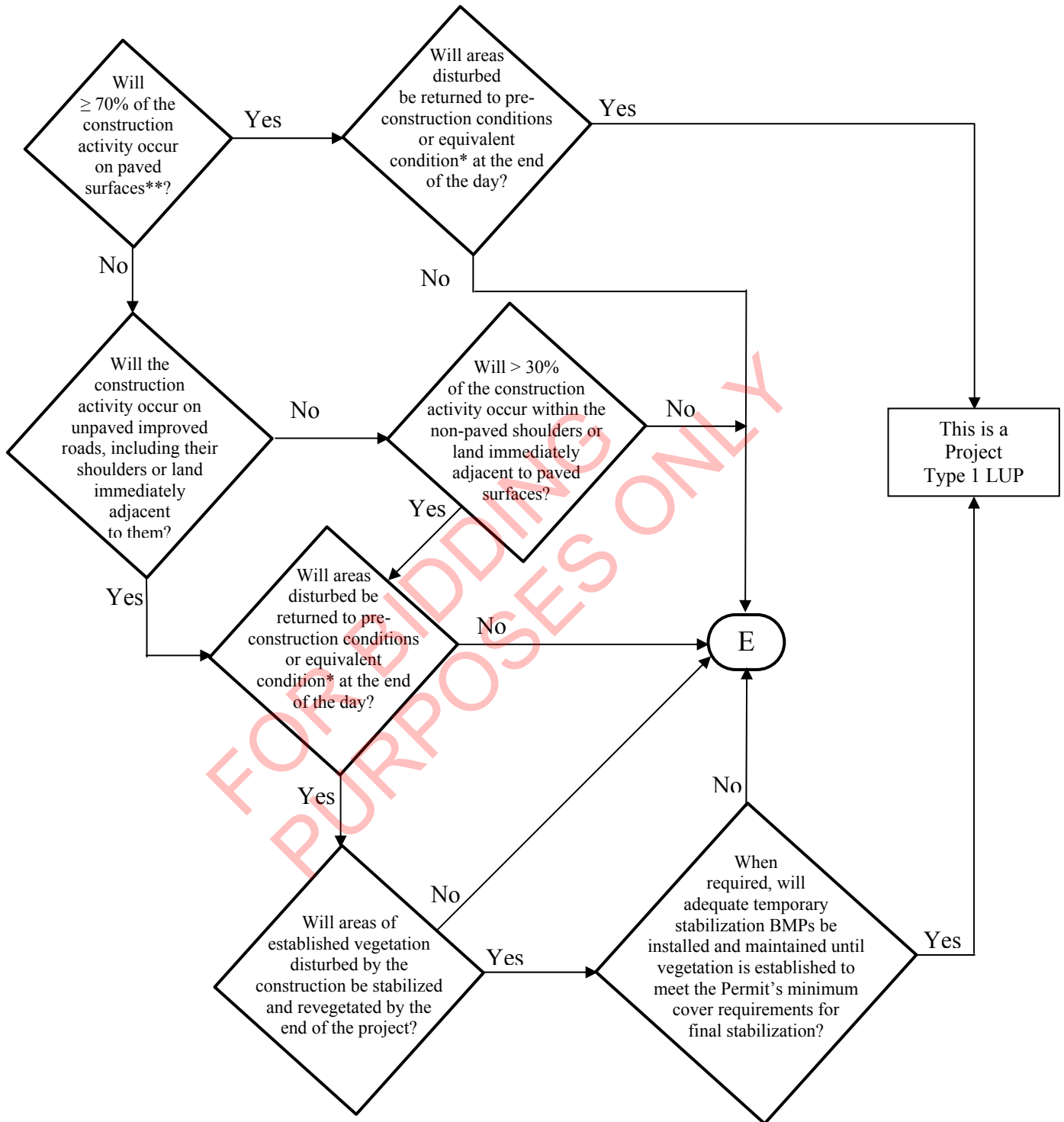
LUP Type 2 & 3 dischargers shall ensure that records of all storm water monitoring information and copies of all reports (including Annual Reports) required by this General Permit be retained for a period of at least three years. LUP Type 2 & 3 dischargers may retain records off-site and make them available upon request. These records shall include:

- i The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge);
- ii The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements;
- iii The date and approximate time of analyses;
- iv The individual(s) who performed the analyses;
- v A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and all chain of custody forms;
- vi Quality assurance/quality control records and results;
- vii Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Section M.4.a above);
- viii Visual observation and sample collection exception records (see Section M.4.g above); and

- ix The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

FOR BIDDING
PURPOSES ONLY

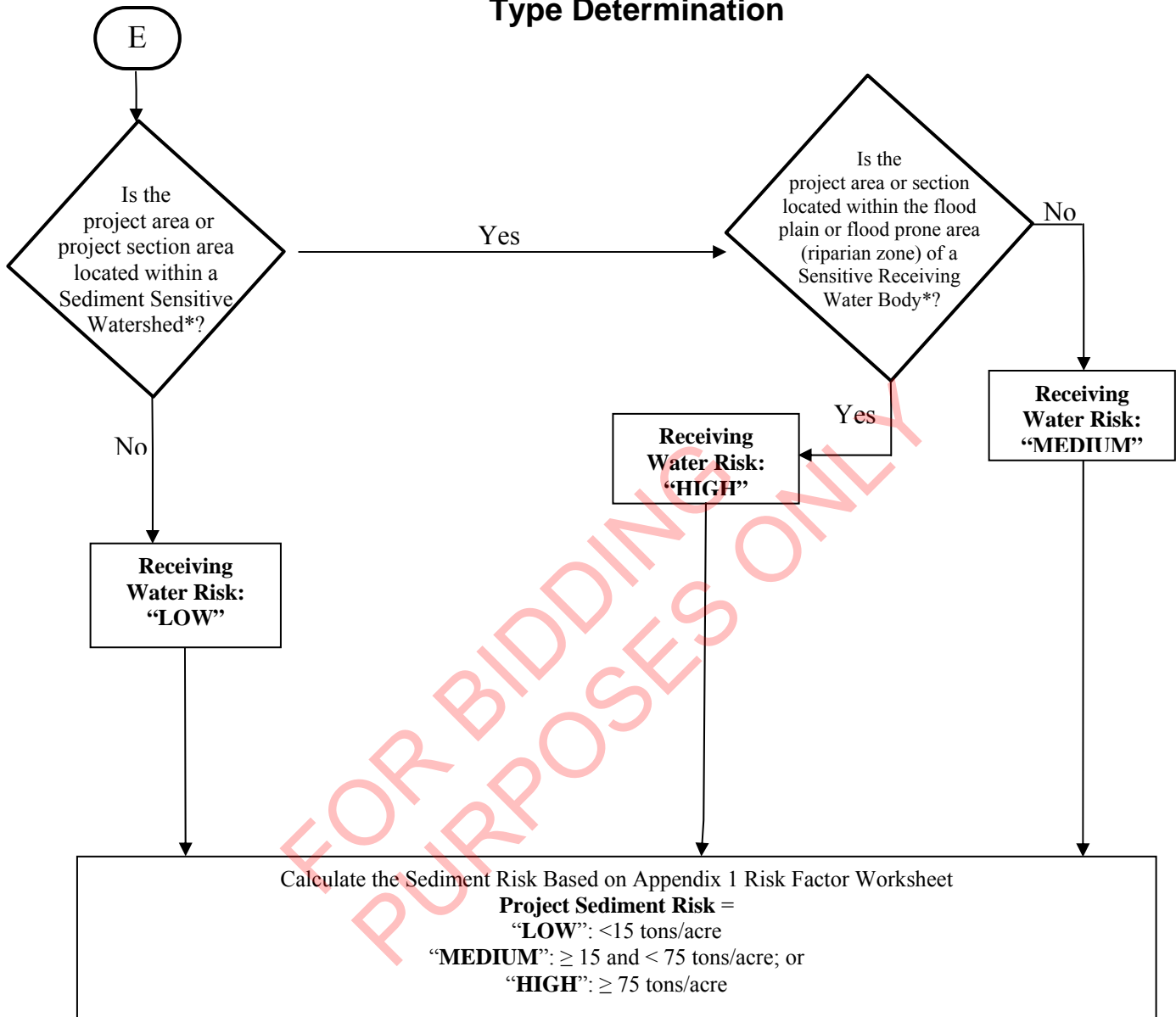
ATTACHMENT A.1 LUP Project Area or Project Section Area Type Determination



*See Definition of Terms

** Or: "Will < 30% of the soil disturbance occur on unpaved surfaces?"

ATTACHMENT A.1 LUP Project Area or Project Section Area Type Determination



* See Definition of Terms

PROJECT SEDIMENT RISK

**RECEIVING
WATER RISK**

	LOW	MEDIUM	HIGH
LOW	Type 1	Type 1	Type 2
MEDIUM	Type 1	Type 2	Type 3
HIGH	Type 2	Type 3	Type 3

ATTACHMENT A.1 Definition of Terms

1. **Equivalent Condition** – Means disturbed soils such as those from trench excavation are required to be hauled away, backfilled into the trench, and/or covered (e.g., metal plates, pavement, plastic covers over spoil piles) at the end of the construction day.
2. **Linear Construction Activity** – Linear construction activity consists of underground/ overhead facilities that typically include, but are not limited to, any conveyance, pipe or pipeline for the transportation of any gaseous, liquid (including water, wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/ tower pad and cable/ wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/ borrow locations.
3. **Sediment Sensitive Receiving Water Body** – Defined as a water body segment that is listed on EPA's approved CWA 303(d) list for sedimentation/siltation, turbidity, or is designated with beneficial uses of SPAWN, MIGRATORY, and COLD.
4. **Sediment Sensitive Watershed** – Defined as a watershed draining into a receiving water body listed on EPA's approved CWA 303(d) list for sedimentation/siltation, turbidity, or a water body designated with beneficial uses of SPAWN, MIGRATORY, and COLD.

FOR BIDDING
PURPOSES ONLY

**ATTACHMENT A.2
PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS FOR LINEAR UNDERGROUND/OVERHEAD PROJECTS TO
COMPLY WITH THE CONSTRUCTION GENERAL PERMIT**

GENERAL INSTRUCTIONS

Who Must Submit

This permit is effective on July 1, 2010.

The Legally Responsible Person (LRP) for construction activities associated with linear underground/overhead project (LUP) must electronically apply for coverage under this General Permit on or after July 1, 2010. If it is determined that the LUP construction activities require an NPDES permit, the Legally Responsible Person¹ (LRP) shall submit PRDs for this General Permit in accordance with the following:

LUPs associated with Private or Municipal Development Projects

1. For LUPs associated with pre-development and pre-redevelopment construction activities:

The LRP must obtain coverage² under this General Permit for its pre-development and pre-redevelopment construction activities where the total disturbed land area of these construction activities is greater than 1 acre.

2. For LUPs associated with new development and redevelopment construction projects:

The LRP must obtain coverage under this General Permit for LUP construction activities associated with new development and redevelopment projects where the total disturbed land area of the LUP is greater than 1 acre. Coverage under this permit is not required where the same LUP construction activities are covered by another NPDES permit.

LUPs not associated with private or municipal new development or redevelopment projects:

The LRP must obtain coverage under this General Permit on or after July 1, 2010 for its LUP construction activities where the total disturbed land area is greater than 1 acre.

PRD Submittal Requirements

Prior to the start of construction activities a LRP must submit PRDs and fees to the State Water Board for each LUP.

New and Ongoing LUPs

Dischargers of new LUPs that commence construction activities after the adoption date of this General Permit shall file PRDs prior to the commencement of construction and implement the SWPPP upon the start of construction.

¹ person possessing the title of the land on which the construction activities will occur for the regulated site

² obtain coverage means filing PRDs for the project.

**PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)**

Dischargers of ongoing LUPs that are currently covered under State Water Board Order No. 2003-0007 (Small LUP General Permit) shall electronically file Permit Registration Documents no later than July 1, 2010. After July 1, 2010, all NOIs subject to State Water Board Order No. 2003-0007-DWQ will be terminated. All existing dischargers shall be exempt from the risk determination requirements in Attachment A. All existing dischargers are therefore subject to LUP Type 1 requirements regardless of their project's sediment and receiving water risks. However, a Regional Board retains the authority to require an existing discharger to comply with the risk determination requirements in Attachment A.

Where to Apply

The Permit Registration Documents (PRDs) can be found at www.waterboards.ca.gov/water_issues/programs/stormwater/

Fees

The annual fee for storm water permits are established through the State of California Code of Regulations.

When Permit Coverage Commences

To obtain coverage under the General Permit, the LRP must include the complete PRDs and the annual fee. All PRDs deemed incomplete will be rejected with an explanation as to what is required to complete submittal. Upon receipt of complete PRDs and associated fee, each discharger will be sent a waste discharger's identification (WDID) number.

Projects and Activities Not Defined As Construction Activity

1. LUP construction activity does not include routine maintenance projects to maintain original line and grade, hydraulic capacity, or original purpose of the facility. Routine maintenance projects are projects associated with operations and maintenance activities that are conducted on existing lines and facilities and within existing right-of-way, easements, franchise agreements or other legally binding agreements of the discharger. Routine maintenance projects include, but are not limited to projects that are conducted to:
 - Maintain the original purpose of the facility, or hydraulic capacity.
 - Update existing lines³ and facilities to comply with applicable codes, standards and regulations regardless if such projects result in increased capacity.
 - Repairing leaks.

Routine maintenance does not include construction of new⁴ lines or facilities resulting from compliance with applicable codes, standards and regulations.

³ Update existing lines includes replacing existing lines with new materials or pipes.

⁴ New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

**PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)**

Routine maintenance projects do not include those areas of maintenance projects that are outside of an existing right-of-way, franchise, easements, or agreements. When a project must acquire new areas, those areas may be subject to this General Permit based on the area of disturbed land outside the original right-of-way, easement, or agreement.

2. LUP construction activity does not include field activities associated with the planning and design of a project (e.g., activities associated with route selection).
3. Tie-ins conducted immediately adjacent to “energized” or “pressurized” facilities by the discharger are not considered small construction activities where all other LUP construction activities associated with the tie-in are covered by a NOI and SWPPP of a third party or municipal agency.

Calculating Land Disturbance Areas of LUPs

The total land area disturbed for LUPs is the sum of the:

- Surface areas of trenches, laterals and ancillary facilities, plus
- Area of the base of stockpiles on unpaved surfaces, plus
- Surface area of the borrow area, plus
- Areas of paved surfaces constructed for the project, plus
- Areas of new roads constructed or areas of major reconstruction to existing roads (e.g. improvements to two-track surfaces or road widening) for the sole purpose of accessing construction activities or as part of the final project, plus
- Equipment and material storage, staging, and preparation areas (laydown areas) not on paved surfaces, plus
- Soil areas outside the surface area of trenches, laterals and ancillary facilities that will be graded, and/or disturbed by the use of construction equipment, vehicles and machinery during construction activities.

Stockpiling Areas

Stockpiling areas, borrow areas and the removal of soils from a construction site may or may not be included when calculating the area of disturbed soil for a site depending on the following conditions:

- For stockpiling of soils onsite or immediately adjacent to a LUP site and the stockpile is not on a paved surface, the area of the base of the stockpile is to be included in the disturbed area calculation.
- The surface area of borrow areas that are onsite or immediately adjacent to a project site are to be included in the disturbed area calculation.
- For soil that is hauled offsite to a location owned or operated by the discharger that is not a paved surface, the area of the base of the stockpile is to be included in the disturbed area calculation except when the offsite location is already subject to a separate storm water permit.

**PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)**

- For soil that is brought to the project from an off-site location owned or operated by the discharger the surface area of the borrow pit is to be included in the disturbed area calculation except when the offsite location is already subject to a separate storm water permit.
- Trench spoils on a paved surface that are either returned to the trench or excavation or hauled away from the project daily for disposal or reuse will not be included in the disturbed area calculation.

If you have any questions concerning submittal of PRDs, please call the State Water Board at (866) 563-3107.

FOR BIDDING
PURPOSES ONLY

**ATTACHMENT B
PERMIT REGISTRATION DOCUMENTS (PRDs) TO COMPLY WITH THE TERMS
OF THE GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH CONSTRUCTION ACTIVITY**

GENERAL INSTRUCTIONS

- A.** All Linear Construction Projects shall comply with the PRD requirements in Attachment A.2 of this Order.

B. Who Must Submit

Discharges of storm water associated with construction that results in the disturbance of one acre or more of land must apply for coverage under the General Construction Storm Water Permit (General Permit). Any construction activity that is a part of a larger common plan of development or sale must also be permitted, regardless of size. (For example, if 0.5 acre of a 20-acre subdivision is disturbed by the construction activities of discharger A and the remaining 19.5 acres is to be developed by discharger B, discharger A must obtain a General Storm Water Permit for the 0.5 acre project).

Other discharges from construction activities that are covered under this General Permit can be found in the General Permit Section II.B.

It is the LRP's responsibility to obtain coverage under this General Permit by electronically submitting complete PRDs (Permit Registration Documents).

In all cases, the proper procedures for submitting the PRDs must be completed before construction can commence.

C. Construction Activity Not Covered By This General Permit

Discharges from construction that are not covered under this General Permit can be found in the General Permit Sections II.A & B..

