TOWN OF FAIRFAX

142 BOLINAS ROAD, FAIRFAX, CALIFORNIA 94930
PHONE (415) 453-1584 / FAX (415) 453-1618

BID FORMS AND SPECIAL PROVISIONS

TOWN OF FAIRFAX

PASTORI STORM DRAIN OUTFALL

SUBMIT PROPOSALS TO

Office of the Town Clerk
142 Bolinas Road
Fairfax, CA 94930

by 2:00 p.m.
July 12, 2012

BIDS WILL BE OPENED AND READ PUBLICLY

at Town Hall 2:00 p.m.
July 12, 2012

Prepared
under the direction of

Town of Fairfax
Town Manager

TOWN OF FAIRFAX
PASTORI STORM DRAIN OUTFALL

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SECTION 00 11 16

NOTICE INVITING BIDS

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

SEALED BIDS will be received at the office of the Town Clerk, located at 142 Bolinas Road, Fairfax, California, 94930, until the hour of 2:00 p.m. on July 12, 2012, at which time they will be publicly opened and read, for performing the following work:

Grading, bank stabilization, stream diversion, excavation, and storm drain replacement.

Plans and specifications are on file in the Fairfax Town Hall, located at 142 Bolinas Road, Fairfax, CA 94930, and may be obtained at a cost of sixty dollars ($60), which cost is not refundable regardless of whether the Plans and Specifications are returned or not.

A certified check or bid bond for not less than ten percent (10%) of the proposal shall be submitted with each bid as a guarantee that the bidder, if awarded the Contract, will fulfill the terms of the bid. The TOWN OF FAIRFAX reserves the right to refuse any or all proposals or bids or portions thereof. Bids shall be marked: "Bid of (Contractor) for Pastori Storm Drain Outfall", along with date and time of bid opening.

Bidders are hereby notified that provisions of the Labor Code of the State of California, regarding the prevailing wages shall be applicable to the work to be performed under this contract. Pursuant to Labor Code Section 1773 the general prevailing wage rates have been determined by the Director of the California Department of Industrial Relations and appear in the California Prevailing Wage Rates, copies of which are on file with the Town Clerk of the TOWN OF FAIRFAX and are available to interested parties on request. Future effective wage rates which have been predetermined and are on file with the California Department of Industrial Relations are referenced but are not printed in such publication.

The work covered by this agreement is a "public work" as that term is defined in California Labor Code, Division 2, Part 7, Chapter 1. Bidders are advised that if they intend to use a craft or classification not shown on the general wage determination, they may be required to pay the wage rate of that craft or classification most clearly related to it as shown in the general determinations.

This project has a goal of 16.69% Disadvantaged Business Enterprise (DBE) participation.

Contractor shall have the responsibility to comply with applicable provisions of Section 1775.5 of the Labor Code for all apprentice occupations. In the event Contractor willfully fails to comply with the applicable provisions of Section 1775.5, Contractor shall forfeit as a civil penalty the sum

of $50.00 for each calendar day of non-compliance, which money may be withheld by Town pursuant to the provisions of Labor Code Section 1775.5.

Contractor may elect to receive 100 percent of payments due under the contract from time to time, without retention of any portion of the payment by the TOWN OF FAIRFAX, by depositing securities of equivalent value to the retention amount in accordance with the provisions of Section 22300 of the Public Contracts Code. Such securities, if deposited by the Contractor, shall be valued by the Public Works Director whose decision of such valuation shall be final.

All Bidders shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California to do the type of work contemplated in the project and shall be skilled and regularly engaged in the general class or type of work called for under the Contract.

The successful bidder shall furnish a payment bond and a performance bond.

Any bidder or contractor not properly licensed with the State of California shall be subject to all legal penalties imposed by law, including, but not limited to, any appropriate disciplinary action by the Contractors' State License Board. Failure of the bidder to obtain proper and adequate licensing for an award of the contract shall constitute a failure to execute the contract and shall result in the forfeiture of the security of the bidder.

Each bidder who has not done work similar in nature for the TOWN OF FAIRFAX shall submit with this bid a statement setting forth his/her/its experience and business standing. Along with the statement, she/he/it shall list three or more projects that he/she/it has constructed, showing their original bid costs and overall costs when constructed, the names, addresses and current telephone number(s) of the owners of the said projects, whether the bidder has been a party to litigation or arbitration involving construction activities, the names and jurisdiction of all such litigation or arbitration and whether the bidder has ever filed for bankruptcy or become insolvent.

The Town reserves the right to reject any or all bids, or to accept only a portion of certain items of the bid or to waive any informalities in the bid.

In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties.

BY SUBMITTING A BID IN RESPONSE TO THIS NOTICE INVITING BIDS, THE BIDDER SHALL BE CONCLUSIVELY DEEMED TO HAVE READ, UNDERSTOOD AND AGREED WITH ALL OF THE INFORMATION AND MATERIALS CONTAINED IN THE BID DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE CONTRACT,

THE GENERAL CONDITIONS, THE SPECIAL CONDITIONS, THE REQUIRED INDEMNIFICATION OBLIGATION, THE REQUIRED NATURE AND AMOUNT OF INSURANCE AND THE ENDORSEMENTS AND CERTIFICATES EVIDENCING SAID INSURANCE. SEE ALSO EXHIBIT "A" ATTACHED HERETO AND INCORPORATED BY THIS REFERENCE.

If a bidder has any problems in understanding or accepting any of the terms and/or conditions specified in the bid documents, said bidder must contact the person whose name appears below at the below specified number within fifteen (15) calendar days of bidder's receipt of the bid documents. Otherwise, it will be presumed that bidder agrees with, understands and has read all the bid documents above specified.

DATED:
July 12, 2012
By Order of the Town Council

TOWN OF FAIRFAX, County of Marin, California

By: /s/ _____
Michael Rock, Town Manager

EXHIBIT "A"

INSURANCE REQUIREMENTS FOR CONTRACTORS

BIDDERS' ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT BIDDERS CONFER WITH THEIR RESPECTIVE INSURANCE CARRIERS OR BROKERS TO DETERMINE IN ADVANCE OF BID SUBMISSION THE AVAILABILITY OF INSURANCE CERTIFICATES AND ENDORSEMENTS AS PRESCRIBED AND PROVIDED HEREIN. IF AN APPARENT LOW BIDDER FAILS TO COMPLY STRICTLY WITH THE INSURANCE REQUIREMENTS, THAT BIDDER MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office form number GL 0002 (Ed. 1/73) covering Commercial General Liability and Insurance Services Office form number GL 0404 covering Broad Form Commercial General Liability; or Insurance Services Office Commercial General Liability coverage ("occurrence" form CG 0001).

2. Insurance Services Office form number CA 0001 (Ed. 1/78) covering Automobile Liability, code 1 "any auto" endorsement CA 0025.

3. Workers' Compensation insurance as required by the Labor Code of the State of California and Employers Liability insurance.

B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. Commercial General Liability: $2,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: $1,000,000 combined single limit per accident for bodily

injury and property damage.

3. Workers' Compensation and Employers Liability: Workers' compensation limits as required by the Labor Code of the State of California and Employers Liability limits of $1,000,000 per accident.

C. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and approved by the Agency. At the option of the Agency, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Agency, its officers, officials, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. Commercial General Liability and Automobile Liability Coverages

a. The Agency, its officers, officials, employees and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its officers, officials, employees or volunteers.

b. The Contractor's insurance coverage shall be primary insurance as respects the Agency, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the Agency, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

c. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Agency, its officers, officials, employees or volunteers.

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

e. Other endorsements providing coverage at least as broad as the ISO forms described in 'A above.

2. Workers' Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the Agency, its officers, officials, employees and volunteers for losses arising from work performed by the Contractor for the Agency.

3. All Coverages

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

E. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with a Best's rating of no less than A:VII.

F. VERIFICATION OF COVERAGE

Contractor shall furnish the Agency with certificates of insurance and with original endorsements effecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on forms provided by the Agency. Where by statute, the Agency's workers' compensation-related forms cannot be used, equivalent forms approved by the Insurance Commissioner are to be substituted. All certificates and endorsements are to be received and approved by the Agency before work commences. The Agency reserves the right to require complete, certified copies of all required insurance policies, at any time.