D. Annual Fees and Fee Calculation

Annual fees are calculated based upon the total area of land to be disturbed not the total size of the acreage owned. However, the calculation includes all acres to be disturbed during the duration of the project. For example, if 10 acres are scheduled to be disturbed the first year and 10 in each subsequent year for 5 years, the annual fees would be based upon 50 acres of disturbance. The State Water Board will evaluate adding acreage to an existing Permit Waste Discharge Identification (WDID) number on a case-by-case basis. In general, any acreage to be considered must be contiguous to the permitted land area and the existing

SWPPP must be appropriate for the construction activity and topography of the acreage under consideration. As acreage is built out and stabilized or sold, the Change of Information (COI) form enables the applicant to remove those acres from inclusion in the annual fee calculation. Checks should be made payable to: State Water Board.

The Annual fees are established through regulations adopted by the State Water Board. The total annual fee is the current base fee plus applicable surcharges for all construction sites submitting an NOI, based on the total acreage to be disturbed during the life of the project. Annual fees are subject to change by regulation.

Dischargers that apply for and satisfy the Small Construction Erosivity Waiver requirements shall pay a fee of \$200.00 plus an applicable surcharge, see the General Permit Section II.B.7.

E. When to Apply

LRP's proposing to conduct construction activities subject to this General Permit must submit their PRDs prior to the commencement of construction activity.

F. Requirements for Completing Permit Registration Documents (PRDs)

All dischargers required to comply with this General Permit shall electronically submit the required PRDs for their type of construction as defined below.

G. Standard PRD Requirements (All Dischargers)

1. Notice of Intent
2. Risk Assessment (Standard or Site-Specific)
3. Site Map
4. SWPPP
5. Annual Fee
6. Certification

H. Additional PRD Requirements Related to Construction Type

1. Discharger in unincorporated areas of the State (not covered under an adopted Phase I or II SUSMP requirements) and that are not a linear project shall also submit a completed:
 - a. Post-Construction Water Balance Calculator (Appendix 2).
2. Dischargers who are proposing to implement ATS shall submit:
 - a. Complete ATS Plan in accordance with Attachment F at least 14 days prior to the planned operation of the ATS and a paper copy shall be available onsite during ATS operation.

- b. Certification proof that design done by a professional in accordance with Attachment F.
- 3. Dischargers who are proposing an alternate Risk Justification:
 - a. Particle Size Analysis.

I. Exceptions to Standard PRD Requirements

Construction sites with an R value less than 5 as determined in the Risk Assessment are not required to submit a SWPPP.

J. Description of PRDs

1. Notice of Intent (NOI)
2. Site Map(s) Includes:
 - a. The project's surrounding area (vicinity)
 - b. Site layout
 - c. Construction site boundaries
 - d. Drainage areas
 - e. Discharge locations
 - f. Sampling locations
 - g. Areas of soil disturbance (temporary or permanent)
 - h. Active areas of soil disturbance (cut or fill)
 - i. Locations of all runoff BMPs
 - j. Locations of all erosion control BMPs
 - k. Locations of all sediment control BMPs
 - l. ATS location (if applicable)
 - m. Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
 - n. Locations of all post-construction BMPs
 - o. Locations of storage areas for waste, vehicles, service, loading/unloading of materials, access (entrance/exits) points to construction site, fueling, and water storage, water transfer for dust control and compaction practices
3. **SWPPPs**
A site-specific SWPPP shall be developed by each discharger and shall be submitted with the PRDs.
4. **Risk Assessment**
All dischargers shall use the Risk Assessment procedure as describe in the General Permit Appendix 1.
 - a. The Standard Risk Assessment includes utilization of the following:
 - i. Receiving water Risk Assessment interactive map

- ii. EPA Rainfall Erosivity Factor Calculator Website
 - iii. Sediment Risk interactive map
 - iv. Sediment sensitive water bodies list
- b. The Site-Specific Risk Assessment includes the completion of the hand calculated R value Risk Calculator
5. **Post-Construction Water Balance Calculator**
All dischargers subject to this requirement shall complete the Water Balance Calculator (in Appendix 2) in accordance with the instructions.
6. **ATS Design Document and Certification**
All dischargers using ATS must submit electronically their system design (as well as any supporting documentation) and proof that the system was designed by a qualified ATS design professional (See Attachment F).

To obtain coverage under the General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

Questions?

If you have any questions on completing the PRDs please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT C RISK LEVEL 1 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 1 dischargers shall comply with the narrative effluent standards listed below:
 - a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
 - b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.
2. Numeric – Risk Level 1 dischargers are not subject to a numeric effluent standard.

B. Good Site Management "Housekeeping"

1. Risk Level 1 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 1 dischargers shall implement the following good housekeeping measures:
 - a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

- c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
 - d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.
2. Risk Level 1 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:
- a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.
 - b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.
 - c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.
 - d. Cover waste disposal containers at the end of every business day and during a rain event.
 - e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.
 - f. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.
 - g. Implement procedures that effectively address hazardous and non-hazardous spills.
 - h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:
 - i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and

- ii. Appropriate spill response personnel are assigned and trained.
 - i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.
3. Risk Level 1 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:
- a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.
 - b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.
 - c. Clean leaks immediately and disposing of leaked materials properly.
4. Risk Level 1 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:
- a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.
 - b. Contain fertilizers and other landscape materials when they are not actively being used.
 - c. Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.
 - d. Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.
 - e. Stack erodible landscape material on pallets and covering or storing such materials when not being used or applied.
5. Risk Level 1 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 1 dischargers shall do the following:

- a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.
 - b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.
 - c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 - d. Ensure retention of sampling, visual observation, and inspection records.
 - e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
6. Risk Level 1 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.

C. Non-Storm Water Management

1. Risk Level 1 dischargers shall implement measures to control all non-storm water discharges during construction.
2. Risk Level 1 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.
3. Risk Level 1 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 1 dischargers shall implement effective wind erosion control.
2. Risk Level 1 dischargers shall provide effective soil cover for inactive¹ areas and all finished slopes, open space, utility backfill, and completed lots.
3. Risk Level 1 dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 1 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
2. On sites where sediment basins are to be used, Risk Level 1 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.

F. Run-on and Runoff Controls

Risk Level 1 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 1 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee trained to do the task(s) appropriately, but shall ensure adequate deployment.
2. Risk Level 1 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended

¹ Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.

storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 1 dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.
4. For each inspection required, Risk Level 1 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.
5. Risk Level 1 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:
 - a. Inspection date and date the inspection report was written.
 - b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.
 - c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.
 - d. A description of any BMPs evaluated and any deficiencies noted.
 - e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.
 - f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.
 - g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.
 - h. Photographs taken during the inspection, if any.
 - i. Inspector's name, title, and signature.

H. Rain Event Action Plan

Not required for Risk Level 1 dischargers.

FOR BIDDING
PURPOSES ONLY

I. Risk Level 1 Monitoring and Reporting Requirements

Table 1- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
1	X	X		X	X		

1. Construction Site Monitoring Program Requirements

- a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.
- b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Programs to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Programs in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.
- c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. Objectives

The CSMP shall be developed and implemented to address the following objectives:

- a. To demonstrate that the site is in compliance with the Discharge Prohibitions;

- b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
 - c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges; and
 - d. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.
- 3. Risk Level 1 - Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**
- a. Risk Level 1 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.
 - b. Risk Level 1 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of $\frac{1}{2}$ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.
 - c. Risk Level 1 dischargers shall conduct visual observations (inspections) during business hours only.
 - d. Risk Level 1 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.
 - e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 1 dischargers shall visually observe (inspect):
 - i. All storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.
 - ii. All BMPs to identify whether they have been properly implemented in accordance with the SWPPP. If needed, the discharger shall implement appropriate corrective actions.

- iii. Any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.
- f. For the visual observations (inspections) described in e.i and e.iii above, Risk Level 1 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.
- g. Within two business days (48 hours) after each qualifying rain event, Risk Level 1 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.
- h. Risk Level 1 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

4. Risk Level 1 – Visual Observation Exemptions

- a. Risk Level 1 dischargers shall be prepared to conduct visual observation (inspections) until the minimum requirements of Section I.3 above are completed. Risk Level 1 dischargers are not required to conduct visual observation (inspections) under the following conditions:
 - i. During dangerous weather conditions such as flooding and electrical storms.
 - ii. Outside of scheduled site business hours.
- b. If no required visual observations (inspections) are collected due to these exceptions, Risk Level 1 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the visual observations (inspections) were not conducted.

5. Risk Level 1 – Monitoring Methods

Risk Level 1 dischargers shall include a description of the visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures in the CSMP.

6. Risk Level 1 – Non-Storm Water Discharge Monitoring Requirements

- a. Visual Monitoring Requirements:
- i. Risk Level 1 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.
 - ii. Risk Level 1 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).
 - iii. Risk Level 1 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 1 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges.

7. Risk Level 1 – Non-Visible Pollutant Monitoring Requirements

- a. Risk Level 1 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.
- b. Risk Level 1 dischargers shall ensure that water samples are large enough to characterize the site conditions.
- c. Risk Level 1 dischargers shall collect samples at all discharge locations that can be safely accessed.
- d. Risk Level 1 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.
- e. Risk Level 1 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the

presence of pollutants identified in the pollutant source assessment required (Risk Level 1 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).

- f. Risk Level 1 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.
- g. Risk Level 1 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.²
- h. Risk Level 1 dischargers shall keep all field /or analytical data in the SWPPP document.

8. Risk Level 1 – Particle Size Analysis for Project Risk Justification

Risk Level 1 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

9. Risk Level 1 – Records

Risk Level 1 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 1 dischargers shall retain all records on-site while construction is ongoing. These records include:

- a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.
- b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.
- c. The date and approximate time of analyses.
- d. The individual(s) who performed the analyses.

² For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

- e. A summary of all analytical results from the last three years, the method detection limits and reporting units, and the analytical techniques or methods used.
- f. Rain gauge readings from site inspections.
- g. Quality assurance/quality control records and results.
- h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.6 above).
- i. Visual observation and sample collection exception records (see Section I.4 above).
- j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

FOR BIDDING
PURPOSES ONLY

ATTACHMENT D RISK LEVEL 2 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 2 dischargers shall comply with the narrative effluent standards listed below:
 - a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
 - b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.
2. Numeric – Risk level 2 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

B. Good Site Management "Housekeeping"

1. Risk Level 2 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 2 dischargers shall implement the following good housekeeping measures:
 - a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

- c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
 - d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.
2. Risk Level 2 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:
- a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.
 - b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.
 - c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.
 - d. Cover waste disposal containers at the end of every business day and during a rain event.
 - e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.
 - f. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.
 - g. Implement procedures that effectively address hazardous and non-hazardous spills.
 - h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require:
 - i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly.

- ii. Appropriate spill response personnel are assigned and trained.
 - i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.
3. Risk Level 2 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:
 - a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.
 - b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.
 - c. Clean leaks immediately and disposing of leaked materials properly.
4. Risk Level 2 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:
 - a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.
 - b. Contain all fertilizers and other landscape materials when they are not actively being used.
 - c. Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.
 - d. Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.
 - e. Stack erodible landscape material on pallets and covering or storing such materials when not being used or applied.
5. Risk Level 2 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 2 dischargers shall do the following:

- a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.
 - b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.
 - c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 - d. Ensure retention of sampling, visual observation, and inspection records.
 - e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
6. Risk Level 2 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.
 7. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall document all housekeeping BMPs in the SWPPP and REAP(s) in accordance with the nature and phase of the construction project. Construction phases at traditional land development projects include Grading and Land Development Phase, Streets and Utilities, or Vertical Construction for traditional land development projects.

C. Non-Storm Water Management

1. Risk Level 2 dischargers shall implement measures to control all non-storm water discharges during construction.
2. Risk Level 2 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

3. Risk Level 2 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 2 dischargers shall implement effective wind erosion control.
2. Risk Level 2 dischargers shall provide effective soil cover for inactive¹ areas and all finished slopes, open space, utility backfill, and completed lots.
3. Risk Level 2 dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 2 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
2. On sites where sediment basins are to be used, Risk Level 2 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.
3. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall implement appropriate erosion control BMPs (runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active² construction.
4. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths³ in accordance with Table 1.

¹ Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.

² Active areas of construction are areas undergoing land surface disturbance. This includes construction activity during the preliminary stage, mass grading stage, streets and utilities stage and the vertical construction stage.

³ Sheet flow length is the length that shallow, low velocity flow travels across a site.

Table 1 - Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not to exceed
0-25%	20 feet
25-50%	15 feet
Over 50%	10 feet

5. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent offsite tracking of sediment.
6. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.
7. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall inspect on a daily basis all immediate access roads daily. At a minimum daily (when necessary) and prior to any rain event, the discharger shall remove any sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).

F. Run-on and Run-off Controls

Risk Level 2 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 2 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee appropriately trained to do the task(s).
2. Risk Level 2 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 2 dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.
4. For each inspection required, Risk Level 2 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.
5. Risk Level 2 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:
 - a. Inspection date and date the inspection report was written.
 - b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.
 - c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.
 - d. A description of any BMPs evaluated and any deficiencies noted.
 - e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.
 - f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.
 - g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.
 - h. Photographs taken during the inspection, if any.
 - i. Inspector's name, title, and signature.

H. Rain Event Action Plan

1. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop a Rain Event Action Plan (REAP) 48 hours prior to any

likely precipitation event. 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., by entering the zip code of the project's location at <http://www.srh.noaa.gov/forecast>).

2. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop the REAPs for all phases of construction (i.e., Grading and Land Development, Streets and Utilities, Vertical Construction, Final Landscaping and Site Stabilization).
3. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP ensure that the REAP include, at a minimum, the following site information:
 - a. Site Address
 - b. Calculated Risk Level (2 or 3)
 - 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
4. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP include in the REAP, at a minimum, the following project phase information:
 - a. Activities associated with each construction phase
 - b. Trades active on the construction site during each construction phase
 - c. Trade contractor information
 - d. Suggested actions for each project phase
5. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop additional REAPs for project sites where construction activities are indefinitely halted or postponed (Inactive Construction). At a minimum, Inactive Construction REAPs must include:
 - a. Site Address
 - b. Calculated Risk Level (2 or 3)
 - 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
 - f. Trades active on site during Inactive Construction
 - g. Trade contractor information
 - h. Suggested actions for inactive construction sites
6. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP begin implementation and make the REAP available onsite no later than 24 hours prior to the likely precipitation event.
7. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP maintain onsite a paper copy of each REAP onsite in compliance with the record retention requirements of the Special Provisions in this General Permit.

FOR BIDDING
PURPOSES ONLY

I. Risk Level 2 Monitoring and Reporting Requirements

Table 2- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
2	X	X	X	X	X	X	

1. Construction Site Monitoring Program Requirements

- a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.
- b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Program to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Programs in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.
- c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. Objectives

The CSMP shall be developed and implemented to address the following objectives:

- a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs).

- b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.
 - c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges.
 - d. To determine whether BMPs included in the SWPPP/Rain Event Action Plan (REAP) are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.
- 3. Risk Level 2 – Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**
- a. Risk Level 2 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.
 - b. Risk Level 2 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.
 - c. Risk Level 2 dischargers shall conduct visual observations (inspections) during business hours only.
 - d. Risk Level 2 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.
 - e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 2 dischargers shall visually observe (inspect):
 - i. all storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.
 - ii. all BMPs to identify whether they have been properly implemented in accordance with the SWPPP/REAP. If needed, the discharger shall implement appropriate corrective actions.

- iii. any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.
 - f. For the visual observations (inspections) described in c.i and c.iii above, Risk Level 2 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.
 - g. Within two business days (48 hours) after each qualifying rain event, Risk Level 2 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.
 - h. Risk Level 2 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.
- 4. Risk Level 2 – Water Quality Sampling and Analysis**
- a. Risk Level 2 dischargers shall collect storm water grab samples from sampling locations, as defined in Section I.5. The storm water grab sample(s) obtained shall be representative of the flow and characteristics of the discharge.
 - b. At minimum, Risk Level 2 dischargers shall collect 3 samples per day of the qualifying event.
 - c. Risk Level 2 dischargers shall ensure that the grab samples collected of stored or contained storm water are from discharges subsequent to a qualifying rain event (producing precipitation of ½ inch or more at the time of discharge).

Storm Water Effluent Monitoring Requirements

- d. Risk Level 2 dischargers shall analyze their effluent samples for:
 - i. pH and turbidity.
 - ii. Any additional parameters for which monitoring is required by the Regional Water Board.

5. Risk Level 2 – Storm Water Discharge Water Quality Sampling Locations

Effluent Sampling Locations

- a. Risk Level 2 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire project disturbed area.
- b. Risk Level 2 dischargers shall collect effluent samples at all discharge points where storm water is discharged off-site.
- c. Risk Level 2 dischargers shall ensure that storm water discharge collected and observed represent⁴ the effluent in each drainage area based on visual observation of the water and upstream conditions.
- d. Risk Level 2 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs.
- e. Risk Level 2 dischargers who deploy an ATS on their site, or a portion on their site, shall collect ATS effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.
- f. Risk Level 2 dischargers shall select analytical test methods from the list provided in Table 3 below.
- g. All storm water sample collection preservation and handling shall be conducted in accordance with Section I.7 “Storm Water Sample Collection and Handling Instructions” below.

6. Risk Level 2 – Visual Observation and Sample Collection Exemptions

- a. Risk Level 2 dischargers shall be prepared to collect samples and conduct visual observation (inspections) until the minimum requirements of Sections I.3 and I.4 above are completed. Risk Level 2 dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

⁴ For example, if there has been concrete work recently in an area, or drywall scrap is exposed to the rain, a pH sample shall be taken of drainage from the relevant work area. Similarly, if sediment laden water is flowing through some parts of a silt fence, samples shall be taken of the sediment-laden water even if most water flowing through the fence is clear.

- i. During dangerous weather conditions such as flooding and electrical storms.
 - ii. Outside of scheduled site business hours.
- b. If no required samples or visual observation (inspections) are collected due to these exceptions, Risk Level 2 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the sampling or visual observation (inspections) were not conducted.
- 7. Risk Level 2 – Storm Water Sample Collection and Handling Instructions**

- a. Risk Level 2 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.
- b. Risk Level 2 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.
- c. Risk Level 2 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).⁵

8. Risk Level 2 – Monitoring Methods

- a. Risk Level 2 dischargers shall include a description of the following items in the CSMP:
 - i. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.
 - ii. Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program

⁵ Additional information regarding SWAMP's QAPrP can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.
QAPrP:http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf.

an example Chain of Custody form used when handling and shipping samples.

- iii. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section I.4 above.
- b. Risk Level 2 dischargers shall ensure that all sampling and sample preservation are in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) should be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. Risk Level 2 dischargers shall ensure that all laboratory analyses are conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses should be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services. Risk Level 2 dischargers shall conduct their own field analysis of pH and may conduct their own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

9. Risk Level 2 – Analytical Methods

- a. Risk Level 2 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.
- b. **pH:** Risk Level 2 dischargers shall perform pH analysis on-site with a calibrated pH meter or a pH test kit. Risk Level 2 dischargers shall record pH monitoring results on paper and retain these records in accordance with Section I.14, below.
- c. **Turbidity:** Risk Level 2 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results will be recorded in the site log book in Nephelometric Turbidity Units (NTU).

10. Risk Level 2 - Non-Storm Water Discharge Monitoring Requirements

- a. Visual Monitoring Requirements:
- i. Risk Level 2 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.
 - ii. Risk Level 2 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).
 - iii. Risk Level 2 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 2 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges.
- b. Effluent Sampling Locations:
- i. Risk Level 2 dischargers shall sample effluent at all discharge points where non-storm water and/or authorized non-storm water is discharged off-site.
 - ii. Risk Level 2 dischargers shall send all non-storm water sample analyses to a laboratory certified for such analyses by the State Department of Health Services.
 - iii. Risk Level 2 dischargers shall monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs.

11. Risk Level 2 – Non-Visible Pollutant Monitoring Requirements

- a. Risk Level 2 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual

inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.

- b. Risk Level 2 dischargers shall ensure that water samples are large enough to characterize the site conditions.
- c. Risk Level 2 dischargers shall collect samples at all discharge locations that can be safely accessed.
- d. Risk Level 2 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.
- e. Risk Level 2 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the presence of pollutants identified in the pollutant source assessment required (Risk Level 2 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).
- f. Risk Level 2 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.
- g. Risk Level 2 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.⁶
- h. Risk Level 2 dischargers shall keep all field /or analytical data in the SWPPP document.

12. Risk Level 2 – Watershed Monitoring Option

Risk Level 2 dischargers who are part of a qualified regional watershed-based monitoring program may be eligible for relief from the requirements in Sections I.5. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program by determining if the watershed-based monitoring program will provide substantially similar monitoring information in evaluating discharger compliance with the requirements of this General Permit.

⁶ For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

13. Risk Level 2 – Particle Size Analysis for Project Risk Justification

Risk Level 2 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

14. Risk Level 2 – Records

Risk Level 2 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 2 dischargers shall retain all records on-site while construction is ongoing. These records include:

- a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.
- b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.
- c. The date and approximate time of analyses.
- d. The individual(s) who performed the analyses.
- e. A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and the chain of custody forms.
- f. Rain gauge readings from site inspections;
- g. Quality assurance/quality control records and results.
- h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.10 above).
- i. Visual observation and sample collection exception records (see Section I.6 above).
- j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

15. Risk Level 2 – NAL Exceedance Report

- a. In the event that any effluent sample exceeds an applicable NAL, Risk Level 2 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report.
- b. Risk Level 2 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity.
- c. Risk Level 2 dischargers 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. Risk Level 2 dischargers shall 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.

Table 3 – Risk Level 2 Test Methods, Detection Limits, Reporting Units and Applicable NALs/NELs

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level
pH	Field test with calibrated portable instrument	Risk Level 2 Discharges	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2 Discharges other than ATS	1	NTU	250 NTU
		For ATS discharges	1	NTU	N/A

FOR BIDDING PURPOSES ONLY

ATTACHMENT E RISK LEVEL 3 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 3 dischargers shall comply with the narrative effluent standards listed below:
 - a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.
 - b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.
2. Numeric – Risk Level 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

B. Good Site Management "Housekeeping"

1. Risk Level 3 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 3 dischargers shall implement the following good housekeeping measures:
 - a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

- c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
 - d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
 - e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.
2. Risk Level 3 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:
- a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.
 - b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.
 - c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.
 - d. Cover waste disposal containers at the end of every business day and during a rain event.
 - e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.
 - f. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.
 - g. Implement procedures that effectively address hazardous and non-hazardous spills.
 - h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:
 - i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and

- ii. Appropriate spill response personnel are assigned and trained.
 - i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.
3. Risk Level 3 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:
 - a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.
 - b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.
 - c. Clean leaks immediately and disposing of leaked materials properly.
4. Risk Level 3 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:
 - a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.
 - b. Contain fertilizers and other landscape materials when they are not actively being used.
 - c. Discontinuing the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.
 - d. Applying erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.
 - e. Stacking erodible landscape material on pallets and covering or storing such materials when not being used or applied.
5. Risk Level 3 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 3 dischargers shall do the following:

- a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.
 - b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.
 - c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 - d. Ensure retention of sampling, visual observation, and inspection records.
 - e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
6. Risk Level 3 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.
 7. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall document all housekeeping BMPs in the SWPPP and REAP(s) in accordance with the nature and phase of the construction project. Construction phases at traditional land development projects include Grading and Land Development Phase, Streets and Utilities, or Vertical Construction for traditional land development projects.

C. Non-Storm Water Management

1. Risk Level 3 dischargers shall implement measures to control all non-storm water discharges during construction.
2. Risk Level 3 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

3. Risk Level 3 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 3 dischargers shall implement effective wind erosion control.
2. Risk Level 3 dischargers shall provide effective soil cover for inactive¹ areas and all finished slopes, open space, utility backfill, and completed lots.
3. Dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 3 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
2. On sites where sediment basins are to be used, Risk Level 3 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.
3. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall implement appropriate erosion control BMPs (runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active² construction.
4. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths³ in accordance with Table 1.

¹ Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.

² Active areas of construction are areas undergoing land surface disturbance. This includes construction activity during the preliminary stage, mass grading stage, streets and utilities stage and the vertical construction stage

³ Sheet flow length is the length that shallow, low velocity flow travels across a site.

Table 1 - Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not to exceed
0-25%	20 feet
25-50%	15 feet
Over 50%	10 feet

5. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent offsite tracking of sediment.
6. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.
7. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall inspect on a daily basis all immediate access roads daily. At a minimum daily (when necessary) and prior to any rain event, the discharger shall remove any sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).
8. **Additional Risk Level 3 Requirement:** The Regional Water Board may require Risk Level 3 dischargers to implement additional site-specific sediment control requirements if the implementation of the other requirements in this section are not adequately protecting the receiving waters.

F. Run-on and Run-off Controls

Risk Level 3 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 3 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee appropriately trained to do the task(s).

2. Risk Level 3 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.
3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 3 dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.
4. For each inspection required, Risk Level 3 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.
5. Risk Level 3 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:
 - a. Inspection date and date the inspection report was written.
 - b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.
 - c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.
 - d. A description of any BMPs evaluated and any deficiencies noted.
 - e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.
 - f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.
 - g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.
 - h. Photographs taken during the inspection, if any.

- i. Inspector's name, title, and signature.

H. Rain Event Action Plan

1. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP develop a Rain Event Action Plan (REAP) 48 hours prior to any likely precipitation event. 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 QSP shall obtain a printed copy of precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at <http://www.srh.noaa.gov/forecast>).
2. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP develop the REAPs for all phases of construction (i.e., Grading and Land Development, Streets and Utilities, Vertical Construction, Final Landscaping and Site Stabilization).
3. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP ensure that the REAP include, at a minimum, the following site information:
 - a. Site Address.
 - b. Calculated Risk Level (2 or 3).
 - 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.
4. **Additional Risk Level 3 Requirement:** The QSP shall include in the REAP, at a minimum, the following project phase information:
 - a. Activities associated with each construction phase.
 - b. Trades active on the construction site during each construction phase.
 - c. Trade contractor information.
 - d. Suggested actions for each project phase.
5. **Additional Risk Level 3 Requirement:** The QSP shall develop additional REAPs for project sites where construction activities are indefinitely halted or postponed (Inactive Construction). At a minimum, Inactive Construction REAPs must include:

- a. Site Address.
 - b. Calculated Risk Level (2 or 3).
 - 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.
 - f. Trades active on site during Inactive Construction.
 - g. Trade contractor information.
 - h. Suggested actions for inactive construction sites.
6. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP begin implementation and make the REAP available onsite no later than 24 hours prior to the likely precipitation event.
7. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP maintain onsite a paper copy of each REAP onsite in compliance with the record retention requirements of the Special Provisions in this General Permit.

FOR BIDDING
PURPOSES ONLY

I. Risk Level 3 Monitoring and Reporting Requirements

Table 2- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
3	X	X	X	X	X	X	X⁴

1. Construction Site Monitoring Program Requirements

- a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.
- b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Program to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Program in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.
- c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. Objectives

The CSMP shall be developed and implemented to address the following objectives:

⁴ When receiving water monitoring trigger is exceeded

- a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs) of this General Permit.
 - b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.
 - c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges.
 - d. To determine whether BMPs included in the SWPPP/Rain Event Action Plan (REAP) are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.
- 3. Risk Level 3 – Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**
- a. Risk Level 3 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.
 - b. Risk Level 3 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of $\frac{1}{2}$ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.
 - c. Risk Level 3 dischargers shall conduct visual observations (inspections) during business hours only.
 - d. Risk Level 3 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.
 - e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 3 dischargers shall visually observe (inspect):
 - i. all storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.

- ii. all BMPs to identify whether they have been properly implemented in accordance with the SWPPP/REAP. If needed, the discharger shall implement appropriate corrective actions.
 - iii. any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.
 - f. For the visual observations (inspections) described in c.i. and c.iii above, Risk Level 3 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.
 - g. Within two business days (48 hours) after each qualifying rain event, Risk Level 3 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.
 - h. Risk Level 3 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.
- 4. Risk Level 3 – Water Quality Sampling and Analysis**
- a. Risk Level 3 dischargers shall collect storm water grab samples from sampling locations, as defined in Section I.5. The storm water grab sample(s) obtained shall be representative of the flow and characteristics of the discharge.
 - b. At minimum, Risk Level 3 dischargers shall collect 3 samples per day of the qualifying event.
 - c. Risk Level 3 dischargers shall ensure that the grab samples collected of stored or contained storm water are from discharges subsequent to a qualifying rain event (producing precipitation of ½ inch or more at the time of discharge).

Storm Water Effluent Monitoring Requirements

- d. Risk Level 3 dischargers shall analyze their effluent samples for:
 - i. pH and turbidity.

- ii. Any additional parameters for which monitoring is required by the Regional Water Board.
- e. Risk 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event.

Receiving Water Monitoring Requirements

- f. In the event that a Risk Level 3 discharger's effluent exceeds the daily average receiving water monitoring trigger of 500 NTU turbidity or the daily average pH range 6.0-9.0 contained in this General Permit and has a direct discharge into receiving waters, the Risk Level 3 discharger shall subsequently sample receiving waters (RWs) for turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit. If a Risk Level 3 discharger utilizing ATS with direct discharges into receiving waters discharges effluent that exceeds the NELs in this permit, the discharger shall subsequently sample RWs for turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit.
 - g. Risk Level 3 dischargers disturbing 30 acres or more of the landscape and with direct discharges into receiving waters shall conduct or participate in benthic macroinvertebrate bioassessment of RWs prior to commencement of construction activity (See Appendix 3).
 - h. Risk Level 3 dischargers shall obtain RW samples in accordance with the Receiving Water sampling location section (Section I.5), below.
- 5. Risk Level 3 – Storm Water Discharge Water Quality Sampling Locations**

Effluent Sampling Locations

- a. Risk Level 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire project disturbed area.
- b. Risk Level 3 dischargers shall collect effluent samples at all discharge points where storm water is discharged off-site.

- c. Risk Level 3 dischargers shall ensure that storm water discharge collected and observed represent⁵ the effluent in each drainage area based on visual observation of the water and upstream conditions.
- d. Risk Level 3 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs.
- e. Risk Level 3 dischargers who deploy an ATS on their site, or a portion on their site, shall collect ATS effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.
- f. Risk Level 3 dischargers shall select analytical test methods from the list provided in Table 3 below.
- g. All storm water sample collection preservation and handling shall be conducted in accordance with Section 1.7 "Storm Water Sample Collection and Handling Instructions" below.

Receiving Water Sampling Locations

- h. **Upstream/up-gradient RW samples:** Risk Level 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible and upstream from the effluent discharge point.
- i. **Downstream/down-gradient RW samples:** Risk Level 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible and downstream from the effluent discharge point.
- j. If two or more discharge locations discharge to the same receiving water, Risk Level 3 dischargers may sample the receiving water at a single upstream and downstream location.

⁵ For example, if there has been concrete work recently in an area, or drywall scrap is exposed to the rain, a pH sample shall be taken of drainage from the relevant work area. Similarly, if sediment-laden water is flowing through some parts of a silt fence, samples shall be taken of the sediment laden water even if most water flowing through the fence is clear.

6. Risk Level 3 – Visual Observation and Sample Collection Exemptions

- a. Risk Level 3 dischargers shall be prepared to collect samples and conduct visual observation (inspections) until the minimum requirements of Sections I.3 and I.4 above are completed. Risk Level 3 dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:
 - i. During dangerous weather conditions such as flooding and electrical storms.
 - ii. Outside of scheduled site business hours.
- b. If no required samples or visual observation (inspections) are collected due to these exceptions, Risk Level 3 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the sampling or visual observation (inspections) were not conducted.

7. Risk Level 3 – Storm Water Sample Collection and Handling Instructions

- a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.
- b. Risk Level 3 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.
- c. Risk Level 3 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).⁶

⁶ Additional information regarding SWAMP's QAPrP can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.

QAPrP: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf

8. Risk Level 3 – Monitoring Methods

- a. Risk Level 3 dischargers shall include a description of the following items in the CSMP:
 - i. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.
 - ii. Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program an example Chain of Custody form used when handling and shipping samples.
 - iii. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section I.4 above.
- b. Risk Level 3 dischargers shall ensure that all sampling and sample preservation are in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) should be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. Risk Level 3 dischargers shall ensure that all laboratory analyses are conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses should be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services (SSC exception). Risk Level 3 dischargers shall conduct their own field analysis of pH and may conduct their own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

9. Risk Level 3 – Analytical Methods

- a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

- b. **pH:** Risk Level 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or a pH test kit. Risk Level 3 dischargers shall record pH monitoring results on paper and retain these records in accordance with Section I.14, below.
- c. **Turbidity:** Risk Level 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results will be recorded in the site log book in Nephelometric Turbidity Units (NTU).
- d. **Suspended sediment concentration (SSC):** Risk Level 3 dischargers that exceed the turbidity Receiving Water Monitoring Trigger shall perform SSC analysis using ASTM Method D3977-97.
- e. **Bioassessment:** Risk Level 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

10. Risk Level 3 - Non-Storm Water Discharge Monitoring Requirements

- a. Visual Monitoring Requirements:
 - i. Risk Level 3 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.
 - ii. Risk Level 3 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).
 - iii. Risk Level 3 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 3 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to

reduce or prevent pollutants from contacting non-storm water discharges.

- b. Effluent Sampling Locations:
 - i. Risk Level 3 dischargers shall sample effluent at all discharge points where non-storm water and/or authorized non-storm water is discharged off-site.
 - ii. Risk Level 3 dischargers shall send all non-storm water sample analyses to a laboratory certified for such analyses by the State Department of Health Services.
 - iii. Risk Level 3 dischargers shall monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs.

11. Risk Level 3 – Non-Visible Pollutant Monitoring Requirements

- a. Risk Level 3 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.
- b. Risk Level 3 dischargers shall ensure that water samples are large enough to characterize the site conditions.
- c. Risk Level 3 dischargers shall collect samples at all discharge locations that can be safely accessed.
- d. Risk Level 3 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.
- e. Risk Level 3 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the presence of pollutants identified in the pollutant source assessment required (Risk Level 3 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).
- f. Risk Level 3 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.

- g. Risk Level 3 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.⁷
- h. Risk Level 3 dischargers shall keep all field /or analytical data in the SWPPP document.

12. Risk Level 3 – Watershed Monitoring Option

Risk Level 3 dischargers who are part of a qualified regional watershed-based monitoring program may be eligible for relief from the requirements in Sections I.5. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program by determining if the watershed-based monitoring program will provide substantially similar monitoring information in evaluating discharger compliance with the requirements of this General Permit.

13. Risk Level 3 – Particle Size Analysis for Project Risk Justification

Risk Level 3 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

14. Risk Level 3 – Records

Risk Level 3 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 3 dischargers shall retain all records on-site while construction is ongoing. These records include:

- a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.
- b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.
- c. The date and approximate time of analyses.