G. SUBCONTRACTORS

Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

END OF SECTION

SECTION 00 41 13

BIDDER'S PROPOSAL

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

Proposal of _____ hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as *_____ to the TOWN OF FAIRFAX (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of Project No. FEMA-1628-DR-CA and OES ID #041-23168 PROJECT NUMBER in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party therein certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract within five (5) days of the date to be specified in the NOTICE TO PROCEED, but in no case shall work begin within the creek channel sooner than July 23, 2012. If a nesting bird is found during the Nesting Bird Survey, the schedule wil have to be revised based upon completion of nesting. The PROJECT will be fully complete within fifty (50) consecutive working days, but in any case no later than October 15, 2012. Extensions of time for completion of work beyond October 15, 2012 are subject to approval by the environmental regulatory agencies and may not be granted.

BIDDER acknowledges receipt of the following ADDENDUM:

_____

_____

_____

_____

BIDDER agrees to perform the work described in the CONTRACT DOCUMENTS for the unit prices or lump sum prices stated on the attached BID SCHEDULE.

* Insert "a corporation" or "a partnership" or "an individual" as applicable.

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL AT SAN ANSELMO CREEK

BID SCHEDULE
July 12, 2012

NOTE: Bids shall include sales tax and all other applicable taxes and fees.

NO.	DESCRIPTION	QUANTITY			UNIT PRICE		TOTAL PRICE
A.	**CONSTRUCTION CONTROL**						
1.	Mobilization	1	LS	@	_____	=	_____
2.	Furnish and Install Construction Area Signs	1	LS	@	_____	=	_____
3.	Furnish and Install Traffic Control	1	LS	@	_____	=	_____
4.	Furnish, Install and Maintain Storm Water Pollution Prevention Plan (SWPPP)	1	LS	@	_____	=	_____
B.	**STREAM DIVERSION, DEWATERING, AND STORMWATER MANAGEMENT**						
1.	Furnish, Install, and Remove Stream - Control and Protection Dams and - Temporary Piping, Complete	1	LS	@	_____	=	_____
C.	**DEMOLITION**						
1.	Remove and Stockpile Existing Emergency Rock Rip Rap	1	LS	@	_____	=	_____
2.	Remove and Dispose of Existing Concrete Footing Remnant and Concrete Rubble	1	LS	@	_____	=	_____
3.	Clear and Grub	1	LS	@	_____	=	_____
D.	**GRADING**						
1.	Excavation including Off-Haul, Complete	1	LS	@	_____	=	_____
2.	Trench for Rip-Rap and Off-Haul, Complete	1	LS	@	_____	=	_____
3.	Finish Grading	1	LS	@	_____	=	_____
E.	**CREEK BANK STABILIZATION**						
1.	Furnish and Install Rip-Rap, Complete in Place	1	LS	@	_____	=	_____
2.	Furnish and Install Large Woody Debris, Trunk with Rootwad, (including anchors), Complete in Place	1	EA	@	_____	=	_____
3.	Furnish and Install Boulders, Complete-in-Place	1	LS	@	_____	=	_____
4.	Furnish and Install "Perma-Jack" type piles, Complete-in-Place	4	EA	@	_____	=	_____

NO.	DESCRIPTION	QUANTITY			UNIT PRICE		TOTAL PRICE
5.	Furnish and Install Lean Concrete, Complete in Place	1	LS	@	_____	=	_____
6.	Reinstall Stockpiled Existing Emergency Rock Rip Rap, Complete in Place	1	LS	@	_____	=	_____
F.	**STORM DRAINAGE**						
1.	Modify Existing Manhole, Modify Existing Outfall Wall and Replace 24" VCP Storm Drain with 48" HDPE Storm Drain (including excavation and compaction), Complete in Place	1	LS	@	_____	=	_____
		TOTAL BID				$	_____

NOTE: Quantities listed are for bidding purposes only. Actual work quantities may vary due to field and other conditions.

Respectfully submitted (Please type or print):

Attest

_____
Signature

_____
Title

Address

_____
License Number (if applicable)

SEAL - if BID is by a Corporation

_____
Address

_____
Date

Address

_____
Telephone Number

_____

SECTION 00 43 13

BID BOND

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

KNOW ALL PERSONS BY THESE PRESENTS, that the TOWN OF FAIRFAX ("Town"), a municipal corporation located in the County of Marin, State of California, has received a Proposal from _____, hereinafter designated as Principal, whereby Principal agrees to enter into a Contract with the Town for the improvements more particularly described in all documents forming the complete Contract entitled "Pastori Storm Drain Outfall", which said complete Contract is hereby referred to and made a part hereof; and

WHEREAS, said Principal is required to furnish a bond in connection and with said Proposal, provided that if said Principal fails or refuses to enter into said Contract, the Surety of this bond will pay the Town the amount hereinafter set forth.

NOW, THEREFORE, we the Principal and _____, as Surety, are held and firmly bound unto the TOWN OF FAIRFAX in the penal sum of $_____, lawful money of the United States, being not less than ten percent (10%) of the estimated Contract cost of the work, 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 CONDITIONS OF THIS OBLIGATION IS SUCH that if said Principal, his/her/its heirs, executors, administrators, successors or assigns, shall fail to enter into said Contract, then said Surety will pay the same in or to an amount not exceeding the amount hereinabove set forth, and also will pay in case suit is brought upon this bond a reasonable attorney's fee in such suit, which fee shall be fixed by the Court.

AS FURTHER TERMS OF THIS BOND, IT IS UNDERSTOOD AS FOLLOWS:

(a) If said Proposal shall be rejected, or in the alternative;

(b) If said Proposal shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Proposal) and shall furnish a bond for his/her/its faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Proposal;

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 be in no way impaired or affected by any extension of the time within which the Town may accept such Proposal; and said Surety does hereby waive notice of any such extension.

PROVIDED FURTHER, that no final settlement between the Town and Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

NOTE: To be signed by Principal
and Surety and acknowledgment and
notarial seal attached.
SEAL)

PRINCIPAL

By: _____

Title: _____

SURETY

By: _____

Title: _____

_____

_____

_____
(Address of Surety)

SECTION 00 43 36

DESIGNATION OF SUBCONTRACTORS

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

In compliance with the provisions of Section 4100-4107 of the Government Code of the State of California, and any amendments thereof, each Bidder shall set forth below the name and the location of the mill, shop or office of each subcontractor who will perform work or labor or render service to the contractor in or about the construction of the work or improvement to be performed under these specifications, and the portion of the work which will be done by each subcontractor if work is 0.5% of total bid amount or greater.

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

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

Name of Sub-contractor and Place of Business	License Class	Portion of Work to be Performed

SECTION 00 45 13

EXPERIENCE AND FINANCIAL QUALIFICATIONS

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

The following statement as to experience and financial qualifications of the Bidder are submitted in conjunction with the proposal, as a part thereof and the truthfulness and accuracy of the information is guaranteed by the bidder.

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

The Bidder currently holds a valid Contractor's License of the following Class or Classes, _____ issued by the Contractors License Board under the provision of Chapter 9 of Division 3 of the Business and Professions Code of the State of California.

The Bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to him, except as follows: (Name any and all exceptions and reasons therefor).

_____

_____

_____

In the last 10 years, have you or your firm been a party to an arbitration, lawsuit or any other proceeding involving work that you or your firm performed? yes _____ no _____.

If so, please provide the following information as to each such proceeding:

(1) the name, address and telephone numbers of all parties to the proceeding;

(2) the general nature of the claims being made against or by your firm;

(3) the outcome of the proceeding.

Have you or your firm ever requested payment of more money than any of your clients have been willing to pay?

yes _____ no _____

As to each such request, please state:

(1) the name, address and telephone number of the client;

(2) the amount and nature of your claim;

(3) the nature of the client's position;

(4) the outcome of your claim.

The following contracts have been satisfactorily completed in the last three years for the person, firm, or authority indicated, and to whom reference is made. (Name five contracts.)