⁷ For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

- d. The individual(s) who performed the analyses.
- e. A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and the chain of custody forms.
- f. Rain gauge readings from site inspections.
- g. Quality assurance/quality control records and results.
- h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.10 above).
- i. Visual observation and sample collection exception records (see Section I.6 above).
- j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

15. Risk Level 3 – NAL Exceedance Report

- a. Risk Level 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report.
- b. Risk Level 3 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity In this General Permit.
- c. Risk Level 3 dischargers 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. Risk Level 3 dischargers shall 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.

16. Risk Level 3 – Bioassessment

- a. Risk Level 3 dischargers with a total project-related ground disturbance exceeding 30 acres shall:
 - i. Conduct bioassessment monitoring, as described in Appendix 3.
 - ii. Include the collection and reporting of specified in stream biological data and physical habitat.
 - iii. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP).⁸
- b. Risk Level 3 dischargers qualifying for bioassessment, where construction commences out of an index period for the site location shall:
 - i. Receive Regional Board approval for the sampling exception.
 - ii. Conduct bioassessment monitoring, as described in Appendix 3.
 - iii. Include the collection and reporting of specified instream biological data and physical habitat.
 - iv. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP).

OR

- v. Make a check payable to: Cal State Chico Foundation (SWAMP Bank Account) or San Jose State Foundation (SWAMP Bank Account) and include the WDID# on the check for the amount calculated for the exempted project.

⁸ http://www.waterboards.ca.gov/water_issues/programs/swamp/.

- vi. Send a copy of the check to the Regional Water Board office for the site's region.
- vii. Invest **\$7,500.00 X The number of samples required** into the SWAMP program as compensation (upon regional board approval).

FOR BIDDING
PURPOSES ONLY

Table 3 – Risk Level 3 Test Methods, Detection Limits, Reporting Units and Applicable NALs

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level	Numeric Effluent Limitation	Receiving Water Monitoring Trigger
pH	Field test with calibrated portable instrument	Risk Level 3 Discharges	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	N/A	lower limit = 6.0 upper limit = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 3 Discharges other than ATS	1	NTU	250 NTU	N/A	500 NTU
		For ATS discharges	1	NTU	N/A	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample
SSC	ASTM Method D 3977-97 ⁹	Risk Level 3 (if Receiving Water Monitoring Trigger exceeded)	5	mg/L	N/A	N/A	N/A
Bioassessment	(STE) Level I of (SAFIT), ¹⁰ fixed-count of 600 org/sample	Risk Level 3 projects > 30 acres	N/A	N/A	N/A	N/A	N/A

⁹ ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394.

¹⁰ The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

ATTACHMENT F: Active Treatment System (ATS) Requirements

Table 1 – Numeric Effluent Limitations, Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	Numeric Effluent Limitation
Turbidity	EPA 0180.1 and/or field test with a calibrated portable instrument	For ATS discharges	1	NTU	N/A	10 NTU for Daily Flow-Weighted Average & 20 NTU for Any Single Sample

A. Dischargers choosing to implement an Active Treatment System (ATS) on their site shall comply with all of the requirements in this Attachment.

B. The discharger shall maintain a paper copy of each ATS specification onsite in compliance with the record retention requirements in the Special Provisions of this General Permit.

C. ATS Design, Operation and Submittals

1. The ATS shall be designed and approved by a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Professional in Storm Water Quality (CPSWQ); a California registered civil engineer; or any other California registered engineer.
2. The discharger shall ensure that the ATS is designed in a manner to preclude the accidental discharge of settled floc¹ during floc pumping or related operations.
3. The discharger shall design outlets to dissipate energy from concentrated flows.
4. The discharger shall install and operate an ATS by assigning a lead person (or project manager) who has either a minimum of five years construction storm

¹ Floc is defined as a clump of solids formed by the chemical action in ATS systems.

water experience or who is a licensed contractors specifically holding a California Class A Contractors license.²

5. The discharger shall prepare an ATS Plan that combines the site-specific data and treatment system information required to safely and efficiently operate an ATS. The ATS Plan shall be electronically submitted to the State Water Board at least 14 days prior to the planned operation of the ATS and a paper copy shall be available onsite during ATS operation. At a minimum, the ATS Plan shall include:
 - a. ATS Operation and Maintenance Manual for All Equipment.
 - b. ATS Monitoring, Sampling & Reporting Plan, including Quality Assurance/Quality Control (QA/QC).
 - c. ATS Health and Safety Plan.
 - d. ATS Spill Prevention Plan.
6. The ATS shall be designed to capture and treat (within a 72-hour period) a volume equivalent to the runoff from a 10-year, 24-hour storm event using a watershed runoff coefficient of 1.0.

D. Treatment – Chemical Coagulation/Flocculation

1. Jar tests shall be conducted using water samples selected to represent typical site conditions and in accordance with ASTM D2035-08 (2003).
2. The discharger shall conduct, at minimum, six site-specific jar tests (per polymer with one test serving as a control) for each project to determine the proper polymer and dosage levels for their ATS.
3. Single field jar tests may also be conducted during a project if conditions warrant, for example if construction activities disturb changing types of soils, which consequently cause change in storm water and runoff characteristics.

E. Residual Chemical and Toxicity Requirements

1. The discharger shall utilize a residual chemical test method that has a method detection limit (MDL) of 10% or less than the maximum allowable threshold

² Business and Professions Code Division 3, Chapter 9, Article 4, Class A Contractor: A general engineering contractor is a contractor whose principal contracting business is in connection with fixed works requiring specialized engineering knowledge and skill. [<http://www.cslb.ca.gov/General-Information/library/licensing-classifications.asp>].

concentration³ (MATC) for the specific coagulant in use and for the most sensitive species of the chemical used.

2. The discharger shall utilize a residual chemical test method that produces a result within one hour of sampling.
3. The discharger shall have a California State certified laboratory validate the selected residual chemical test. Specifically the lab will review the test protocol, test parameters, and the detection limit of the coagulant. The discharger shall electronically submit this documentation as part of the ATS Plan.
4. If the discharger cannot utilize a residual chemical test method that meets the requirements above, the discharger shall operate the ATS in Batch Treatment⁴ mode.
5. A discharger planning to operate in Batch Treatment mode shall perform toxicity testing in accordance with the following:
 - a. The discharger shall initiate acute toxicity testing on effluent samples representing effluent from each batch prior to discharge⁵. All bioassays shall be sent to a laboratory certified by the Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP). The required field of testing number for Whole Effluent Toxicity (WET) testing is E113.⁶
 - b. Acute toxicity tests shall be conducted with the following species and protocols. The methods to be used in the acute toxicity testing shall be those outlined for a 96-hour acute test in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, USEPA-841-R-02-012" for Fathead minnow, *Pimephales promelas* (fathead minnow). Acute toxicity for *Oncorhynchus mykiss* (Rainbow Trout) may be used as a substitute for testing fathead minnows.
 - c. All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the EPA test method for WET testing.
 - d. The discharger shall electronically report all acute toxicity testing.

³ The Maximum Allowable Threshold Concentration (MATC) is the allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. A typical MATC would be: The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

⁴ Batch Treatment mode is defined as holding or recirculating the treated water in a holding basin or tank(s) until treatment is complete or the basin or storage tank(s) is full.

⁵ This requirement only requires that the test be initiated prior to discharge.

⁶ http://www.dhs.ca.gov/ps/ls/elap/pdf/FOT_Desc.pdf.

F. Filtration

1. The ATS shall include a filtration step between the coagulant treatment train and the effluent discharge. This is commonly provided by sand, bag, or cartridge filters, which are sized to capture suspended material that might pass through the clarifier tanks.
2. Differential pressure measurements shall be taken to monitor filter loading and confirm that the final filter stage is functioning properly.

G. Residuals Management

1. Sediment shall be removed from the storage or treatment cells as necessary to ensure that the cells maintain their required water storage (i.e., volume) capability.
2. Handling and disposal of all solids generated during ATS operations shall be done in accordance with all local, state, and federal laws and regulations.

H. ATS Instrumentation

1. The ATS shall be equipped with instrumentation that automatically measures and records effluent water quality data and flow rate.
2. The minimum data recorded shall be consistent with the Monitoring and Reporting requirements below, and shall include:
 - a. Influent Turbidity
 - b. Effluent Turbidity
 - c. Influent pH
 - d. Effluent pH
 - e. Residual Chemical
 - f. Effluent Flow rate
 - g. Effluent Flow volume
3. Systems shall be equipped with a data recording system, such as data loggers or webserver-based systems, which records each measurement on a frequency no longer than once every 15 minutes.

4. Cumulative flow volume shall be recorded daily. The data recording system shall have the capacity to record a minimum of seven days continuous data.
5. Instrumentation systems shall be interfaced with system control to provide auto shutoff or recirculation in the event that effluent measurements exceed turbidity or pH.
6. The system shall also assure that upon system upset, power failure, or other catastrophic event, the ATS will default to a recirculation mode or safe shut down.
7. Instrumentation (flow meters, probes, valves, streaming current detectors, controlling computers, etc.) shall be installed and maintained per manufacturer's recommendations, which shall be included in the QA/QC plan.
8. The QA/QC plan shall also specify calibration procedures and frequencies, instrument method detection limit or sensitivity verification, laboratory duplicate procedures, and other pertinent procedures.
9. The instrumentation system shall include a method for controlling coagulant dose, to prevent potential overdosing. Available technologies include flow/turbidity proportional metering, periodic jar testing and metering pump adjustment, and ionic charge measurement controlling the metering pump.

I. ATS Effluent Discharge

1. ATS effluent shall comply with all provisions and prohibitions in this General Permit, specifically the NELs.
2. NELs for discharges from an ATS:
 - a. Turbidity of all ATS discharges shall be less than 10 NTU for daily flow-weighted average of all samples and 20 NTU for any single sample.
 - b. Residual Chemical shall be < 10% of MATC⁷ for the most sensitive species of the chemical used.

⁷ The Maximum Allowable Threshold Concentration (MATC) is the allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

3. If an analytical effluent sampling result exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file the results in violation within 24-hours of obtaining the results.
4. If ATS effluent is authorized to discharge into a sanitary sewer system, the discharger shall comply with any pre-treatment requirements applicable for that system. The discharger shall include any specific criteria required by the municipality in the ATS Plan.
5. Compliance Storm Event:

Discharges of storm water from ATS shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for ATS discharges is the 10 year, 24 hour storm, as determined using these maps:

<http://www.wrcc.dri.edu/pcpnfreq/nca10y24.gif>
<http://www.wrcc.dri.edu/pcpnfreq/sca10y24.gif>

This exemption is dependent on the submission of rain gauge data verifying the storm event is equal to or larger than the Compliance Storm.

J. Operation and Maintenance Plan

1. Each Project shall have a site-specific Operation and Maintenance (O&M) Manual covering the procedures required to install, operate and maintain the ATS.⁸
2. The O&M Manual shall only be used in conjunction with appropriate project-specific design specifications that describe the system configuration and operating parameters.
3. The O&M Manual shall have operating manuals for specific pumps, generators, control systems, and other equipment.

K. Sampling and Reporting Quality Assurance/ Quality Check (QA/QC) Plan

4. A project-specific QA/QC Plan shall be developed for each project. The QA/QC Plan shall include at a minimum:
 - a. Calibration – Calibration methods and frequencies for all system and field instruments shall be specified.

⁸ The manual is typically in a modular format covering generalized procedures for each component that is utilized in a particular system.

- b. Method Detection Limits (MDLs) – The methods for determining MDLs shall be specified for each residual coagulant measurement method. Acceptable minimum MDLs for each method, specific to individual coagulants, shall be specified.
- c. Laboratory Duplicates – Requirements for monthly laboratory duplicates for residual coagulant analysis shall be specified.

L. Personnel Training

1. Operators shall have training specific to using an ATS and liquid coagulants for storm water discharges in California.
2. The training shall be in the form of a formal class with a certificate and requirements for testing and certificate renewal.
3. Training shall include a minimum of eight hours classroom and 32 hours field training. The course shall cover the following topics:
 - a. Coagulation Basics –Chemistry and physical processes
 - b. ATS System Design and Operating Principles
 - c. ATS Control Systems
 - d. Coagulant Selection – Jar testing, dose determination, etc.
 - e. Aquatic Safety/Toxicity of Coagulants, proper handling and safety
 - f. Monitoring, Sampling, and Analysis
 - g. Reporting and Recordkeeping
 - h. Emergency Response

M. Active Treatment System (ATS) Monitoring Requirements

Any discharger who deploys an ATS on their site shall conduct the following:

1. Visual Monitoring
 - a. A designated responsible person shall be on site daily at all times during treatment operations.

- b. Daily on-site visual monitoring of the system for proper performance shall be conducted and recorded in the project data log.
 - i. The log shall include the name and phone number of the person responsible for system operation and monitoring.
 - ii. The log shall include documentation of the responsible person's training.

2. Operational and Compliance Monitoring

- a. Flow shall be continuously monitored and recorded at not greater than 15-minute intervals for total volume treated and discharged.
- b. Influent and effluent pH must be continuously monitored and recorded at not greater than 15-minute intervals.
- c. Influent and effluent turbidity (expressed in NTU) must be continuously monitored and recorded at not greater than 15-minute intervals.
- d. The type and amount of chemical used for pH adjustment, if any, shall be monitored and recorded.
- e. Dose rate of chemical used in the ATS system (expressed in mg/L) shall be monitored and reported 15-minutes after startup and every 8 hours of operation.
- f. Laboratory duplicates – monthly laboratory duplicates for residual coagulant analysis must be performed and records shall be maintained onsite.
- g. Effluent shall be monitored and recorded for residual chemical/additive levels.
- h. If a residual chemical/additive test does not exist and the ATS is operating in a batch treatment mode of operation refer to the toxicity monitoring requirements below.

3. Toxicity Monitoring

A discharger operating in batch treatment mode shall perform toxicity testing in accordance with the following:

- a. The discharger shall initiate acute toxicity testing on effluent samples representing effluent from each batch prior to discharge.⁹ All bioassays shall be sent to a laboratory certified by the Department of Health Services (DHS)

⁹ This requirement only requires that the test be initiated prior to discharge.

Environmental Laboratory Accreditation Program (ELAP). The required field of testing number for Whole Effluent Toxicity (WET) testing is E113.¹⁰

- b. Acute toxicity tests shall be conducted with the following species and protocols. The methods to be used in the acute toxicity testing shall be those outlined for a 96-hour acute test in “Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, USEPA-841-R-02-012” for Fathead minnow, *Pimephales promelas* or Rainbow trout *Oncorhynchus mykiss* may be used as a substitute for fathead minnow.
- c. All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the EPA test method for WET testing.¹¹

4. Reporting and Recordkeeping

At a minimum, every 30 days a LRP representing the discharger shall access the State Water Boards Storm Water Multi-Application and Report Tracking system (SMARTS) and electronically upload field data from the ATS. Records must be kept for three years after the project is completed .

5. Non-compliance Reporting

- a. Any indications of toxicity or other violations of water quality objectives shall be reported to the appropriate regulatory agency as required by this General Permit.
- b. Upon any measurements that exceed water quality standards, the system operator shall immediately notify his supervisor or other responsible parties, who shall notify the Regional Water Board.
- c. If any monitoring data exceeds any applicable NEL in this General Permit, the discharger shall electronically submit a NEL Violation Report to the State Water Board within 24 hours after the NEL exceedance has been identified.
 - i. ATS dischargers shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity in this General Permit.
 - ii. ATS dischargers shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the annual report is filed.
 - iii. ATS dischargers shall include in the NEL Violation Report:

¹⁰ http://www.dhs.ca.gov/ps/ls/elap/pdf/FOT_Desc.pdf.

¹¹ <http://www.epa.gov/waterscience/methods/wet/>.

- (1) 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”);
 - (2) The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation; and
 - (3) A description of the current onsite BMPs, and the proposed corrective actions taken to manage the NEL exceedance.
- iv. Compliance Storm Exemption - In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, ATS dischargers shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification.