Year	Type of Work	Contract Amount	Location and for Whom Performed

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

Quality	Name, Type & Capacity	Condition	Location

END OF SECTION

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT
To the TOWN OF FAIRFAX
Department of Public Works

This Affidavit to be fully executed

STATE OF CALIFORNIA)
)ss.
COUNTY OF _____)

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

The undersigned declares under penalty of perjury under the laws of the State of California that the foregoing representations and all other representations made in the undersigned's proposal attached hereto are true and correct.

_____
Signature of: President, Secretary,
Manager, Owner or Representative

SECTION 00 45 46

GOVERNMENT PROPOSAL REQUIREMENTS

PART 1 - GENERAL

1.01 FEDERAL MINIMUM WAGE RATES

A. See the Caltrans Home Page on the internet for the current rates at http://www.dot.ca.gov. Rates must be current to a maximum of no more than 10-days prior to bid date (i.e. August 20 for a bid date of August 30.)

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 00 52 00

CONSTRUCTION CONTRACT

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between _____, hereinafter referred to as "CONTRACTOR" and the TOWN OF FAIRFAX, CALIFORNIA, hereinafter referred to as "Town".

WITNESSETH:

That for and in consideration of the promises and agreements hereinafter made and exchanged, the Town and the CONTRACTOR agree as follows:

1. That the CONTRACTOR will furnish all labor, materials, equipment, tools, transportation, services, appliances, and appurtenances for the construction of the "Pastori Storm Drain Outfall", (sometimes referred to as "the work") in accordance with the Plans and Specifications therefor, adopted by the Town Council of the above Town as prepared by CSW/Stuber-Stroeh Engineering Group, Inc., and in full accord with the provisions of the Federal, State and local codes, including all addenda and approved change orders.

2. That the Town will pay the CONTRACTOR progress payments and the final payment, withholding 10% retention from each payment until after the lien period is over, and less any penalties and charges and in accordance with the method set forth in the Specifications with warrants drawn on the appropriate fund or funds as required, according to the prices as bid and accepted, based upon the Plans and Addenda, as follows:

    a. In accordance with California Public Contracts Code '22300, CONTRACTOR shall be permitted to substitute securities for any moneys to be withheld by the Town to ensure performance under this Agreement. At the request and expense of the CONTRACTOR, securities equivalent to the amount withheld shall be deposited with the Town, or with a state or federally chartered bank as the escrow agent, who shall then pay such moneys to the CONTRACTOR. Upon satisfactory completion of this Agreement and the passage of any requisite lien period without the filing of stop payment notices or suit, the securities shall be returned to the CONTRACTOR. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR

and the Town. The CONTRACTOR shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

b. The Town shall pay the CONTRACTOR the final payment plus any withheld retentions after the requisite lien period has passed provided: (1) no stop payment notices have been filed; (2) the CONTRACTOR is not in default hereunder; and (3) the work has been satisfactorily completed.

3. CONTRACTOR reserves the right to modify said plans and specifications as the development progresses should unforeseen conditions occur, providing written approval is first obtained from the Town of Fairfax and appropriate adjustments are made to the contract price. Town reserves the right to make reasonable modifications to the plans and specifications whenever field conditions and/or public safety require such modifications. In addition, the Town may make changes in this agreement or the plans and specifications in the course of construction to bring the completed work into compliance with environmental requirements or standards established by state or federal statutes and regulations enacted after the agreement has been awarded or entered into. The CONTRACTOR shall be paid for the changes in accordance with paragraph 22.

a. This agreement may be terminated for environmental considerations at the discretion of the Town. Notice of termination of this Agreement shall be given in writing to CONTRACTOR, and shall be sufficient and complete when same is deposited in the United States mail postage prepaid and certified, addressed as set forth in paragraph 35 of this Agreement. The Agreement shall be terminated upon receipt of the Notice of Termination by CONTRACTOR. If Town should terminate this Agreement, the CONTRACTOR shall be compensated for all work satisfactorily performed prior to time of receipt of cancellation notice, and shall be compensated for materials ordered by the CONTRACTOR or his employees, or services of others ordered by the CONTRACTOR or his employees prior to receipt of notice of cancellation whether or not such materials or final instruments of services of others have actually been delivered, provided that the CONTRACTOR or employees are not able to cancel such orders for materials or services of others. Compensation for the CONTRACTOR in the event of cancellation shall be determined by the Town of Fairfax in accordance with the percentage of project completed and agreed to by the CONTRACTOR. In the event of cancellation, all notes, sketches, computations, drawings and specifications, or other data, whether complete or not, produced through the time of the Town's last payment shall be relinquished to the Town. The Town may, at its own expense, make copies or extract information from any such notes, sketches, computations, drawings, and specifications, or other data whether complete or not.

b. CONTRACTOR shall comply with all federal, state and local regulations and laws pertaining to hazardous materials or hazardous substances as those terms are defined by any such law or regulation. CONTRACTOR shall indemnify, hold harmless, release and defend Town, its officers, employees and agents from and against any and all actions, claims, demands, damages, disabilities, losses, costs

of clean-up, remediation and/or expenses, including attorney's fees and other defense costs or liabilities of any nature that may be asserted by any person or entity including CONTRACTOR arising out of or in any way connected with CONTRACTOR's failure to comply with said hazardous substance and/or hazardous materials laws and regulations.

4. The Town of Fairfax and inspector shall inspect all of the improvements to be accepted for maintenance by the Town. All improvements shall be inspected for compliance with Town standards, plans, and specifications.

5. CONTRACTOR shall allow Town's duly authorized representatives access to the work at all times and shall furnish them with every reasonable facility for ascertaining that the methods, materials, and workmanship comply with the requirements and intent of the approved plans. Town may reject defective work and require its repair, replacement, or removal by CONTRACTOR, all at the CONTRACTOR'S sole cost.

6. Town shall not be required to exonerate any surety, release any security relating to satisfactory completion of the improvements until acceptance of proposed public improvements by the Town or, in the case of improvements which will not be dedicated to and accepted by Town, until the improvements have passed final inspection by Town. In addition, release of security or exoneration of sureties will be predicated upon the receipt of required maintenance and/or warranty agreements and security therefor.

7. No improvement shall be accepted by the Town unless and until it is free of all liens and encumbrances, and free of all material defects and conditions which may create a hazard to the public health, safety, or welfare. In addition, all properties, rights-of-way, easements, and other interests to be dedicated to the Town shall be, before acceptance thereof by the Town, free and clear of all liens and encumbrances of any kind or character whatsoever and free of any and all material defects and conditions creating a hazard to public health or public safety.

8. Time is of the essence of each and every provision of this Contract.

9. CONTRACTOR will pay, and will require all SUBCONTRACTORS to pay, all workers on the work a salary or wage at least equal to the prevailing rate of per diem wages for such work as set forth in the wage determinations and wage standards applicable to this work, a copy of which is on file with the Town Clerk. A copy of the prevailing rate of per diem wage shall be posted at the job site. CONTRACTOR shall forfeit to the Town, as a penalty, TWENTY-FIVE DOLLARS ($25.00) for each calendar day or portion thereof for each worker paid (either by CONTRACTOR or any SUBCONTRACTORS) less than the prevailing rate set forth herein on the work provided for in the contract, all in accordance with section 1775 of the Labor Code of the State of California.

   The work covered by this agreement is a "public work" as that term is defined in California Labor Code, Division 2, Part 7, Chapter 1.

10. CONTRACTOR agrees that in the performance of this Contract, not more than eight (8) hours shall constitute a day's work, and the CONTRACTOR shall not require more than eight (8) hours of labor in a day from any person employed by CONTRACTOR hereunder, except as provided in the Labor Code of the State of California. CONTRACTOR shall conform to Article 3, Chapter 1, Part 7 (Section 1810, et seq.) of the Labor Code of the State of California, and it is agreed that the CONTRACTOR shall forfeit to the Town as a penalty the sum of TWENTY-FIVE DOLLARS ($25.00) for each worker employed in the execution of this Contract by the CONTRACTOR or any SUBCONTRACTOR for each calendar day during which any worker is required or permitted to labor more than eight (8) hours in violation of said Article.

11. CONTRACTOR shall comply with applicable provisions of '1777.5 of the Labor Code for all apprenticeable occupations. In the event CONTRACTOR willfully fails to comply with the applicable provisions of '1777.5, CONTRACTOR shall forfeit as a civil penalty the sum of FIFTY DOLLARS ($50.00) for each calendar day of non-compliance, which money may be withheld by Town pursuant to the provisions of Labor Code '1777.7.

12. CONTRACTOR shall comply with the applicable provisions of '1773.8 of the Labor Code regarding the payment of travel and subsistence payments to each worker necessary to execute the work.

    a. It shall be the responsibility of the CONTRACTOR to insure compliance with this section 12(a). Each CONTRACTOR and SUBCONTRACTOR 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 journeyman, apprentice, worker, or other employee employed by the CONTRACTOR in connection with the work described herein. The CONTRACTOR shall comply with each and every provision of Labor Code Section 1776 pertinent to said records as well as any other records governed by said Section 1776, including, but not limited to, providing copies of payroll records to employees and to the Town, advising the Town of the location of said records, preserving the confidentiality of the identities of individual employees, and complying with the penalty provisions of Section 1776. Specifically, in the event that the CONTRACTOR'S noncompliance with Section 1776 is evident after the ten day period specified in subparagraph (f) of Section 1776, CONTRACTOR shall pay, as a penalty, to the Town $25 for each calendar day or portion thereof for each worker until strict compliance is effectuated.

13. CONTRACTOR agrees to complete the work within fifty (50) working days from the date of issuance of the Notice to Proceed (or approved extensions thereof), but in any case no later than October 15, 2012. All work will be completed to the entire satisfaction of the Town before final payment is made. The CONTRACTOR is required to give at least one day's advance notice of the date upon which work is commenced and the date upon which the work is to be completed.

14. It is agreed that CONTRACTOR'S failure to complete the work within the time allowed will result in damages being sustained by the Town. Such damages are, and will continue to be, impracticable and extremely difficult to determine. For each consecutive calendar day in excess of the time specified, as adjusted in accordance with standard specifications, for completion of the work the CONTRACTOR shall pay to the Town, or have withheld from monies due it, the sum as stipulated in the special provisions ($1000 per day) as liquidated damages. Progress payments made after the scheduled completion date shall not constitute a waiver of liquidated damages.

15. CONTRACTOR shall comply with all applicable laws, rules and regulations barring discrimination on the basis of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status or sex.

16. Town may withhold, or on account of later discovered evidence, nullify all or part of any certification made to the CONTRACTOR by the Town as to the amount determined to be due the CONTRACTOR, to such extent and period of time only as may be necessary to protect the Town from loss on account of: defective work not remedied; claims filed or reasonable evidence indicating probable filing; failure to properly pay SUBCONTRACTORS for material or labor; reasonable doubt that the work can be completed for the balance remaining; damage to third parties; and/or damage to property because of any defective works.

17. Town shall have the option to require additional testing. However, in the event the results indicate defective work or materials, CONTRACTOR shall pay the costs of such tests and an appropriate change order shall be issued.

18. A. CONTRACTOR agrees that when work involves digging trenches or other excavations that extend deeper than four feet below the surface, that the CONTRACTOR shall promptly notify the public entity in writing, before conditions are disturbed, of any of the following:

    1) 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.

    2) Subsurface or latent physical conditions at the site differing from those indicated.

    3) 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.

    B. Upon receipt of the notice specified in paragraph 18(A) above, the Town shall promptly investigate the conditions reported, and if the Town 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, the Town shall issue a change order under the procedures described herein.

C. In the event that a dispute arises between the Town and the CONTRACTOR as to 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 CONTRACTOR and Town.

D. CONTRACTOR shall make a diligent visual and, where reasonably indicated, other investigatory and exploratory inspections of the area, property and/or site upon which the work shall be performed. In addition, the CONTRACTOR shall make those investigations and inspections reasonably required of the area surrounding the site on which the work will be performed where that surrounding area may be used by the CONTRACTOR or affected by the CONTRACTOR's work and determine whether or not said surrounding area, as affected by the performance of the work presents a danger or hazard to person or property. If such a danger or hazard is likely to be caused by the performance by the CONTRACTOR of the work, the CONTRACTOR shall take those steps reasonably necessary to eliminate said danger and hazard, to the extent reasonably feasible, and the CONTRACTOR shall indemnify the Town in accordance with paragraph 20, below, for any liability arising from CONTRACTOR's failure to comply with this paragraph or from injury or damage to property or person located in said surrounding area caused by CONTRACTOR's activities hereunder.

19. CONTRACTOR shall, prior to the execution of the contract, furnish two bonds in a form approved by the Town, one in the amount of One Hundred Percent (100%) of the contract price to guarantee the faithful performance of the work, and one in the amount of One Hundred Percent (100%) of the contract price to guarantee payment of all claims for labor and materials furnished. The surety for such security shall be currently admitted to transact surety insurance by the California Department of Insurance and shall carry a Best's rating of no less than A+. This contract shall not become effective until such bonds are supplied to and approved by the Town.

20. To the extent permitted by law, CONTRACTOR shall indemnify, hold harmless, release and defend Town, its officers, employees and agents from and against any and all actions, claims, demands, damages, disability, losses, failure to comply with any current or prospective laws, expenses including attorney's fees and other defense costs or liabilities of any nature that may be asserted by any person or entity including CONTRACTOR from any cause whatsoever including another's concurrent negligence arising out of or in any way connected with the activities of CONTRACTOR, his SUBCONTRACTOR, employees and agents hereunder and regardless of Town's passive negligence.

CONTRACTOR shall be solely responsible and save Town harmless from all matters relative to payment of his employees including compliance with Social Security, withholding, etc.

This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable by or for CONTRACTOR under Worker's Compensation, disability or other employee benefit acts, acceptance of insurance certificates required under this agreement, or the terms, applicability or limitations of any insurance held by CONTRACTOR.

21. CONTRACTOR shall obtain insurance acceptable to the Town in a company or companies acceptable to the Town and with a Best Rating of no less than A:XIII. The required documentation of such insurance shall be furnished to the Town at the time CONTRACTOR returns the executed contract. The proper insurance shall be provided within ten (10) days of the date of mailing of the notice that the contract has been awarded and prior to the Town executing the contract and issuing a notice to proceed. The CONTRACTOR shall not commence work nor shall s/he allow his employees or SUBCONTRACTORS or anyone to commence work until all insurance required hereunder has been submitted and approved and a notice to proceed has been issued.

    Without limiting CONTRACTOR'S indemnification provided hereunder, CONTRACTOR shall take out and maintain at all times during the life of this contract, up to the date of acceptance of the work by the Town, the following policies of insurance:

    a. Worker's Compensation insurance to cover its employees and the CONTRACTOR shall require all SUBCONTRACTORS similarly to provide Worker's Compensation insurance as required by the Labor Code of the State of California for all of the SUBCONTRACTOR'S employees. All Worker's Compensation policies shall be endorsed with the provision that it will not be canceled without first giving thirty (30) days prior notice to the Town.

        In the event any class of employees engaged in hazardous work under this Contract is not protected under Workers' Compensation Statutes, the CONTRACTOR shall provide, and shall cause all SUBCONTRACTORS to provide, adequate and suitable insurance for the protection of its employees not otherwise protected. Such policy must be acceptable to Town and shall provide that it will not be canceled without first giving thirty (30) days notice to Town.

        CONTRACTOR'S worker's compensation insurance shall include the following language: "All rights of subrogation are hereby waived against the TOWN OF FAIRFAX, its officers and employees when acting within the scope of their appointment or employment."

    b. Commercial General Liability and Automobile Liability insurance coverage which shall be at least as broad as:

(1) Insurance Services Office Commercial Liability coverage (occurrence form CG 00 01 11 88).

(2) Insurance Services Office form number CA 00 01 06 92 covering Automobile Liability, code 1 (any auto).

(3) Workers' Compensation Insurance as required by the State of California and Employer's Liability Insurance.