FOR BIDDING
PURPOSES ONLY

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Version 8/17/2011												
2	Risk Determination Worksheet												
3													
4		Step 1	Determine Sediment Risk via one of the options listed:										
5			1. GIS Map Method - EPA Rainfall Erosivity Calculator & GIS map										
6			2. Individual Method - EPA Rainfall Erosivity Calculator & Individual Data										
7		Step 2	Determine Receiving Water Risk via one of the options listed:										
8			1. GIS map of Sediment Sensitive Watersheds provided										
9			2. Site Specific Analysis (support documentation required)										
10		Step 3	Determine Combined Risk Level										
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

FOR BIDDING
PURPOSES ONLY

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	R Factor Value		0
6	B) K Factor (weighted average, by area, for all site soils)		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	K Factor Value		0
10	C) LS Factor (weighted average, by area, for all slopes)		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	LS Factor Value		0
14			
15	Watershed Erosion Estimate (=R_xK_xLS) in tons/acre		0
16	Site Sediment Risk Factor		Low
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			
21			
22			
23	GIS Map Method:		
24	1. The R factor for the project is calculated using the online calculator at:		
25	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
26			
27	2. The K and LS factors may be obtained by accessing the GIS maps located on the State Water Board FTP website at:		
28	ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/		
29			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed waterbody impaired by sediment (For help with impaired waterbodies please visit the link below) or has a USEPA approved TMDL implementation plan for sediment ? http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	no	Low
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan)		
http://www.waterboards.ca.gov/waterboards_map.shtml		
Region 1 Basin Plan Region 2 Basin Plan Region 3 Basin Plan Region 4 Basin Plan Region 5 Basin Plan Region 6 Basin Plan Region 7 Basin Plan Region 8 Basin Plan Region 9 Basin Plan		

FOR BIDDING PURPOSES ONLY

Combined Risk Level Matrix

		<u>Sediment Risk</u>		
		Low	Medium	High
<u>Receiving Water Risk</u>	Low	Level 1	Level 2	
	High	Level 2		Level 3

Project Sediment Risk: **Low**

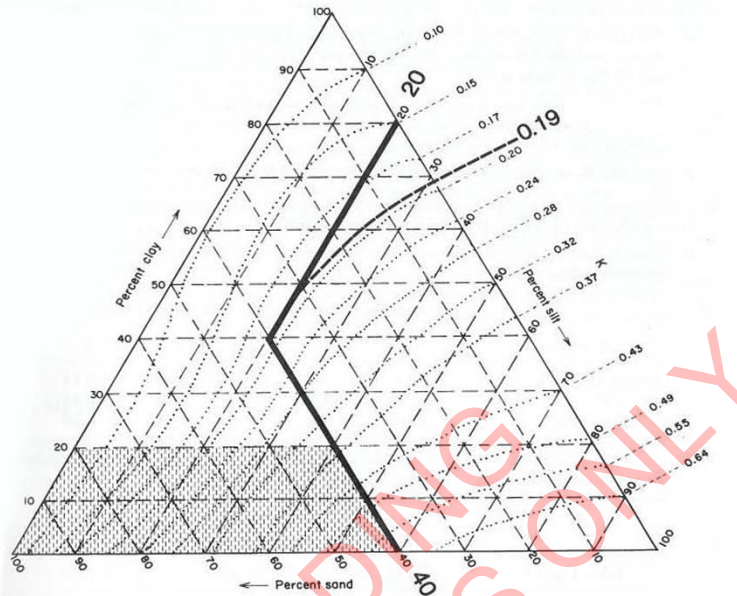
Project RW Risk: **Low**

Project Combined Risk: **Level 1**

FOR BIDDING
PURPOSES ONLY

Soil Erodibility Factor (K)

The K factor can be determined by using the nomograph method, which requires that a particle size analysis (ASTM D-422) be done to determine the percentages of sand, very fine sand, silt and clay. Use the figure below to determine appropriate K value.



Erickson triangular nomograph used to estimate soil erodibility (K) factor.

The figure above is the USDA nomograph used to determine the K factor for a soil, based on its texture (% silt plus very fine sand, % sand, % organic matter, soil structure, and permeability). *Nomograph from Erickson 1977 as referenced in Goldman et. al., 1986.*

Sheet Flow Length (ft)	Average Watershed Slope (%)																		
	0.2	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0	30.0	40.0	50.0	60.0
<3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.35	0.36	0.38	0.39	0.41	0.45	0.48	0.53	0.58	0.63
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.37	0.41	0.45	0.49	0.56	0.64	0.72	0.85	0.97	1.07
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.38	0.45	0.51	0.56	0.67	0.80	0.91	1.13	1.31	1.47
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.39	0.47	0.55	0.62	0.76	0.93	1.08	1.37	1.62	1.84
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.40	0.49	0.58	0.67	0.84	1.04	1.24	1.59	1.91	2.19
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	0.45	0.57	0.71	0.85	0.98	1.24	1.56	1.86	2.41	2.91	3.36
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	0.70	0.91	1.15	1.40	1.64	2.10	2.67	3.22	4.24	5.16	5.97
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	0.91	1.20	1.54	1.87	2.21	2.86	3.67	4.44	5.89	7.20	8.37
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	1.10	1.46	1.88	2.31	2.73	3.57	4.59	5.58	7.44	9.13	10.63
150	0.05	0.09	0.17	0.33	0.50	0.68	0.86	1.05	1.43	1.92	2.51	3.09	3.68	4.85	6.30	7.70	10.35	12.75	14.89
200	0.06	0.10	0.18	0.37	0.57	0.79	1.02	1.25	1.72	2.34	3.07	3.81	4.56	6.04	7.88	9.67	13.07	16.16	18.92
250	0.06	0.10	0.19	0.40	0.64	0.89	1.16	1.43	1.99	2.72	3.60	4.48	5.37	7.16	9.38	11.55	15.67	19.42	22.78
300	0.06	0.10	0.20	0.43	0.69	0.98	1.28	1.60	2.24	3.09	4.09	5.11	6.15	8.23	10.81	13.35	18.17	22.57	26.51
400	0.06	0.11	0.22	0.48	0.80	1.14	1.51	1.90	2.70	3.75	5.01	6.30	7.60	10.24	13.53	16.77	22.95	28.60	33.67
600	0.06	0.12	0.24	0.56	0.96	1.42	1.91	2.43	3.52	4.95	6.67	8.45	10.26	13.94	18.57	23.14	31.89	39.95	47.18
800	0.06	0.12	0.26	0.63	1.10	1.65	2.25	2.89	4.24	6.03	8.17	10.40	12.69	17.35	23.24	29.07	40.29	50.63	59.93
1000	0.06	0.13	0.27	0.69	1.23	1.86	2.55	3.30	4.91	7.02	9.57	12.23	14.96	20.57	27.66	34.71	48.29	60.84	72.15

LS Factors for Construction Sites. *Table from Renard et. al., 1997.*

FOR BIDDING
PURPOSES ONLY

APPENDIX 2: Post-Construction Water Balance Performance Standard Spreadsheet

The discharger shall submit with their Notice of Intent (NOI) the following information to demonstrate compliance with the New and Re-Development Water Balance Performance Standard.

Map Instructions

The discharger must submit a small-scale topographic map of the site to show the existing contour elevations, pre- and post-construction drainage divides, and the total length of stream in each watershed area. Recommended scales include 1 in. = 20 ft., 1 in. = 30 ft., 1 in. = 40 ft., or 1 in. = 50 ft. The suggested contour interval is usually 1 to 5 feet, depending upon the slope of the terrain. The contour interval may be increased on steep slopes. Other contour intervals and scales may be appropriate given the magnitude of land disturbance.

Spreadsheet Instructions

The intent of the spreadsheet is to help dischargers calculate the project-related increase in runoff volume and select impervious area and runoff reduction credits to reduce the project-related increase in runoff volume to pre-project levels.

The discharger has the option of using the spreadsheet (**Appendix 2.1**) or a more sophisticated, watershed process-based model (e.g. Storm Water Management Model, Hydrological Simulation Program Fortran) to determine the project-related increase in runoff volume.

In Appendix 4.1, you must complete the worksheet for each land use/soil type combination for each project sub-watershed.

Steps 1 through 9 pertain specifically to the Runoff Volume Calculator:

Step 1: Enter the county where the project is located in cell H3.

Step 2: Enter the soil type in cell H6.

Step 3: Enter the existing pervious (dominant) land use type in cell H7.

Step 4: Enter the proposed pervious (dominant) land use type in cell H8.

Step 5: Enter the total project site area in cell H11 or J11.

Step 6: Enter the sub-watershed area in cell H12 or J12.

- Step 7: Enter the existing rooftop area in cell H17 or J17, the existing non-rooftop impervious area in cell H18 or J18, the proposed rooftop area in cell H19 or J19, and the proposed non-rooftop impervious area in cell H20 or J20
- Step 8: Work through each of the impervious area reduction credits and claim credits where applicable. Volume that cannot be addressed using non-structural practices must be captured in structural practices and approved by the Regional Water Board.
- Step 9: Work through each of the impervious volume reduction credits and claim credits where applicable. Volume that cannot be addressed using non-structural practices must be captured in structural practices and approved by the Regional Water Board.

Non-structural Practices Available for Crediting

- ***Porous Pavement***
- ***Tree Planting***
- ***Downspout Disconnection***
- ***Impervious Area Disconnection***
- ***Green Roof***
- ***Stream Buffer***
- ***Vegetated Swales***
- ***Rain Barrels and Cisterns***
- ***Landscaping Soil Quality***

Post-Construction Water Balance Calculator

1	Post-Construction Water Balance Calculator											
2												
3	User may make changes from any cell that is orange or brown in color (similar to the cells to the immediate right). Cells in green are calculated for you.		(Step 1a) If you know the 85th percentile storm event for your location enter it in the box below		(Step 1b) If you can not answer 1a then select the county where the project is located (click on the cell to the right for drop-down): This will determine the average 85th percentile 24 hr. storm event for your site, which will appear under precipitation to left.		SACRAMENTO					
4			(Step 1c) If you would like a more precise value select the location closest to your site. If you do not recognize any of these locations, leave this drop-down menu at location. The average value for the County will be used.		SACRAMENTO FAA ARPT							
5	Project Information				Runoff Calculations							
6	Project Name:		Optional		(Step 2) Indicate the Soil Type (dropdown menu to right):		Group C Soils		Low infiltration. Sandy clay loam. Infiltration rate 0.05 to 0.15 inch/hr when wet.			
7	Waste Discharge Identification (WDID):		Optional		(Step 3) Indicate the existing dominant non-built land Use Type (dropdown menu to right):		Wood & Grass: <50% ground cover					
8	Date:		Optional		(Step 4) Indicate the proposed dominant non-built land Use Type (dropdown menu to right):		Lawn, Grass, or Pasture covering more than 75% of the open space					
9	Sub Drainage Area Name (from map):		Optional				Complete Either					
10	Runoff Curve Numbers						Sq Ft		Acres			
11	Existing Pervious Runoff Curve Number		82		(Step 5) Total Project Site Area:		5.00		5.00			
12	Proposed Development Pervious Runoff Curve Number		74		(Step 6) Sub-watershed Area:		5.00		5.00			
13	Design Storm				Percent of total project:		100%					
14	Based on the County you indicated above, we have included the 85 percentile average 24 hr event - P85 (in)^ for your area.		0.62		in							
15	The Amount of rainfall needed for runoff to occur (Existing runoff curve number -P from existing RCN (in)^)		0.44		in		(Step 7) Sub-watershed Conditions		Complete Either			
16	P used for calculations (in) (the greater of the above two criteria)		0.62		in		Sub-watershed Area (acres)		5.00			
17	^Available at www.cabmphandbooks.com				Existing Rooftop Impervious Coverage		0		0.00			
18							Existing Non-Rooftop Impervious Coverage		0		0.00	
19							Proposed Rooftop Impervious Coverage		0		0.00	
20							Proposed Non-Rooftop Impervious Coverage		0		0.00	
21							Credits		Acres		Square Feet	
22							Porous Pavement		0.00		0	
23					Tree Planting		0.00		0			
24					Downspout Disconnection		0.00		0			
25	Pre-Project Runoff Volume (cu ft)		247		Cu.Ft.							
26	Project-Related Runoff Volume Increase w/o credits (cu ft)		0		Cu.Ft.		Impervious Area Disconnection		0.00			
27							Green Roof		0.00			
28							Stream Buffer		0.00			
29							Vegetated Swales		0.00			
30	Project-Related Volume Increase with Credits (cu ft)		0		Cu.Ft.		Subtotal		0.00			
31							Subtotal Runoff Volume Reduction Credit		0 Cu. Ft.			
32	You have achieved your minimum requirements						(Step 9) Impervious Volume Reduction Credits		Volume (cubic feet)			
33									Rain Barrels/Cisterns		0 Cu. Ft.	
34									Soil Quality		0 Cu. Ft.	
35									Subtotal Runoff Volume Reduction		0 Cu. Ft.	
36									Total Runoff Volume Reduction Credit		0 Cu. Ft.	
37												
38												
39												

Porous Pavement Credit Worksheet

Please fill out a porous pavement credit worksheet for each project sub-watershed.

For the PROPOSED Development:

Proposed Porous Pavement	Runoff Reduction*	Fill in either Acres or SqFt		Equivalent Acres
		In SqFt.	In Acres	
Area of Brick without Grout on <u>less than 12 inches</u> of base with at least 20% void space over soil	0.45			0.00
Area of Brick without Grout on <u>more than 12 inches</u> of base with at least 20% void space over soil	0.90			0.00
Area of Cobbles <u>less than 12 inches</u> deep and over soil	0.30			0.00
Area of Cobbles <u>less than 12 inches</u> deep and over soil	0.60			0.00
Area of Reinforced Grass Pavement on <u>less than 12 inches</u> of base with at least 20% void space over soil	0.45			0.00
Area of Reinforced Grass Pavement on <u>at least 12 inches</u> of base with at least 20% void space over soil	0.90			0.00
Area of Porous Gravel Pavement on <u>less than 12 inches</u> of base with at least 20% void space over soil	0.38			0.00
Area of Porous Gravel Pavement on <u>at least 12 inches</u> of base with at least 20% void space over soil	0.75			0.00
Area of Poured Porous Concrete or Asphalt Pavement with <u>less than 4 inches</u> of gravel base (washed stone)	0.40			0.00
Area of Poured Porous Concrete or Asphalt Pavement with <u>4 to 8 inches</u> of gravel base (washed stone)	0.60			0.00
Area of Poured Porous Concrete or Asphalt Pavement with <u>8 to 12 inches</u> of gravel base (washed stone)	0.80			0.00
Area of Poured Porous Concrete or Asphalt Pavement with <u>12 or more</u> inches of gravel base (washed stone)	1.00			0.00

*=1-Rv**

[Return to Calculator](#)

**Using Site Design Techniques to meet Development Standards for Stormwater Quality (BASMAA 2003)

**NCDENR Stormwater BMP Manual (2007)

FOR BIDDING PURPOSES ONLY

Tree Planting Credit Worksheet

Please fill out a tree canopy credit worksheet for each project sub-watershed.

Tree Canopy Credit Criteria	Number of Trees Planted	Credit (acres)
Number of proposed evergreen trees to be planted (credit = number of trees x 0.005)*	0	0.00
Number of proposed deciduous trees to be planted (credit = number of trees x 0.0025)*		0.00
	Square feet Under Canopy	
Square feet under an existing tree canopy, that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is LESS than 12 in diameter.		0.00
Square feet under an existing tree canopy that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is 12 in diameter or GREATER.		0.00
Please describe below how the project will ensure that these trees will be maintained.		

* credit amount based on credits from Stormwater Quality Design Manual for the Sacramento and South Placer Regions

[Return to Calculator](#)

FOR BIDDING PURPOSES ONLY

Downspout Disconnection Credit Worksheet

Please fill out a downspout disconnection credit worksheet for each project subwatershed. If you answer yes to all questions, all rooftop area draining to each downspout will be subtracted from your proposed rooftop impervious coverage.

Downspout Disconnection Credit Criteria					
Do downspouts and any extensions extend at least six feet from a basement and two feet from a crawl space or concrete slab?				<input type="radio"/> Yes	<input checked="" type="radio"/> No
Is the area of rooftop connecting to each disconnected downspout 600 square feet or less?				<input type="radio"/> Yes	<input checked="" type="radio"/> No
Is the roof runoff from the design storm event fully contained in a raised bed or planter box or does it drain as sheet flow to a landscaped area large enough to contain the roof runoff from the design storm event?				<input type="radio"/> Yes	<input checked="" type="radio"/> No
The Stream Buffer and/or Vegetated Swale credits will not be taken in this sub-watershed area?				<input type="radio"/> Yes	<input checked="" type="radio"/> No
Percentage of existing	0.00	Acres	of rooftop surface has disconnected downspouts	50	
Percentage of the proposed	0.00	Acres	of rooftop surface has disconnected downspouts		
				Return to Calculator	

FOR BIDDING PURPOSES ONLY

Impervious Area Disconnection Credit Worksheet

Please fill out an impervious area disconnection credit worksheet for each project sub-watershed. If you answer yes to all questions, all non-rooftop impervious surface area will be subtracted from your proposed non-rooftop impervious coverage.

Non-Rooftop Disconnection Credit Criteria	Response
Is the maximum contributing impervious flow path length less than 75 feet or, if equal or greater than 75 feet, is a storage device (e.g. French drain, bioretention area, gravel trench) implemented to achieve the required disconnection length?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Is the impervious area to any one discharge location less than 5,000 square feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No
The Stream Buffer credit will not be taken in this sub-watershed area?	<input checked="" type="radio"/> Yes <input type="radio"/> No

Percentage of existing	0.00	Acres non-rooftop surface area disconnected	
Percentage of the proposed	0.00	Acres non-rooftop surface area disconnected	70

[Return to Calculator](#)

FOR BIDDING PURPOSES ONLY

Green Roof Credit Worksheet

Please fill out a greenroof credit worksheet for each project sub-watershed. If you answer yes to all questions, 70% of the greenroof area will be subtracted from your proposed rooftop impervious coverage.

Green Roof Credit Criteria		Response
Is the roof slope less than 15% or does it have a grid to hold the substrate in place until it forms a thick vegetation mat?		<input checked="" type="radio"/> Yes <input type="radio"/> No
Has a professional engineer assessed the necessary load reserves and designed a roof structure to meet state and local codes?		<input checked="" type="radio"/> Yes <input type="radio"/> No
Is the irrigation needed for plant establishment and/or to sustain the green roof during extended dry periods, is the source from stored, recycled, reclaimed, or reused water?		<input checked="" type="radio"/> Yes <input type="radio"/> No
Percentage of existing	0.0 0 Acres rooftop surface area in greenroof	
Percentage of the proposed	0.0 0 Acres rooftop surface area in greenroof	
		Return to Calculator

FOR BIDDING PURPOSES ONLY

Stream Buffer Credit Worksheet

Please fill out a stream buffer credit worksheet for each project sub-watershed. If you answer yes to all questions, you may subtract all impervious surface draining to each stream buffer that has not been addressed using the Downspout and/or Impervious Area Disconnection credits.