CONTRACTOR shall maintain insurance limits no less than:

(1) General Liability: $5,000,000 per occurrence for bodily injury, personal and property damage. If Commercial General Liability Insurance or other form with a general aggregate is used, either the general aggregate limit shall apply separately to this contract or the general aggregate limit shall be twice the required occurrence limit.

(2) Automobile Liability: $1,000,000 per accident for bodily injury and property damage.

(3) Employer's Liability: $1,000,000 per accident for bodily injury or disease.

Completed operations and product liability insurance shall continue for not less than 365 days following acceptance of the work by the Town. Each Policy required herein shall be endorsed with the following language:

(1) The TOWN OF FAIRFAX, its officers, officials, employees, agents and volunteers are named as additional insureds for all liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the CONTRACTOR and; with respect to liability arising out of the work or operations by or on behalf of the named insured, including materials, parts or equipment furnished in connection with such work or operations, and this policy protects the additional insured, its officers, agents and employees against liability for personal and bodily injuries, deaths or property damage or destruction arising in any respect, directly or indirectly, in the performance of the contract.

(2) The inclusion of more than one insured shall not operate to impair the rights of one insured against another insured, and the coverages afforded shall apply as though separate policies had been issued to each insured.

(3) The insurance provided herein is primary as respects the Town, its officers, officials, employees, agents and volunteers, and no insurance held or owned by the TOWN OF FAIRFAX shall be called upon to contribute to a loss.

(4) The coverage provided by this policy shall not be canceled without thirty (30) days prior written notice given to the Town by certified mail, return receipt requested.

(5) This policy does not exclude explosion, collapse, underground excavation hazards or removal of lateral support.

CONTRACTOR shall furnish the Town with original certificates and amendatory endorsements effecting coverage required by this clause. The certificates and endorsements shall be on the TOWN OF FAIRFAX forms attached hereto as Exhibits "A", "B", "C", and "D", properly executed by the authorized agent and the insurance company(ies). All certificates and endorsements are to be received and approved by the Town before work commences. The Town reserves the right to require complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications at any time.

c. To the extent the following described damage is not covered by insurance, the CONTRACTOR shall be responsible for the cost of repairing or restoring damage to the work ("the costs"), which damage occurs prior to acceptance of the work by the Town and the damage is determined to be proximately caused by an act of God.

(1) Notwithstanding anything to the contrary stated herein, if said act of God constitutes an earthquake in excess of a magnitude of 3.5 on the Richter Scale and/or tidal waves, the CONTRACTOR shall be responsible for the costs in the amount of 5% of the amount paid to the CONTRACTOR hereunder.

(2) Subparagraph c(1) shall not be applicable if the work paid for by this agreement is financed by revenue bonds.

d. In the event the work involves the construction of a building, bridge or other structure, Builder's Risk "All Risk" completed value insurance coverage (including flood but unless otherwise specified in the bid documents excluding earthquake and tidal wave) upon the entire project and including completed work and work in progress shall be obtained and maintained by CONTRACTOR throughout the term of this Agreement. The TOWN OF FAIRFAX shall be named as an additional insured. The policy shall be endorsed to provide that it will not be canceled without giving thirty (30) days prior written notice to Town by mail. Evidence of said insurance shall be provided to the Town as a condition precedent to the effectiveness of this Agreement.

e. Any deductible or self-insured retentions must be declared to and approved by Town. At the option of Town insurer shall reduce or eliminate such deductible or self-insured retention as respects Town, it

officers and employees or CONTRACTOR shall procure a bond guaranteeing payment of losses and related investigation, claims, administration and defense expenses.

22. Only the Town of Fairfax has the authority to allow changed or extra work which will result in additional cost to Town. Any work done without proper authorization shall not render Town liable to CONTRACTOR and CONTRACTOR shall not be entitled to any payment whether by means of restitution, quantum meruit or otherwise. In the event extra or changed work is duly authorized by the Town, but agreement regarding payment is not reached with the CONTRACTOR, the Town can, at its discretion, order CONTRACTOR to proceed with the work and CONTRACTOR shall proceed with work subject to resolution of the dispute at a later date. In the event Specifications or other documents are incorporated into this agreement which provide for procedures pertinent to changed or extra work, those other documents shall control.

23. In the event that the work is not completed to the satisfaction of Town within the time specified by this agreement, Town, in addition to any other remedy at law or equity, may complete such work with its own forces or by contract. By execution of this agreement, CONTRACTOR grants Town permission to enter onto the subject property as may be necessary or convenient to construct such improvements. In the event of such default, CONTRACTOR, the surety and any person, firm, partnership, entity, corporation or association claiming any interest in the real property hereinabove described and each of them shall totally reimburse Town for its entire cost and expense (including attorneys' fees and costs) including interest thereon at the maximum rate allowed by law from the date of notification of such cost and expense until paid. Such obligation for reimbursement shall be unlimited by the amount of the estimates set forth in or by such security as may have been provided to Town in connection with this agreement. Such amounts and interest accrued thereon shall constitute a lien on the subject property and shall not be reimbursable to the CONTRACTOR under any agreement between the CONTRACTOR and Town. CONTRACTOR acknowledges and agrees that if the improvements are not completed to the satisfaction of the Town within the time specified by this agreement, the Town, in addition to any other remedy at law or equity or provided in this agreement, may withhold occupancy, building, and zoning permits until the work and improvements have been satisfactorily completed.

24. Neither the final certificate of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this contract by the Town or the public shall constitute an acceptance of work not done in accordance with the contract or relieve the CONTRACTOR of liability in respect to any warranties or responsibility for faulty materials or workmanship. The CONTRACTOR shall promptly remedy any defects in the work and materials and pay for the costs of any damages resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Town will give notice of defective materials and work with reasonable promptness. Before requesting acceptance of the project, the CONTRACTOR shall execute the attached guarantee that all work shall be free from defects in material and workmanship for a period of at least one year after acceptance of the work.

CONTRACTOR shall also post a guarantee bond or security in an amount of not less than 10% of the contract amount assuring corrective work required during the guarantee period. For purposes of determining the amount of the guarantee bond, "contract amount" shall mean the entire amount paid by the Town to the CONTRACTOR under this agreement, including but not limited to, the bid amount and any change orders.

25. No material, supplies, or equipment to be installed or furnished under this contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The CONTRACTOR shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Town free from any claims, liens, or charges. Neither the CONTRACTOR nor any person, firm or corporation furnishing any material or labor for any work covered by this contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the CONTRACTOR for their protection or any rights under any law permitting such persons to look to funds due the CONTRACTOR in the hands of the Town. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

26. In order to minimize traffic hazards and public nuisance arising out of CONTRACTOR'S work, CONTRACTOR shall ensure that adjacent properties and improved surfaces of surrounding streets stay free and clear of silt, tracked mud, dust, etc., coming from or any way related to CONTRACTOR'S work. In the event CONTRACTOR fails to comply with this condition, CONTRACTOR grants Town the rights to take or cause to be taken, without prior notice to CONTRACTOR, immediate corrective action, including, without limitation, utilizing CONTRACTOR'S cash deposit posted as specified above.

27. The CONTRACTOR shall be solely responsible and save Town harmless for all matters relating to the payment of his/her employees, including compliance with social security, withholding and all other regulations governing such matters.

28. This Contract by reference includes the Notice Inviting Bids, Bidder's Proposal, Affidavits, Bonds, Insurance Certificates, Guarantee, Plans, Special Provisions, Technical Specifications, and Addenda if any, and all items defined under the term "Contract" in the Special Provisions, and all as filed in the Public Works Director's File No. STPL 5277 (014). All documents forming the complete contract are intended to integrate so that any condition or work called for in and one and not mentioned in another shall be executed as if mentioned in all documents and set forth in the drawings. In addition, the terms of the none [additional documents not mentioned above] are incorporated in this contract. However, in the event of any inconsistencies between such other documents and provisions of this contract, the provisions of this contract shall prevail.

29. CONTRACTOR or its SUBCONTRACTOR(S) offers and agrees to assign to the TOWN OF FAIRFAX all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to this Contract or any subcontract. This assignment shall be made and become effective at the time the TOWN OF FAIRFAX tenders final payment to the CONTRACTOR, without further acknowledgment by the parties.