Stream Buffer Credit Criteria				Response
Does runoff enter the floodprone width* or within 500 feet (whichever is larger) of a stream channel as sheet flow**?				<input type="radio"/> Yes <input checked="" type="radio"/> No
Is the contributing overland slope 5% or less, or if greater than 5%, is a level spreader used?				<input type="radio"/> Yes <input checked="" type="radio"/> No
Is the buffer area protected from vehicle or other traffic barriers to reduce compaction?				<input type="radio"/> Yes <input checked="" type="radio"/> No
Will the stream buffer be maintained in an ungraded and uncompacted condition and will the vegetation be maintained in a natural condition?				<input type="radio"/> Yes <input checked="" type="radio"/> No
Percentage of existing	0.00	Acres	impervious surface area draining into a stream buffer:	
Percentage of the proposed	0.00	Acres	impervious surface area that will drain into a stream buffer:	
Please describe below how the project will ensure that the buffer areas will remain in ungraded and uncompacted condition and that the vegetation will be maintained in a natural condition.				

[Return to Calculator](#)

* floodprone width is the width at twice the bankfull depth.

** the maximum contributing length shall be 75 feet for impervious area

Vegetated Swale Credit Worksheet

Please fill out a vegetated swale worksheet for each project subwatershed. If you answer yes to all questions, you may subtract all impervious surface draining to each stream buffer that has not been addressed using the Downspout Disconnection credit.

Vegetated Swale Credit Criteria

Have all vegetated swales been designed in accordance with Treatment Control BMP 30 (TC-30 - Vegetated Swale) from the California Stormwater BMP Handbook, New Development and Redevelopment (available at www.cabmphandbooks.com)?

<input type="radio"/> Yes <input checked="" type="radio"/> No

Is the maximum flow velocity for runoff from the design storm event less than or equal to 1.0 foot per second?

<input type="radio"/> Yes <input checked="" type="radio"/> No

Percentage of existing	0.00	Acres of impervious area draining to a vegetated swale	
Percentage of the proposed	0.00	Acres of impervious area draining to a vegetated swale	

[Return to Calculator](#)

FOR BIDDING PURPOSES ONLY

Rain Barrel/Cistern Credit Worksheet

Please fill out a rain barrel/cistern worksheet for each project sub-watershed.

Rain Barrel/Cistern Credit Criteria	Response
Total number of rain barrel(s)/cisterns	
Average capacity of rain barrel(s)/cistern(s) (in gallons)	
Total capacity rain barrel(s)/cistern(s) (in cu ft) ¹	0

¹ accounts for 10% loss

[Return to Calculator](#)

FOR BIDDING
PURPOSES ONLY

Please fill out a soil quality worksheet for each project sub-watershed.

	Response
Will the landscaped area be lined with an impervious membrane?	
Will the soils used for landscaping meet the ideal bulk densities listed in Table 1 below? ¹	<input type="radio"/> Yes <input checked="" type="radio"/> No
If you answered yes to the question above, and you know the area-weighted bulk density within the top 12 inches for soils used for landscaping (in g/cm ³)*, fill in the cell to the right and skip to cell G11. If not select from the drop-down menu in G10.	1.3
If you answered yes to the question above, but you do not know the exact bulk density, which of the soil types in the drop down menu to the right best describes the top 12 inches for soils used for landscaping (in g/cm ³).	Sandy loams, loams
What is the average depth of your landscaped soil media meeting the above criteria (inches)?	12
What is the total area of the landscaped areas meeting the above criteria (in acres)?	2.97

[Return to Calculator](#)

Table 1

Sands, loamy sands	<1.6
Sandy loams, loams	<1.4
Sandy clay loams, loams, clay loams	<1.4
Silts, silt loams	<1.3
Silt loams, silty clay loams	<1.1
Sandy clays, silty clays, some clay loams (35-45% clay)	<1.1
Clays (>45% clay)	<1.1

Porosity (%) 50.94%

Mineral grains in many soils are mainly quartz and feldspar, so 2.65 a good average for particle density. To determine percent porosity, use the formula: Porosity (%) = (1-Bulk Density/2.65) X 100

¹ USDA NRCS. "Soil Quality Urban Technical Note No.2-Urban Soil Compaction". March 2000.

http://soils.usda.gov/sqi/management/files/sq_utn_2.pdf

* To determine how to calculate density see:

<http://www.globe.gov/tctg/bulkden.pdf?sectionID=94>

APPENDIX 3 Bioassessment Monitoring Guidelines

Bioassessment monitoring is required for projects that meet all of the following criteria:

1. The project is rated Risk Level 3 or LUP Type 3
2. The project directly discharges runoff to a freshwater wadeable stream (or streams) that is either: (a) listed by the State Water Board or USEPA as impaired due to sediment, and/or (b) tributary to any downstream water body that is listed for sediment; and/or have the beneficial use SPAWN & COLD & MIGRATORY
3. Total project-related ground disturbance exceeds 30 acres.

For all such projects, the discharger shall conduct bioassessment monitoring, as described in this section, to assess the effect of the project on the biological integrity of receiving waters.

Bioassessment shall include:

1. The collection and reporting of specified instream biological data
2. The collection and reporting of specified instream physical habitat data

Bioassessment Exception

If a site qualifies for bioassessment, but construction commences out of an index period for the site location, the discharger shall:

1. Receive Regional Water Board approval for the sampling exception
2. Make a check payable to: Cal State Chico Foundation (SWAMP Bank Account) or San Jose State Foundation (SWAMP Bank Account) and include the WDID# on the check for the amount calculated for the exempted project.
3. Send a copy of the check to the Regional Water Board office for the site's region
4. Invest **7,500.00 X The number of samples required** into the SWAMP program as compensation (upon Regional Water Board approval).
5. Conduct bioassessment monitoring, as described in Appendix 4
6. Include the collection and reporting of specified instream biological data and physical habitat
7. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP)

Site Locations and Frequency

Macroinvertebrate samples shall be collected both before ground disturbance is initiated and after the project is completed. The "after" sample(s) shall be collected after at least one winter season resulting in surface runoff has transpired after project-related ground disturbance has ceased. "Before" and "after" samples shall be collected both upstream and downstream of the project's

discharge. Upstream samples should be taken immediately before the sites outfall and downstream samples should be taken immediately after the outfall (when safe to collect the samples). Samples should be collected for each freshwater wadeable stream that is listed as impaired due to sediment, or tributary to a water body that is listed for sediment. Habitat assessment data shall be collected concurrently with all required macroinvertebrate samples.

Index Period (Timing of Sample Collection)

Macroinvertebrate sampling shall be conducted during the time of year (i.e., the “index period”) most appropriate for bioassessment sampling, depending on ecoregion. This map is posted on the State Water Board’s Website: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

Field Methods for Macroinvertebrate Collections

In collecting macroinvertebrate samples, the discharger shall use the “Reachwide Benthos (Multi-habitat) Procedure” specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California* (Ode 2007).¹

Physical - Habitat Assessment Methods

The discharger shall conduct, concurrently with all required macroinvertebrate collections, the “Full” suite of physical habitat characterization measurements as specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California* (Ode 2007), and as summarized in the Surface Water Ambient Monitoring Program’s *Stream Habitat Characterization Form — Full Version*.

Laboratory Methods

Macroinvertebrates shall be identified and classified according to the Standard Taxonomic Effort (STE) Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT),² and using a fixed-count of 600 organisms per sample.

Quality Assurance

The discharger or its consultant(s) shall have and follow a quality assurance (QA) plan that covers the required bioassessment monitoring. The QA plan shall include, or be supplemented to include, a specific requirement for external QA checks (i.e., verification of taxonomic identifications and correction of data where

¹ This document is available on the Internet at: http://www.swrcb.ca.gov/swamp/docs/phab_sopr6.pdf.
http://swamp.mpsl.mml.calstate.edu/wp-content/uploads/2009/04/swamp_sop_bioassessment_collection_020107.pdf.

² The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf
http://www.safit.org/Docs/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board’s SWAMP website.

errors are identified). External QA checks shall be performed on one of the discharger's macroinvertebrate samples collected per calendar year, or ten percent of the samples per year (whichever is greater). QA samples shall be randomly selected. The external QA checks shall be paid for by the discharger, and performed by the California Department of Fish and Game's Aquatic Bioassessment Laboratory. An alternate laboratory with equivalent or better expertise and performance may be used if approved in writing by State Water Board staff.

Sample Preservation and Archiving

The original sample material shall be stored in 70 percent ethanol and retained by the discharger until: 1) all QA analyses specified herein and in the relevant QA plan are completed; and 2) any data corrections and/or re-analyses recommended by the external QA laboratory have been implemented. The remaining subsampled material shall be stored in 70 percent ethanol and retained until completeness checks have been performed according to the relevant QA plan. The identified organisms shall be stored in 70 percent ethanol, in separate glass vials for each final ID taxon. (For example, a sample with 45 identified taxa would be archived in a minimum of 45 vials, each containing all individuals of the identified taxon.) Each of the vials containing identified organisms shall be labeled with taxonomic information (i.e., taxon name, organism count) and collection information (i.e., site name/site code, waterbody name, date collected, method of collection). The identified organisms shall be archived (i.e., retained) by the discharger for a period of not less than three years from the date that all QA steps are completed, and shall be checked at least once per year and "topped off" with ethanol to prevent desiccation. The identified organisms shall be relinquished to the State Water Board upon request by any State Water Board staff.

Data Submittal

The macroinvertebrate results (i.e., taxonomic identifications consistent with the specified SAFIT STEs, and number of organisms within each taxa) shall be submitted to the State Water Board in electronic format. The State Water Board's Surface Water Ambient Monitoring Program (SWAMP) is currently developing standardized formats for reporting bioassessment data. All bioassessment data collected after those formats become available shall be submitted using the SWAMP formats. Until those formats are available, the biological data shall be submitted in MS-Excel (or equivalent) format.³

The physical/habitat data shall be reported using the standard format titled *SWAMP Stream Habitat Characterization Form — Full Version*.⁴

³ Any version of Excel, 2000 or later, may be used.

⁴ Available at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/fieldforms_fullversion052908.pdf

Invasive Species Prevention

In conducting the required bioassessment monitoring, the discharger and its consultants shall take precautions to prevent the introduction or spread of aquatic invasive species. At minimum, the discharger and its consultants shall follow the recommendations of the California Department of Fish and Game to minimize the introduction or spread of the New Zealand mudsnail.⁵

FOR BIDDING
PURPOSES ONLY

⁵ Instructions for controlling the spread of NZ mudsnails, including decontamination methods, can be found at: <http://www.dfg.ca.gov/invasives/mudsnail/>
More information on AIS More information on AIS
http://www.waterboards.ca.gov/water_issues/programs/swamp/ais/

Appendix 4 Non Sediment TMDLs

Region 1 Lost River-DIN and CBOD

Region 1 Source: Cal Trans Construction TMDL Completion Date: 12 30 2008 TMDL Type: River, Lake Watershed Area= 2996 mi ²	Pollutant Stressors/WLA	
	Dissolved inorganic nitrogen (DIN) (metric tons/yr)	Carbonaceous biochemical oxygen demand (CBOD) (metric tons/yr)
Lost River from the Oregon border to Tule Lake	.1	.2
Tule Lake Refuge	.1	.2
Lower Klamath Refuge	.1	.2

Region 2 San Francisco Bay-Mercury

Region 2 Source: Non-Urban Stormwater Runoff TMDL Type: Bay	Name	Pollutant Stressor/WLA	TMDL Completion Date
	San Francisco Bay	Mercury 25 kg/year	08 09 2006

Region 4 Ballona Creek-Metals and Selenium

Region 4 Source: NPDES General Construction TMDL Completion Date: 12 22 2005 TMDL Type: Creek	Pollutant Stressors/WLA							
	Copper (Cu)		Lead (Pb)		Selenium (Se)		Zinc (Zn)	
	g/day	g/day/acre	g/day	g/day/acre	g/day	g/day/acre	g/day	g/day/acre
Ballona Creek	4.94E-07 x Daily storm volume (L)	2.20E-10 x Daily storm volume (L)	1.62E-06 x Daily storm volume (L)	7.20E-10 x Daily storm volume (L)	1.37E-07 x Daily storm volume (L)	6.10E-11 x Daily storm volume (L)	3.27E-06 x Daily storm volume (L)	1.45E-09 x Daily storm volume (L)

General Construction Storm Water Permits:

Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed-specific general permit developed by the Regional Board.

- Dry-weather Implementation Non-storm water flows authorized by the General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order No. 99-08 DWQ), or any successor order, are exempt from the dry-weather waste load allocation equal to zero as long as they comply with the provisions of sections C.3 and A.9 of the Order No. 99-08 DWQ, which state that these authorized non-storm discharges shall be:
 - (1) infeasible to eliminate
 - (2) comply with BMPs as described in the Storm Water Pollution Prevention Plan prepared by the permittee, and
 - (3) not cause or contribute to a violation of water quality standards, or comparable provisions in any successor order.
 Unauthorized non-storm water flows are already prohibited by Order No. 99-08 DWQ.
- Wet-weather Implementation Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the final waste load allocations assigned to construction storm water permittees.
- Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL.
- General construction storm water permittees will be considered in compliance with final waste load allocations if they implement these Regional Board approved BMPs. All permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with final waste load allocations.

Region 4 Calleaguas Creek-OC Pesticides, PCBs, and Siltation**Interim Requirements**

Region 4 Calleaguas Creek	Pollutant Stressor	WLA Daily Max (µg/L)	WLA Monthly Ave (µg/L)
Source: Minor NPDES point sources/WDRs	Chlordane	1.2	0.59
TMDL Completion Date: 3 14 2006	4,4-DDD	1.7	0.84
TMDL Type:Creek	4,4-DDE	1.2	0.59
	4,4-DDT	1.2	0.59
	Dieldrin	0.28	0.14
	PCB's	0.34	0.17
	Toxaphene	0.33	0.16

Final WLA (ng/g)							
Region 4 Calleguas Creek Source: Stormwater Permittees TMDL Completion Date: 3 14 2006 TMDL Type:Creek	Chlordane	4,4-DDD	4,4-DDE	4,4-DDT	Dieldrin	PCB's	Toxaphene
Mugu Lagoon*	3.3	2.0	2.2	0.3	4.3	180.0	360.0
Callegaus Creek	3.3	2.0	1.4	0.3	0.2	120.0	0.6
Revolon Slough (SW)*	0.9	2.0	1.4	0.3	0.1	130.0	1.0
Arroyo Las posas(SW)*	3.3	2.0	1.4	0.3	0.2	120.0	0.6
Arroyo Simi	3.3	2.0	1.4	0.3	0.2	120.0	0.6
Conejo Creek	3.3	2.0	1.4	0.3	0.2	120.0	0.6
Interim Requirements (ng/g)							
Mugu Lagoon*	25.0	69.0	300.0	39.0	19.0	180.	22900.0
Callegaus Creek	17.0	66.0	470.0	110.0	3.0	3800.0	260.0
Revolon Slough (SW)*	48.0	400.0	1600.0	690.0	5.7	7600.0	790.0
Arroyo Las posas(SW)*	3.3	290.0	950.0	670.0	1.1	25700.0	230.0
Arroyo Simi	3.3	14.0	170.0	25.0	1.1	25700.0	230.0
Conejo Creek	3.4	5.3	20.0	2.0	3.0	3800.0	260.0

*(SW)=Subwatershed

*Mugu Lagoon includes Duck pond/Agricultural Drain/Mugu/Oxnard Drain #2

Compliance with sediment based WLAs is measured as an instream annual average at the base of each subwatershed where the discharges are located.

Region 4 Calleguas Creek-Salts

Final Dry Weather Pollutant WLA (mg/L)					
Region 4 Calleguas Creek Source Permitted Stormwater Dischargers TMDL Completion Date: 12 2 2008 TMDL Type:Creek	Critical Condition Flow Rate (mgd)	Chloride (lb/day)	TDS (lb/day)	Sulfate (lb/day)	Boron (lb/day)
Simi	1.39	1738.0	9849.0	2897.0	12.0
Las Posas	0.13	157.0	887.0	261.0	N/A
Conejo	1.26	1576.0	8931.0	2627.0	N/A

Camarillo	0.06	72.0	406.0	119.0	N/A
Pleasant Valley (Calleguas)	0.12	150.0	850.0	250.0	N/A
Pleasant Valley (Revolon)	0.25	314.0	1778.0	523.0	2.0
Dry Weather Interim Pollutant WLA (mg/L)					
	Chloride (mg/L)	TDS (mg/L)	Sulfate (mg/L)	Boron (mg/L)	
Simi	230.0	1720.0	1289.0	1.3	
Las Posas	230.0	1720.0	1289.0	1.3	
Conejo	230.0	1720.0	1289.0	1.3	
Camarillo	230.0	1720.0	1289.0	1.3	
Pleasant Valley (Calleguas)	230.0	1720.0	1289.0	1.3	
Pleasant Valley (Revolon)	230.0	1720.0	1289.0	1.3	

- General Construction permittees are assigned a dry weather wasteload allocation equal to the average dry weather critical condition flow rate multiplied by the numeric target for each constituent. Waste load allocations apply in the receiving water at the base of each subwatershed. Dry weather allocations apply when instream flow rates are below the 86th percentile flow and there has been no measurable precipitation in the previous 24 hours.
- Because wet weather flows transport a large mass of salts at low concentrations, these dischargers meet water quality objectives during wet weather.
- Interim limits are assigned for dry weather discharges from areas covered by NPDES stormwater permits to allow time to implement appropriate actions. The interim limits are assigned as concentration based receiving water limits set to the 95th percentile of the discharger data as a monthly average limit except for chloride. The 95th percentile for chloride was 267 mg/L which is higher than the recommended criteria set forth in the Basin Plan for protection of sensitive beneficial uses including aquatic life. Therefore, the interim limit for chloride for Permitted Stormwater Dischargers is set equal to 230 mg/L to ensure protection of sensitive beneficial uses in the Calleguas Creek watershed.

Region 4 San Gabriel River and Tributaries-Metals and Selenium

Region 4 San Gabriel River and Tributaries Source: Construction Stormwater Dischargers TMDL Completion Date: 3 2007 TMDL Type: Creek	Pollutant Stressor	Wet weather Allocations	Dry Weather Allocations	% of Watershed
--	---------------------------	--------------------------------	--------------------------------	-----------------------

San Gabriel Reach 2	Lead (Pb)	0.7% * 166 µg/l * Daily Storm Vol	N/A	0.7%
San Gabriel Reach 2	Lead (Pb) Mass based	0.8 kg/d	N/A	0.7%
Coyote Creek	Copper (Cu)	0.285 kg/d	0	5.0%
Coyote Creek	Lead (Pb)	1.70 kg/d	N/A	5.0%
Coyote Creek	Zinc (Zn)	2.4 kg/d	N/A	5.0%
San Jose Creek Reach 1 and 2	Selenium	5 µg/L	5 µg/L	5.0%

Wet-weather allocations for lead in San Gabriel River Reach 2. Concentration-based allocations apply to non-stormwater NPDES discharges. Stormwater allocations are expressed as a percent of load duration curve. Mass-based values presented in table are based on a flow of 260 cfs (daily storm volume = 6.4×10^8 liters).

There are 1555 acres of water in the entire watershed, 37.4 acres of water in the Reach 1 subwatershed (2.4%), and 269 acres in the Coyote Creek subwatershed (17%).

General Construction Storm Water Permits

Waste load allocations for the general construction storm water permits may be incorporated into the State Board general permit upon renewal or into a watershed-specific general permit developed by the Regional Board. An estimate of direct atmospheric deposition is developed based on the percent area of surface water in the watershed. Approximately 0.4% of the watershed area draining to San Gabriel River Reach 2 is comprised of water and approximately 0.2% of the watershed area draining to Coyote Creek is comprised of water.

Region 4 The Harbor Beaches of Ventura County-Bacteria

The TMDL has a multi-part numeric target based on the bacteriological water quality objectives for marine water to protect the water contact recreation use. These targets are the most appropriate indicators of public health risk in recreational waters. Bacteriological objectives are set forth in Chapter 3 of the Basin Plan. The objectives are based on four bacteria indicators and include both geometric mean limits and single sample limits. The Basin Plan objectives that serve as the numeric targets for this TMDL are:

The General NPDES Construction permit is seen as a minor contributor and is given no allocation

General NPDES permits, individual NPDES permits, the Statewide Industrial Storm Water General Permit, the Statewide Construction Activity Storm Water General Permit, and WDR permittees in the Channel Islands Harbor subwatershed are assigned WLAs of zero (0) days of allowable exceedances for all three time periods and for the single sample limits and the rolling 30-day geometric mean. Any future enrollees under a general NPDES permit, individual NPDES permit, the Statewide Industrial Storm Water General Permit, the Statewide Construction Activity Storm Water General Permit, and WDR will also be subject to a WLA of zero (0) days of allowable exceedances.

Region 4 Resolution No. 03-009 Los Angeles River and Tributaries-Nutrients

Minor Point Sources

Waste loads are allocated to minor point sources enrolled under NPDES or WDR permits including but not limited to Tapia WRP, Whittier Narrows WRP, Los Angeles Zoo WRP, industrial and construction stormwater, and municipal storm water and urban runoff from municipal separate storm sewer systems (MS4s)

Region 4 Minor Point Sources for NPDES/WDR Permits TMDL Completion Date: 7 10 2003 TMDL Type: River	Pollutant Stressor/WLA				
	Total Ammonia (NH₃)		Nitrate-nitrogen (NO₃-N)	Nitrite-nitrogen (NO₂-N)	NO₃-N + NO₃-N
	1 Hr Ave mg/l	30 Day Ave mg/l	30 Day Ave mg/l		30 Day Ave mg/l
LA River Above Los Angeles-Glendale WRP (LAG)	4.7	1.6	8.0	1.0	8.0
LA River Below LAG	8.7	2.4	8.0	1.0	8.0
Los Angeles Tributaries	10.1	2.3	8.0	1.0	8.0

Malibu Creek Attachment A to Resolution No. 2004-019R-Bacteria

12 13 2004 The WLAs for permittees under the NPDES General Stormwater Construction Permit are zero (0) days of allowable exceedances for all three time periods and for the single sample limits and the rolling 30-day geometric mean.

Region 4 Marina del Rey Harbor, Mothers' Beach and Back Basins

Attachment A to Resolution No. 2003-012-Bacteria

8 7 2003 As discussed in “Source Analysis”, discharges from general NPDES permits, general industrial storm water permits and general construction storm water permits are not expected to be a significant source of bacteria. Therefore, the WLAs for these discharges are zero (0) days of allowable exceedances for all three time periods and for the single sample limits and the rolling 30-day geometric mean. Any future enrollees under a general NPDES permit, general industrial storm water permit or general construction storm water permit within the MdR Watershed will also be subject to a WLA of zero days of allowable exceedances.

Region 4 San Gabriel River and Tributaries-Metals and Selenium

Dry Weather Selenium WLA

A zero WLA is assigned to the industrial and construction stormwater permits during dry weather. Non-storm water discharges are already prohibited or restricted by existing general permits.

Region 4 General Construction Permittees TMDL Completion Date: 7 13 2006 TMDL Type: River	Total Recoverable Metals (kg/day)		
	Copper (Cu) Kg/day	Lead (Pb) Kg/day	Zinc (Zn) Kg/day
San Gabriel River Reach 2 and upstream reaches/tributaries	XXXX	Daily storm volume x 1.24 µg/L	XXXX
Coyote Creek and Tributaries	Daily storm volume x 0.7 µg/L	Daily storm volume x 4.3 µg/L	Daily storm volume x 6.2 µg/L

Each enrollee under the general construction stormwater permit receives a WLA on a per acre basis

Region 4 General Construction Permittees TMDL Completion Date: 7 13 2006 TMDL Type: River	Total Recoverable Metals (kg/day/acre)		
	Copper (Cu) Kg/acre/day	Lead (Pb) Kg/acre/day	Zinc (Zn) Kg/acre/day
San Gabriel River Reach 2 and upstream reaches/tributaries	XXXX	Daily storm volume x 0.56 µg/L	XXXX

Coyote Creek and Tributaries	Daily storm volume x 0.12 µg/L	Daily storm volume x 0.70 µg/L	Daily storm volume x 1.01 µg/L
------------------------------	-----------------------------------	-----------------------------------	-----------------------------------

For the general industrial and construction storm water permits, the daily storm volume is measured at USGS station 11085000 for discharges to Reach 2 and above and at LACDPW flow gauge station F354-R for discharges to Coyote Creek.

General construction storm water permits

WLAs will be incorporated into the State Board general permit upon renewal or into a watershed-specific general permit developed by the Regional Board.

Dry-weather implementation

Non-storm water flows authorized by the General Permit for Storm Water Discharges Associated with Construction Activity (NPDES Permit No. CAS000002), or any successor permit, are exempt from the dry-weather WLA equal to zero as long as they comply with the provisions of sections C.3. and A.9 of the Order No. 99-08 DWQ, which state that these authorized non-storm discharges shall be (1) infeasible to eliminate (2) comply with BMPs as described in the Storm Water Pollution Prevention Plan prepared by the permittee, and (3) not cause or contribute to a violation of water quality standards, or comparable provisions in any successor order. Unauthorized non-storm water flows are already prohibited by Permit No. CAS000002.

Upon permit issuance, renewal, or re-opener

Non-storm water flows not authorized by Order No. 99-08 DWQ, or any successor order, shall achieve dry-weather WLAs. WLAs shall be expressed as NPDES water quality-based effluent limitations specified in accordance with federal regulations and state policy on water quality control. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs.

Six years from the effective date of the TMDL

The construction industry will submit the results of wet-weather BMP effectiveness studies to the Los Angeles Regional Board for consideration. In the event that no effectiveness studies are conducted and no BMPs are approved, permittees shall be subject to site-specific BMPs and monitoring to demonstrate BMP effectiveness.

Seven years from the effective date of the TMDL

The Los Angeles Regional Board will consider results of the wet weather BMP effectiveness studies and consider approval of BMPs.

Eight years from the effective date of the TMDL

All general construction storm water permittees shall implement Regional Board-approved BMPs.

Region 8 RESOLUTION NO. R8-2007- 0024

Total Maximum Daily Loads (TMDLs) for San Diego Creek, Upper and Lower Newport Bay, Orange County, California

Region 8 NPDES Construction Permit TMDL Completion Date: 1 24 1995 TMDL Type: River, Cr, Bay	Organochlorine Compounds							
	Total DDT		Chlordane		Total PCBs		Toxaphene	
	g/day	g/yr	g/day	g/yr	g/day	g/yr	g/day	g/yr
San Diego Creek	.27	99.8	.18*	64.3*	.09*	31.5*	.004	1.5
Upper Newport Bay	.11	40.3	.06	23.4	.06	23.2	X	X
Lower Newport Bay	.04	14.9	.02	8.6	.17	60.7	X	X

*Red= Informational WLA only, not for enforcement purposes

Organochlorine Compounds TMDLs Implementation Tasks and Schedule

Regional Board staff shall develop a SWPPP Improvement Program that identifies the Regional Board’s expectations with respect to the content of SWPPPs, including documentation regarding the selection and implementation of BMPs, and a sampling and analysis plan. The Improvement Program shall include specific guidance regarding the development and implementation of monitoring plans, including the constituents to be monitored, sampling frequency and analytical protocols. The SWPPP Improvement Program shall be completed by *(the date of OAL approval of this BPA)*. **No later than two months** from completion of the Improvement Program, Board staff shall assure that the requirements of the Program are communicated to interested parties, including dischargers with existing authorizations under the General Construction Permit. Existing, authorized dischargers shall revise their project SWPPPs as needed to address the Program requirements as soon as possible but **no later than (three months of completion of the SWPPP Improvement Program)**. Applicable SWPPPs that do not adequately address the Program requirements shall be considered inadequate and enforcement by the Regional Board shall proceed accordingly. The Caltrans and Orange County MS4 permits shall be revised as needed to assure that the permittees communicate the Regional Board’s SWPPP expectations, based on the SWPPP Improvement Program, with the Standard Conditions of Approval.

Appendix 4 Sediment TMDLs

Implemented Sediment TMDLs in California. Construction was listed as a source in all fo these TMDLs in relation to road construction. Although construction was mentioned as a source, it was not given a specific allocation amount. The closest allocation amount would be for the road activity management WLA. **Implementation Phase** – Adoption process by the Regional Board, the State Water Resources Control Board, the Office of Administrative Law, and the US Environmental Protection Agency completed and TMDL being implemented.

A. Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi² yr
1 R1.epa.albionfinalt mdl	R	Albion River	Sedimentation	Road Construction	2001	43 acres	See A (table 6)

B Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi² yr
1 R1.epa.EelR- middle.mainSed.te mp	R	Middle Main Eel River and Tributaries (from Dos Rios to the South Fork)	Sedimentation	Road Construction	2005-2006	521 mi ²	100

C Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi² yr
1 R1.epa.EelRsouth. sed.temp	R	South Fork Eel River	Sedimentation	Road Construction	12 1999	See chart	473

D Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi² yr
1 R1.epa.bigfinaltmd l	R	Big River	Sedimentation	Road Construction	12 2001	181 mi ² watershed drainage	TMDL = loading capacity = nonpoint sources + background =

							393 t mi ² yr
--	--	--	--	--	--	--	--------------------------

E Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi ² yr
1 R1.epa.EelR-lower.Sed.temp-121807-signed	R	Lower Eel River	Sedimentation	Road Construction	12 2007	300 square-mile watershed	898

F Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi ² yr
1 R1.epa.EelR-middle.Sed.temp-	R	Middle Fork Eel River	Sedimentation	Road Construction	12 2003	753 mi ² (approx. 482,000 acres)	82

G Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres Mi ²	WLA tons mi ² yr
1 R1.epa.EelRnorth-Sed.temp.final-121807-signed	R	North Fork Eel River	Sedimentation	Road Construction	12 30 2002	289 (180,020 acres)	20

H Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres Mi ²	WLA tons mi ² yr
1 R1.epa.EelR-upper.mainSed.temp-	R	Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury)	Sedimentation	Road Construction	12 29 2004	688 (approx. 440,384 acres)	14

I Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi ² yr
1 R1.epa.gualalafina ltmdl	R	Gualala River	Sedimentation	Road Construction	Not sure	300 (191,145 acres)	7

J Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.Mad- sed.turbidity	R	Mad River	Sedimentation	Road Construction	12 21 2007	480	174

K Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.mattole.se diment	R	Mattole River	Sedimentation	Road Construction	12 30 2003	296	27 or 520+27 = 547

L Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.navarro.se d.temp	R	Navarro River	Sedimentation	Road Construction	Not sure	315 (201,600 acres).	50

M Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.noyo.sedi ment	R	Noyo River	Sedimentation	Road Construction	12 16 1999	113 (72,323 acres)	68 (three areas measured) Table 16 in the TMDL

N Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi²	WLA tons mi² yr
1 R1.epa.RedwoodCk.sed	Cr	Redwood Creek	Sedimentation	Road Construction	12 30 1998	278	1900 Total allocation

O Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi²	WLA – Roads tons mi² yr
1 R1.epa.tenmile.sed	R	Ten Mile River	Sedimentation	Road Construction	2000	120	9

P Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi²	WLA management tons mi² yr
1 R1.epa.trinity.sed	R	Trinity River	Sedimentation	Road Construction	12 20 2001	2000 of 3000 covered in this TMDL	See rows below
1	Cr	Horse Linto Creek	Sedimentation	Road Construction	12 20 2001	64	528
1	Cr	Mill creek and Tish Tang	Sedimentation	Road Construction	12 20 2001	39	210
1	Cr	Willow Creek	Sedimentation	Road Construction	12 20 2001	43	94
1	Cr	Campbell Creek and Supply Creek	Sedimentation	Road Construction	12 20 2001	11	1961
1	Cr	Lower Mainstem and Coon Creek	Sedimentation	Road Construction	12 20 2001	32	63
1	R	Reference	Sedimentation	Road	12 20 2001	434	24

		Subwatershed ¹		Construction			
1	Cr	Canyon Creek	Sedimentation	Road Construction	12 20 2001	64	326
1	R	Upper Tributaries ²	Sedimentation	Road Construction	12 20 2001	72	67
1	R	Middle Tributaries ³	Sedimentation	Road Construction	12 20 2001	54	53
1	R	Lower Tributaries ⁴	Sedimentation	Road Construction	12 20 2001	96	55
1	Cr	Weaver and Rush Creeks	Sedimentation	Road Construction	12 20 2001	72	169
1	Cr	Deadwood Creek Hoadley Gulch Poker Bar	Sedimentation	Road Construction	12 20 2001	47	68
1	L	Lewiston Lake	Sedimentation	Road Construction	12 20 2001	25	49
1	Cr	Grassvalley Creek	Sedimentation	Road Construction	12 20 2001	37	44
1	Cr	Indian Creek	Sedimentation	Road Construction	12 20 2001	34	81
1	Cr	Reading and Browns Creek	Sedimentation	Road Construction	12 20 2001	104	66
1	Cr	Reference Subwatersheds ⁵	Sedimentation	Road Construction	12 20 2001	235	281
1	L, Cr	Westside tributaries ⁶	Sedimentation	Road Construction	12 20 2001	93	105
1	R, Cr, G	Upper trinity ⁷	Sedimentation	Road Construction	12 20 2001	161	690
1	R, Cr, G	East Fork Tributaries ⁸	Sedimentation	Road Construction	12 20 2001	115	65

1
2
3
4
5
6
7
8

1	R, L	Eastside Tributaries ⁹	Sedimentation	Road Construction	12 20 2001	89	60
---	------	-----------------------------------	---------------	-------------------	------------	----	----

- 1 New River, Big French, Manzanita, North Fork, East Fork, North Fork
- 2 Dutch, Soldier, Oregon gulch, Conner Creek
- 3 Big Bar, Prairie Creek, Little French Creek
- 4 Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quimby, Hawkins, Sharber
- 5 Stuarts Fork, Swift Creek, Coffee Creek
- 6 Stuart Arm, Stoney Creek, Mule Creek, East Fork, Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek,
- 7 Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstream, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowslide Gulch, Scorpion Creek
- 8 East Fork Trinity, Cedar Creek, Squirrel Gulch
- 9 East Side Tributaries, Trinity Lake

Q Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.trinity.so.sed	R, Cr	South Fork Trinity River and Hayfork Creek	Sedimentation	Road Construction	12 1998	Not given, 19 miles long	33 (road total)

R Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
1 R1.epa.vanduzen.sed	R, Cr	Van Duzen River and Yager Creek	Sedimentation	Various	12 16 1999	429	1353 total allocation
1		Upper Basin	Sedimentation	Road Construction			7
1		Middle Basin	Sedimentation	Road Construction			22
1		Lower Basin	Sedimentation	Road Construction			20

S Region	Type	Name	Pollutant Stressor	Potential	TMDL	Watershed	WLA tons mi ²
----------	------	------	--------------------	-----------	------	-----------	--------------------------

⁹

				Sources	Completion Date	Acres mi ²	yr
6	R6.blackwood.sed	Cr	Blackwood Creek (Placer County)	Bedded Sediment	Various	9 2007	11 17272 total

T Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi ²	WLA tons mi ² yr
6	R6.SquawCk.sed	R	Squaw Creek (Placer County)	Sedimentation /controllable sources	Various – basin plan amendment	4 13 2006	8.2 10,900

Adopted TMDLs for Construction Sediment Sources

Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Area mi ²	Waste load Allocation tons mi ² yr
8	R	Newport Bay San Diego Creek Watershed	Sedimentation	Construction Land Development	1999	2.24 (1432 acres)	125,000 tons per Year (no more than 13,000 tons per year from construction sites)

APPENDIX 5: Glossary

Active Areas of Construction

All areas subject to land surface disturbance activities related to the project including, but not limited to, project staging areas, immediate access areas and storage areas. All previously active areas are still considered active areas until final stabilization is complete. [The construction activity Phases used in this General Permit are the Preliminary Phase, Grading and Land Development Phase, Streets and Utilities Phase, and the Vertical Construction Phase.]