30. Any bidder or CONTRACTOR not properly licensed with the State of California shall be subject to all legal penalties imposed by law, including, but not limited to, any appropriate disciplinary action by the CONTRACTORS' State License Board.

31. Pre-Litigation Meet and Confer and Claims Procedures.

(a) All claims shall be in writing, addressed and delivered as per paragraph 35, and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. The claims procedures set forth herein are supplementary to other claims procedures provided for herein (e.g., change orders), but in terms of preserving the CONTRACTOR'S rights to pursue any claims by litigation, CONTRACTOR must comply with these claim procedures described in this paragraph 31 or CONTRACTOR shall be deemed to have conclusively waived and abandoned his/her/its rights to pursue any claim for which these procedures were not followed.

(b) "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 Town.

(c) For claims of less than $50,000, the Town shall respond in writing to a claim within 45 days of the receipt of the claim, or may request in writing, within 30 days of the receipt of a claim, any additional documents supporting the claim or relating to defenses or claims the Town may have against the CONTRACTOR. The CONTRACTOR shall supply the requested documentation within 15 days of the request therefor. The Town's written response to the claim, as further documented, shall be submitted to the CONTRACTOR within 15 days after receipt of the further documentation.

(d) For claims above $50,000 and up to $375,000, the Town shall respond in writing to all written claims within 60 days of receipt of the claim, or may request in writing within 30 days of receipt of the claim, any additional documentation needed to support the claim or relating to any defenses or claims the Town may have against the CONTRACTOR. The CONTRACTOR shall deliver the

requested documentation to the Town within 30 days after the receipt of the request therefor. The Town's written response to the claim, as further documented, shall be submitted to the CONTRACTOR within 30 days after receipt of the further documentation.

(e) If the CONTRACTOR disputes the Town's written response, or the Town fails to respond within the time prescribed, the CONTRACTOR may so notify the Town, in writing, either within 15 days of receipt of the Town's response or within 15 days of the Town's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the Town shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(i) If the meet and confer process does not produce an agreement, the CONTRACTOR may file a claim in accordance with Public Contracts Code 20104.2(e).

32. This Agreement shall inure to the benefit of, and be binding upon, the successors in interest, legal representatives, trustees, and permitted assigns of either party.

33. This writing is intended both as the final expression of the Agreement between the parties hereto with respect to included terms and a complete and exclusive statement of the terms of the Agreement, pursuant to Code of Civil Procedure, section 1856. No modification hereof shall be effective unless and until such modification is evidenced by a writing signed by all parties to this Agreement.

34. Each party to this Agreement undertakes the obligation that the other's expectation of receiving due performance will not be impaired. When reasonable grounds for insecurity arise with respect to the performance of either party, the other may in writing demand adequate assurance of due performance and until such assurance is received may, if commercially reasonable, suspend any performance for which the agreed return has not been received. After receipt of a demand for assurance, either party's failure to provide within a reasonable time but not exceeding thirty (30) days, such assurance of due performance as is adequate under the circumstances is a repudiation of this Agreement by that party. Acceptance of any improper delivery of service or payment does not prejudice the aggrieved party's right to demand adequate assurance of future performance.

35. All notices permitted or required hereunder shall be addressed as follows and shall be deemed delivered upon the posting the notice first class, U.S. mail, postage prepaid:

If to the Town:
TOWN OF FAIRFAX
142 BOLINAS ROAD
FAIRFAX, CA 94930

If to the CONTRACTOR:

_____
_____
_____
_____

36. This Agreement shall be construed in accordance with the law of the State of California. Venue shall be in the County of Marin.

IN WITNESS WHEREOF, the said CONTRACTOR and the Mayor and Town Clerk of the Town, by Resolution No. _____, of the Town Council of said Town thereunder duly authorized, have caused the names of said parties to be affixed hereto, each in triplicate, the day and year first written above.

CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE BOARD. CONTRACTOR REPRESENTS THAT S/HE HAS THE FOLLOWING CLASSIFICATION OF LICENSE AS REQUIRED FOR THIS WORK: _____. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR OF THE BOARD WHOSE ADDRESS IS:

CONTRACTORS' STATE LICENSE BOARD
9835 GOETHE ROAD
SACRAMENTO, CA 95826

MAILING ADDRESS:
P.O. BOX 26000
SACRAMENTO, CA 95826

CONTRACTOR

_____
(State License No.)

(Notary Acknowledgment)

By _____

Title _____

Date _____

TOWN OF FAIRFAX, A Public Corporation

By _____, Mayor

By _____, Town Manager

By _____, Town Clerk

Attachments: Exhibits "A", "B", "C" and "D"
Performance and L & M Bonds (Construction)
Guarantee

EXHIBIT "A"

Return Completed Certificate to: The TOWN OF FAIRFAX

CERTIFICATE OF INSURANCE TO THE TOWN OF FAIRFAX ("the Town")

Only this Certificate of Insurance form will be accepted

This certifies to the Town that the following described policies have been issued to the Insured named below and are in force at this time.

Insured: _____

_____

Description of operations/locations/products insured (show contract name and/or number, if any): _____

_____

POLICIES AND INSURERS	LIMITS	POLICY NUMBER	EXPIRATION DATE
Workers' Compensation			
_____ (Name of Insurer) Best's Rating	Employers Liability $_____	_____	
Check policy type: Comprehensive General Liability or Commercial General Liability_____	Comprehensive General Liability Each Occurrence $ Aggregate $		
_____ (Name of Insurer) Best's Rating_____	Commercial General Liability Each Occurrence $ General Aggregate either: per project/location $	_____	
Claims-Made____ or Occurrence_____	twice occurrence limit $		
Business Auto Policy	Each Person $_____ Each Accident $		
Liability Coverage Symbol_____	Each Accident, Property Damage $	_____	
_____ (Name of Insurer) Best's Rating_____	or Combined Single Limit $		
Umbrella Liability	Occurrence $		
_____ (Name of Insurer) Best's Rating_____	Aggregate $_____	_____	
Claims-Made_____ or Occurrence	Self-Insured Retention $		

Note: If commercial general liability insurance is used or if aggregate limits are endorsed to the comprehensive general liability policy form, the general aggregate must apply per locations/project or the aggregate limit must be at least twice the occurrence limit.

The following coverages or conditions are in effect: **Yes** **No**

The Town, its officials,officers,employees and volunteers are named on all liability policies described above as insureds as respects: (a)activities performed for the Town by or on behalf of the named insured,(b)products and completed operations of the Named Insured, and (c)premises,owned,leased or used by the Named Insured.

Products and Completed Operations

The undersigned will mail to the Town 30 days' written notice of cancellation or reduction of coverage or limits.

Cross Liability Clause (or equivalent wording)

Personal Injury,Perils A,B and C

Broad Form Property Damage

X,C,U Hazards included

Contractual Liability Coverage applying to this Contract

Coverage afforded the Town, its officials, officers, employees and volunteers as Insureds applies as primary and not excess or contributing to any insurance in the name of the Town

Waiver of subrogation from Workers'Compensation insurer.

This certificate is issued as a matter of information. This certificate is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms exclusions and conditions of such policies.

Agency or Brokerage

Insurance Company

Address

Home Office

Name of Person to be Contacted

Authorized Signature

Date

Telephone Number

Note: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the Insurer. If Insurance is brokered, authorized signature must be that of official of Insurer.

EXHIBIT "B"
GENERAL LIABILITY ENDORSEMENT
The TOWN OF FAIRFAX ("the Town")
142 Bolinas Road
Fairfax, CA 94930

A. POLICY INFORMATION

1. Insurance Company_____ Policy Number _____
2. Policy Term (From)_____ (To) _____ Endorsement Effec. Date _____
3. Named Insured_____
4. Address of Named Insured_____
5. Limit of Liability Any One Occurrence/Aggregate $_____/_____
6. Deductible or Self-Insured Retention (Nil unless otherwise specified)
7. Coverage is equivalent to:
   Comprehensive General Liability form GL0002 (Ed 1/73) _____
   Commercial General Liability "occurrence" form CG0001 _____
   Commercial General Liability "claims-made" form CG0002 _____
8. Bodily Injury and Property Damage Coverage is:
   _____"claims-made"
   _____"occurrence"
   If claims-made, the retroactive date is_____

Note: The Town's standard insurance requirements specify "occurrence" coverage. "Claims-made" coverage requires special approval. If commercial general liability form or equivalent is used, the general aggregate must apply separately to this location/project or the general aggregate must be twice the occurrence limit.

B. POLICY AMENDMENTS

This endorsement is issued in consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. **INSURED**. The Town, its elected or appointed officers, officials, employees and volunteers are included as insureds with regard to damages and defense or claims arising from: (a) activities performed by or on behalf of the Named Insured, including the insured's general supervision of the Named Insured, (b) products and completed operations of the Named Insured, or (c) premises owned, leased or used by the Named Insured.
2. **CONTRIBUTION NOT REQUIRED**. As respects: (a) work performed by the Named Insured for or on behalf of the Town; or (b) products sold by the Named Insured to the Town; or(c) premises leased by the Named Insured from the Town, the insurance afforded by this policy shall be primary insurance as respects the Town, its elected or appointed officers, officials, employees or volunteers; or stand in an unbroken chain of coverage excess of the Named Insured's scheduled underlying primary coverage, in either event, any other insurance maintained by the Town, its elected or appointed officers, officials, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SCOPE OF COVERAGE**. This policy, if primary, affords coverage to the Named Insured at least as broad as:
   (1) Insurance Services Office form number GL 0002(Ed. 1/73),Comprehensive General Liability Insurance and Insurance Services Office form number GL 0404 Broad Form comprehensive General Liability endorsement; or
   (2) Insurance services Office Commercial General Liability Coverage, "occurrence" form CG 0001 or "claims-made" form CG 0002; or
   (3) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding sections (1) and (2).
4. **SEVERABILITY OF INTEREST**. The insurance afforded by this policy applies separately to each insured who
5. **PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS**. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the Town, its elected or appointed officers, officials, employees or volunteers.
6. **CANCELLATION NOTICE**. The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail return receipt requested has been given to the Town. Such notice shall be addressed as shown in the heading of this endorsement.

C. INCIDENT AND CLAIM REPORTING PROCEDURES

Incidents and claims are to be reported to the Insurer at:

ATTN:_____
(Title) (Department)
_____
(Company)
_____
(street Address)
_____
(city) (st) (Zip)

D. SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE OF THE INSURER

I, _____ warrant that I have authority to bind the below listed Insurance Company and by my signature hereon do so bind the company.

_____ _____

SIGNATURE OF AUTHORIZED REPRESENTATIVE
(original signature required on endorsement furnished to the Town)

ORGANIZATION:_____ TITLE:_____

ADDRESS:_____ TELEPHONE:_____

EXHIBIT "C"
AUTOMOBILE LIABILITY ENDORSEMENT
The TOWN OF FAIRFAX ("the Town")
142 Bolinas Road
Fairfax, CA 94930

A. POLICY INFORMATION

1. Insurance Company_____ Policy Number_____
2. Policy Term (From)_____ (To) _____ Endorsement Effec. Date_____
3. Named Insured_____
4. Address of Named Insured_____
5. Limit of Liability Any One Occurrence/Aggregate $_____/_____
6. Deductible or Self-Insured Retention (Nil unless otherwise specified): $_____

B. POLICY AMENDMENTS

This endorsement is issued in consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. **INSURED**. The Town, its elected or appointed officers, officials, employees and volunteers are included as insureds with regard to damages and defense or claims arising from: the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Named Insured, regardless of whether liability is attributable to the Named Insured or a combination of the Named Insured and the Town, its elected or appointed officers, officials, employees or volunteers.
2. **CONTRIBUTION NOT REQUIRED**. As respects work performed by the Named Insured for or on behalf of the Town, the insurance afforded by this policy shall: (a) be primary insurance as respects the Town, its elected or appointed officers, officials, employees or volunteers; or (b) stand in a unbroken chain of coverage excess of the Named Insured's primary coverage. In either event, any other insurance maintained by the Town, its elected or appointed officers, officials, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SCOPE OF COVERAGE**. This policy, if primary, affords coverage to the Named Insured at least as broad as:
   (1) Insurance Services Office form number CA 0001 (Ed. 1/78), Code 1 ("any auto") an endorsement CA 0025.
   (2) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding section (1).
4. **SEVERABILITY OF INTEREST**. The insurance afforded by this policy applies separately to each insured who is seeking coverage or against whom a claim is made or a suit is brought, except with respect to the Company's limit of liability
5. **PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS**. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the Town, its elected or appointed officers, officials, employees or volunteers.
6. **CANCELLATION NOTICE**. The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail return receipt requested has been given to the Town. Such notice shall be addressed as shown in the heading of this endorsement.

C. INCIDENT AND CLAIM REPORTING PROCEDURES

Incidents and claims are to be reported to the Insurer at:

ATTN:_____
(Title) (Department)

_____
(Company)

_____
(street Address)

_____
(city) (st) (Zip)

D SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE OF THE INSURER

I, _____ warrant that I have authority to bind the below listed Insurance Company and by my signature hereon do so bind the company.

SIGNATURE OF AUTHORIZED REPRESENTATIVE
(original signature required on endorsement furnished to the Town)

ORGANIZATION:_____ TITLE: _____

ADDRESS:_____ TELEPHONE:_____

EXHIBIT "D"
WORKERS' COMPENSATIONS/EMPLOYERS
LIABILITY ENDORSEMENT
The TOWN OF FAIRFAX ("the Town")
142 Bolinas Road
Fairfax, CA 94930

A. POLICY INFORMATION

Endorsement #_____

1. Insurance Company_____ Policy Number_____
2. Effective Date of This Endorsement_____
3. Named Insured _____
4. Employer's Liability Limit (Coverage B)_____

B. POLICY AMENDMENTS

In consideration of the policy premium and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. **Cancellation Notice.** The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail return receipt requested has been given to the Town. Such notice shall be addressed as shown in the heading of this endorsement.

2. **Waiver of Subrogation.** The Insurance Company agrees to waive all rights of subrogation against the Town, its elected or appointed officers, officials, agents and employees for losses paid under the terms of this policy which arise from work performed by the Named Insured.

C. SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE OF THE INSURER

I, _____ warrant that I have authority to bind the below listed Insurance Company and by my signature hereon do so bind the company.

SIGNATURE OF AUTHORIZED REPRESENTATIVE
(original signature required on endorsement furnished to the Town)

ORGANIZATION:_____ TITLE:_____

ADDRESS:_____ TELEPHONE:_____

(On Surety Letterhead)

SECTION 00 61 13

PERFORMANCE BOND

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

WHEREAS, the TOWN OF FAIRFAX (hereinafter designated as "Town"), State of California, and _____ hereinafter designated as "Principal"), have entered into an agreement whereby Principal agrees to complete improvements specified in the Agreement and all documents forming the complete contract, which said agreement dated _____, and identified as "Pastori Storm Drain Outfall", are referred to and made a part hereof; and

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

NOW, THEREFORE, we the Principal, and _____, as surety, are held and firmly bound unto the Town in the penal sum of $_____, lawful money of the United States, being not less than one hundred (100%) percent of the estimated contract cost of the work, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above bounded Principal, his/hers/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 provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless Town, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by Town in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

The surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anyway effect 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 agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and surety above named, on _____.

NOTE: To be signed by Principal
and Surety and acknowledgment
and notarial seal for both attached.

(SEAL)

PRINCIPAL

By: _____

Title: _____

SURETY

By: _____

Title: _____

It has been confirmed that the Surety is admitted by the Department of Insurance to transact business in the State of California and has a Best's rating of at least A+.

SECTION 00 61 19

DEFECTIVE MATERIAL & WORKMANSHIP BOND (CONSTRUCTION)

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

KNOW ALL PERSONS BY THESE PRESENTS, that the TOWN OF FAIRFAX ("Town") a municipal corporation located in the County of Marin, State of California, has awarded a contract to and has entered into an agreement with _____, hereinafter designated as "Principal" whereby Principal agrees to complete the improvements more particularly described in all documents forming the complete contract entitled "Pastori Storm Drain Outfall", which said agreement is hereby referred to and made a part hereof; and

WHEREAS, said Principal is required to furnish a bond in connection and with said contract, to protect the Town against the results of defective materials or workmanship for a period of 1 year after completion and acceptance.