Active Treatment System (ATS)

A treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation to aid in the reduction of turbidity caused by fine suspended sediment.

Acute Toxicity Test

A chemical stimulus severe enough to rapidly induce a negative effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute.

Air Deposition

Airborne particulates from construction activities.

Approved Signatory

A person who has been authorized by the Legally Responsible Person to sign, certify, and electronically submit Permit Registration Documents, Notices of Termination, and any other documents, reports, or information required by the General Permit, the State or Regional Water Board, or U.S. EPA. The Approved Signatory must be one of the following:

1. For a corporation or limited liability company: a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation or limited liability company; or (b) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: a principal executive officer, ranking elected official, city manager, council president, or any other authorized public employee with managerial responsibility over the

construction or land disturbance project (including, but not limited to, project manager, project superintendent, or resident engineer);

4. For the military: any military officer or Department of Defense civilian, acting in an equivalent capacity to a military officer, who has been designated;
5. For a public university: an authorized university official;
6. For an individual: the individual, because the individual acts as both the Legally Responsible Person and the Approved Signatory; or
7. For any type of entity not listed above (e.g. trusts, estates, receivers): an authorized person with managerial authority over the construction or land disturbance project.

Beneficial Uses

As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)

As defined by USEPA, BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)

As defined by USEPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)

The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Best Management Practices (BMPs)

BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures,

and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody (COC)

Form used to track sample handling as samples progress from sample collection to the analytical laboratory. The COC is then used to track the resulting analytical data from the laboratory to the client. COC forms can be obtained from an analytical laboratory upon request.

Coagulation

The clumping of particles in a discharge to settle out impurities, often induced by chemicals such as lime, alum, and iron salts.

Common Plan of Development

Generally a contiguous area where multiple, distinct construction activities may be taking place at different times under one plan. A plan is generally defined as any piece of documentation or physical demarcation that indicates that construction activities may occur on a common plot. Such documentation could consist of a tract map, parcel map, demolition plans, grading plans or contract documents. Any of these documents could delineate the boundaries of a common plan area. However, broad planning documents, such as land use master plans, conceptual master plans, or broad-based CEQA or NEPA documents that identify potential projects for an agency or facility are not considered common plans of development.

Daily Average Discharge

The discharge of a pollutant measured during any 24-hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant throughout the day (40 CFR 122.2). In the case of pH, the pH must first be converted from a log scale.

Debris

Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Direct Discharge

A discharge that is routed directly to waters of the United States by means of a pipe, channel, or ditch (including a municipal storm sewer system), or through surface runoff.

Discharger

The Legally Responsible Person (see definition) or entity subject to this General Permit.

Dose Rate (for ATS)

In exposure assessment, dose (e.g. of a chemical) per time unit (e.g. mg/day), sometimes also called dosage.

Drainage Area

The area of land that drains water, sediment, pollutants, and dissolved materials to a common outlet.

Effluent

Any discharge of water by a discharger either to the receiving water or beyond the property boundary controlled by the discharger.

Effluent Limitation

Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Erosion

The process, by which soil particles are detached and transported by the actions of wind, water, or gravity.

Erosion Control BMPs

Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Field Measurements

Testing procedures performed in the field with portable field-testing kits or meters.

Final Stabilization

All soil disturbing activities at each individual parcel within the site have been completed in a manner consistent with the requirements in this General Permit.

First Order Stream

Stream with no tributaries.

Flocculants

Substances that interact with suspended particles and bind them together to form flocs.

Good Housekeeping BMPs

BMPs designed to reduce or eliminate the addition of pollutants to construction site runoff through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Grading Phase (part of the Grading and Land Development Phase)

Includes reconfiguring the topography and slope including; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; land form grading; and stockpiling of select material for capping operations.

Hydromodification

Hydromodification is the alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources. Hydromodification can cause excessive erosion and/or sedimentation rates, causing excessive turbidity, channel aggradation and/or degradation.

Identified Organisms

Organisms within a sub-sample that is specifically identified and counted.

Inactive Areas of Construction

Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Index Period

The period of time during which bioassessment samples must be collected to produce results suitable for assessing the biological integrity of streams and rivers. Instream communities naturally vary over the course of a year, and sampling during the index period ensures that samples are collected during a time frame when communities are stable so that year-to-year consistency is obtained. The index period approach provides a cost-effective alternative to year-round sampling. Furthermore, sampling within the appropriate index period will yield results that are comparable to the assessment thresholds or criteria for a given region, which are established for the same index period. Because index periods differ for different parts of the state, it is essential to know the index period for your area.

K Factor

The soil erodibility factor used in the Revised Universal Soil Loss Equation (RUSLE). It represents the combination of detachability of the soil, runoff potential of the soil, and the transportability of the sediment eroded from the soil.

Legally Responsible Person

The Legally Responsible Person (LRP) will typically be the project proponent. The categories of persons or entities that are eligible to serve as the LRP are set forth below. For any construction or land disturbance project where multiple persons or entities are eligible to serve as the LRP, those persons or entities

shall select a single LRP. In exceptional circumstances, a person or entity that qualifies as the LRP may provide written authorization to another person or entity to serve as the LRP. In such a circumstance, the person or entity that provides the authorization retains all responsibility for compliance with the General Permit. Except as provided in category 2(d), a contractor who does not satisfy the requirements of any of the categories below is not qualified to be an LRP.

The following persons or entities may serve as an LRP:

1. A person, company, agency, or other entity that possesses a real property interest (including, but not limited to, fee simple ownership, easement, leasehold, or other rights of way) in the land upon which the construction or land disturbance activities will occur for the regulated site.
2. In addition to the above, the following persons or entities may also serve as an LRP:
 - a. For linear underground/overhead projects, the utility company, municipality, or other public or private company or agency that owns or operates the LUP;
 - b. For land controlled by an estate or similar entity, the person who has day-to-day control over the land (including, but not limited to, a bankruptcy trustee, receiver, or conservator);
 - c. For pollution investigation and remediation projects, any potentially responsible party that has received permission to conduct the project from the holder of a real property interest in the land; or
 - d. For U.S. Army Corp of Engineers projects, the U.S. Army Corps of Engineers may provide written authorization to its bonded contractor to serve as the LRP, provided, however, that the U.S. Army Corps of Engineers is also responsible for compliance with the general permit, as authorized by the Clean Water Act or the Federal Facilities Compliance Act.

Likely Precipitation Event

Any weather pattern that is forecasted to have a 50% or greater chance of producing precipitation in the project area. The discharger shall obtain likely precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at <http://www.srh.noaa.gov/forecast>).

Maximum Allowable Threshold Concentration (MATC)

The allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity

testing conducted by an independent, third-party laboratory. A typical MATC would be:

The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

Natural Channel Evolution

The physical trend in channel adjustments following a disturbance that causes the river to have more energy and degrade or aggrade more sediment. Channels have been observed to pass through 5 to 9 evolution types. Once they pass through the suite of evolution stages, they will rest in a new state of equilibrium.

Non-Storm Water Discharges

Discharges are discharges that do not originate from precipitation events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Non-Visible Pollutants

Pollutants associated with a specific site or activity that can have a negative impact on water quality, but cannot be seen through observation (ex: chlorine). Such pollutants being discharged are not authorized.

Numeric Action Level (NAL)

Level is used as a warning to evaluate if best management practices are effective and take necessary corrective actions. Not an effluent limit.

Original Sample Material

The material (i.e., macroinvertebrates, organic material, gravel, etc.) remaining after the subsample has been removed for identification.

pH

Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6 and 9, with neutral being 7. Extremes of pH can have deleterious effects on aquatic systems.

Post-Construction BMPs

Structural and non-structural controls which detain, retain, or filter the release of pollutants to receiving waters after final stabilization is attained.

Preliminary Phase (Pre-Construction Phase - Part of the Grading and Land Development Phase)

Construction stage including rough grading and/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading.

Project**Qualified SWPPP Developer**

Individual who is authorized to develop and revise SWPPPs.

Qualified SWPPP Practitioner

Individual assigned responsibility for non-storm water and storm water visual observations, sampling and analysis, and responsibility to ensure full compliance with the permit and implementation of all elements of the SWPPP, including the preparation of the annual compliance evaluation and the elimination of all unauthorized discharges.

Qualifying Rain Event

Any event that produces 0.5 inches or more precipitation with a 48 hour or greater period between rain events.

R Factor

Erosivity factor used in the Revised Universal Soil Loss Equation (RUSLE). The R factor represents the erosivity of the climate at a particular location. An average annual value of R is determined from historical weather records using erosivity values determined for individual storms. The erosivity of an individual storm is computed as the product of the storm's total energy, which is closely related to storm amount, and the storm's maximum 30-minute intensity.

Rain Event Action Plan (REAP)

Written document, specific for each rain event, that when implemented is designed to protect all exposed portions of the site within 48 hours of any likely precipitation event.

Remaining Sub sampled Material

The material (e.g., organic material, gravel, etc.) that remains after the organisms to be identified have been removed from the subsample for identification. (Generally, no macroinvertebrates are present in the remaining subsampled material, but the sample needs to be checked and verified using a complete Quality Assurance (QA) plan)

Routine Maintenance

Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Runoff Control BMPs

Measures used to divert runoff from offsite and runoff within the site.

Run-on

Discharges that originate offsite and flow onto the property of a separate project site.

Revised Universal Soil Loss Equation (RUSLE)

Empirical model that calculates average annual soil loss as a function of rainfall and runoff erosivity, soil erodibility, topography, erosion controls, and sediment controls.

Sampling and Analysis Plan

Document that describes how the samples will be collected, under what conditions, where and when the samples will be collected, what the sample will be tested for, what test methods and detection limits will be used, and what methods/procedures will be maintained to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols).

Sediment

Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation

Process of deposition of suspended matter carried by water, wastewater, or other liquids, by gravity. It is usually accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs

Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. They include those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (e.g., silt fence, sediment basin, fiber rolls, etc.).

Settleable Solids (SS)

Solid material that can be settled within a water column during a specified time frame. It is typically tested by placing a water sample into an Imhoff settling cone and then allowing the solids to settle by gravity for a given length of time. Results are reported either as a volume (mL/L) or a mass (mg/L) concentration.

Sheet Flow

Flow of water that occurs overland in areas where there are no defined channels where the water spreads out over a large area at a uniform depth.

Site**Soil Amendment**

Any material that is added to the soil to change its chemical properties, engineering properties, or erosion resistance that could become mobilized by storm water.

Streets and Utilities Phase

Construction stage including excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvements.

Structural Controls

Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution

Suspended Sediment Concentration (SSC)

The measure of the concentration of suspended solid material in a water sample by measuring the dry weight of all of the solid material from a known volume of a collected water sample. Results are reported in mg/L.

Total Suspended Solids (TSS)

The measure of the suspended solids in a water sample includes inorganic substances, such as soil particles and organic substances, such as algae, aquatic plant/animal waste, particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

Toxicity

The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Turbidity

The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Vertical Construction Phase

The Build out of structures from foundations to roofing, including rough landscaping.

Waters of the United States

Generally refers to surface waters, as defined by the federal Environmental Protection Agency in 40 C.F.R. § 122.2.¹

Water Quality Objectives (WQO)

Water quality objectives are defined in the California Water Code as limits or levels of water quality constituents or characteristics, which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

FOR BIDDING
PURPOSES ONLY

¹ The application of the definition of “waters of the United States” may be difficult to determine; there are currently several judicial decisions that create some confusion. If a landowner is unsure whether the discharge must be covered by this General Permit, the landowner may wish to seek legal advice.

APPENDIX 6: Acronym List

ASBS	Areas of Special Biological Significance
ASTM	American Society of Testing and Materials; Standard Test Method for Particle-Size Analysis of Soils
ATS	Active Treatment System
BASMAA	Bay Area Storm water Management Agencies Association
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgment
CAFO	Confined Animal Feeding Operation
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	NPDES General Permit for Storm Water Discharges Associated with Construction Activities
CIWQS	California Integrated Water Quality System
CKD	Cement Kiln Dust
COC	Chain of Custody
CPESC	Certified Professional in Erosion and Sediment Control
CPSWQ	Certified Professional in Storm Water Quality
CSMP	Construction Site Monitoring Program
CTB	Cement Treated Base
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
CWP	Center for Watershed Protection
DADMAC	Diallyldimethyl-ammonium chloride
DDNR	Delaware Department of Natural Resources
DFG	Department of Fish and Game
DHS	Department of Health Services
DWQ	Division of Water Quality
EC	Electrical Conductivity
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
ESC	Erosion and Sediment Control
HSPF	Hydrologic Simulation Program Fortran
JTU	Jackson Turbidity Units
LID	Low Impact Development
LOEC	Lowest Observed Effect Concentration
LRP	Legally Responsible Person
LUP	Linear Underground/Overhead Projects

MATC	Maximum Allowable Threshold Concentration
MDL	Method Detection Limits
MRR	Monitoring and Reporting Requirements
MS4	Municipal Separate Storm Sewer System
MUSLE	Modified Universal Soil Loss Equation
NAL	Numeric Action Level
NEL	Numeric Effluent Limitation
NICET	National Institute for Certification in Engineering Technologies
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observed Effect Concentration
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTR	National Toxics Rule
NTU	Nephelometric Turbidity Units
O&M	Operation and Maintenance
PAC	Polyaluminum chloride
PAM	Polyacrylamide
PASS	Polyaluminum chloride Silica/sulfate
POC	Pollutants of Concern
PoP	Probability of Precipitation
POTW	Publicly Owned Treatment Works
PRDs	Permit Registration Documents
PWS	Planning Watershed
QAMP	Quality Assurance Management Plan
QA/QC	Quality Assurance/Quality Control
REAP	Rain Event Action Plan
Regional Board	Regional Water Quality Control Board
ROWD	Report of Waste Discharge
RUSLE	Revised Universal Soil Loss Equation
RW	Receiving Water
SMARTS System	Storm water Multi Application Reporting and Tracking System
SS	Settleable Solids
SSC	Suspended Sediment Concentration
SUSMP	Standard Urban Storm Water Mitigation Plan
SW	Storm Water
SWARM	Storm Water Annual Report Module
SWAMP	Surface Water Ambient Monitoring Program
SWMM	Storm Water Management Model
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TC	Treatment Control
TDS	Total Dissolved Solids

TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USACOE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirements
WLA	Waste Load Allocation
WET	Whole Effluent Toxicity
WRCC	Western Regional Climate Center
WQBEL	Water Quality Based Effluent Limitation
WQO	Water Quality Objective
WQS	Water Quality Standard

FOR BIDDING
PURPOSES ONLY

APPENDIX 7: State and Regional Water Resources Control Board Contacts

NORTH COAST REGION (1)
5550 Skylane Blvd, Ste. A
Santa Rose, CA 95403
(707) 576-2220 FAX: (707)523-0135

SAN FRANCISCO BAY REGION (2)
1515 Clay Street, Ste. 1400
Oakland, CA 94612
(510) 622-2300 FAX: (510) 622-2640

CENTRAL COAST REGION (3)
895 Aerovista Place, Ste 101
San Luis Obispo, CA 93401
(805) 549-3147 FAX: (805) 543-0397

LOS ANGELES REGION (4)
320 W. 4th Street, Ste. 200
Los Angeles, CA 90013
(213) 576-6600 FAX: (213) 576-6640

LAHONTAN REGION (6 SLT)
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
(530) 542-5400 FAX: (530) 544-2271

VICTORVILLE OFFICE (6V)
14440 Civic Drive, Ste. 200
Victorville, CA 92392-2383
(760) 241-6583 FAX: (760) 241-7308

CENTRAL VALLEY REGION (5S)
11020 Sun Center Dr., #200
Rancho Cordova, CA 95670-6114
(916) 464-3291 FAX: (916) 464-4645

FRESNO BRANCH OFFICE (5F)
1685 E St.
Fresno, CA 93706
(559) 445-5116 FAX: (559) 445-5910

REDDING BRANCH OFFICE (5R)
364 Knollcrest Drive, Ste. 205
Redding, CA 96002
(530) 224-4845 FAX: (530) 224-4857

COLORADO RIVER BASIN REGION (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491 FAX: (760) 341-6820

SANTA ANA REGION (8)
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
Phone (951) 782-4130 FAX: (951) 781-6288

SAN DIEGO REGION (9)
9174 Sky Park Court, Ste. 100
San Diego, CA 92123-4340
(858) 467-2952 FAX: (858) 571-6972

STATE WATER BOARD
PO Box 1977
Sacramento, CA 95812-1977
stormwater@waterboards.ca.gov