NOW, THEREFORE, we the Principal and _____, as surety, are held and firmly bound unto the TOWN OF FAIRFAX in the sum of $_____, lawful money of the United States, being not less than ten (10%) percent of the estimated contract cost of the work, 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 present.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said work is found to contain defects in material or workmanship within a period of 1 year from the date of completion and acceptance and the Principal, his/her/its heirs, executors, administrators, successors or assigns, shall fail to correct such defects, then said Surety will pay the cost for correction of any defects in material or workmanship which appear within said 1 year in or to an amount not exceeding the amount hereinabove set forth, and also will pay in case suit is brought upon this bond a reasonable attorney's fee in such suit, which fee shall be fixed by the Court.

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 wise 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 this contract or to the work or to the specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this ____ day of _____, 20____, the name and corporate seal of each corporate party

being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

NOTE: To be signed by Principal
and Surety and acknowledgment
and notarial seal attached.

(SEAL)

PRINCIPAL

By: _____

Title: _____

SURETY

By: _____

Title: _____

(On Surety Letterhead)

SECTION 00 61 23

LABOR AND MATERIALS BOND
(CONSTRUCTION)

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

KNOW ALL PERSONS BY THESE PRESENTS, that the TOWN OF FAIRFAX ("Town") a municipal corporation located in the County of Marin, State of California, by Resolution No. __, has awarded a contract to and has entered into an agreement with _____ _____, hereinafter designated as "Principal" whereby Principal agrees to complete the improvements more particularly described in all documents forming the complete contract entitled "Pastori Storm Drain Outfall", which said agreement is hereby referred to and made a part hereof; and

WHEREAS, said Principal is required to furnish a bond in connection and with said contract, provided that if said Principal, or any of his/her/its contractors, shall fail to pay for any materials, provisions, provender or other supplies or teams used in, upon, for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, the Surety of this bond will pay the same to the extent hereinafter set forth.

NOW, THEREFORE, we the Principal and _____, as surety, are held and firmly bound unto the TOWN OF FAIRFAX in the penal sum of $_____, lawful money of the United States, being not less than one hundred (100%) percent of the estimated contract cost of the work, 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 said Principal, his/her/its heirs, executors, administrators, successors or assigns, or its subcontractors, shall fail to pay any of the persons named in Section 3181 of the Civil Code, or to pay for any materials, provisions, provender, or other supplies or teams used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind or for amounts due under the Unemployment Insurance Code with respect to such work or labor, then said Surety will pay the same in or to an amount not exceeding the amount hereinabove set forth, and also will pay in case suit is brought upon this bond a reasonable attorney's fee in such suit, which fee shall be fixed by the Court.

AS FURTHER TERMS OF THIS BOND, IT IS UNDERSTOOD AS FOLLOWS:

1. This bond and all its provisions shall inure to the benefit of and all persons named in Section 3181 of the Civil Code so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

2. This bond is given to comply with the provisions of Chapter 7, Part 4, Division 3, of the Civil Code. The liability of the Principal and Surety hereunder is governed by the provisions of said Chapter, all acts amendatory thereof, and all other statutes referred to therein.

   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 wise 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 this contract or to the work or to the specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this ____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

NOTE: To be signed by Principal
and Surety and acknowledgment
and notarial seal attached.

(SEAL)

PRINCIPAL

By: _____

Title: _____

SURETY

By: _____

Title: _____

It has been confirmed that Surety is admitted by the Department of Insurance to transact business in the State of California and has a Best's rating of at least A+.

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Scope of work includes, but is not limited to removal and replacement of storm pipe, stream diversion, dewatering, demolition, creek bank stabilization, modification of manhole and outfall wall, and all other requirements as stated on the drawings and in these specifications.

1.02 ENVIRONMENTAL REQUIREMENTS

A. The contractor is required to comply and implement the requirements of stated regulations on drawings, these specifications and as stated in the Appendix included with these specifications.

B. The contractor is required to coordinate the work with A. A. Rich and Associates, San Anselmo, CA in regards to dewatering and on the fish collection and relocation as required in these specifications and as stated on the drawings.

END OF SECTION

SECTION 01 35 00

SPECIAL PROVISIONS

TOWN OF FAIRFAX
STATE OF CALIFORNIA

PASTORI STORM DRAIN OUTFALL

1.00 GOVERNING DOCUMENTS

All work shall be governed by and done in accordance with the following:

A. Contract Documents, consisting of the Notice Inviting Bids, Bidder's Proposal, Affidavits, Bid Bond, Designation of Subcontractors, Experience and Financial Qualifications, Faithful Performance Bond, Labor and Materials Bond, Defective Material and Workmanship Bond, Construction Contract, Insurance Certificates and Endorsements, Guarantee, Plans entitled "Pastori Storm Drain Outfall", consisting of six (6) sheets prepared by CSW/Stuber-Stroeh Engineering Group, Inc. and dated June 14, 2012, these Special Provisions, Technical Specifications, and Addenda, if any.

B. Letters and conditions of approval issued by environmental regulatory agencies, (U.S. Army Corps of Engineers regarding Nationwide Permit, National Marine Fisheries Service regarding Biological Opinion, Regional Water Quality Control Board regarding Water Quality Certification, and California Department of Fish and Game regarding Streambed Alteration Agreement). See Appendix.

C. Bank Stabilization for Pastori Storm Drain Outfall, Fish Collection and Relocation Plan, prepared by A.A. Rich and Associates. See Appendix.

D. Pastori Storm Drain Outfall Initial Study, Environmental Checklist and Mitigated Negative Declaration. See Appendix.

E. Standard Specifications, Cities and County of Marin, Department of Public Works, latest edition -- hereinafter called the County Standard Specifications.

F. Uniform Construction Standards Approved and Adopted by Cities of Marin and County of Marin, latest edition – hereinafter called the County Standard Drawings and sometimes referred to as MUCS.

G. State of California Business and Transportation Agency, Department of Transportation, Standard Plans and Specifications, latest edition, – hereinafter called State Plans and/or State Specifications.

Any and all work and requirements called for in any one or more of the above listed documents shall be deemed to be called for in all.

These Contract Documents shall govern over conflicting provisions and requirements of the Standard Specifications and Drawings.
In the event of any conflict, doubt, or questions arising with respect to the true meaning of the above listed documents, reference shall be made to the Public Works Director and his decision shall be final.

1.01 GENERAL DESCRIPTION OF WORK

The work shall consist of:

Stream diversion, demolition, grading, creek bank stabilization, and storm drain replacement.

The unit price bid for each item shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the bid item.

1.02 BEGINNING OF WORK

The Contractor shall commence work within five (5) working days following the Public Works Director's Notice to Proceed, but no work within the creek channel shall occur sooner than July 23, 2012. The date of the Notice to Proceed shall be considered the first day of work for the purpose of counting working days. If a nesting bird is found during the Nesting Bird Survey, the schedule will have to be revised based upon completion of nesting.

1.03 TIME FOR COMPLETION

The time allowed for completion of the work shall be fifty (50) working days but in no event shall work be completed later than October 15, 2012 without prior written approval of the environmental regulatory agencies, which approval may not be granted.

1.04 LIQUIDATED DAMAGES

If the work required under this contract is not completed within the time specified for completion, Liquidated Damages in the amount of $1,000 per day shall be assessed as set forth in Section 8-1.07 of the State Specifications.

1.05 CONTRACTOR'S INSURANCE

The Contractor's attention is directed to Section 21 of the Construction Contract for Contractor's insurance requirements.

1.06 PAYMENT FOR EXTRA WORK

When payment is made on a force account basis the amount shall be determined in accordance with Sections 9-1.03 through 9-1.03D of the State Specifications, except that actual payroll taxes and required contributions will be used in lieu of the labor surcharge specified in Section 9-1.03A (1b).

1.07 SCHEDULE OF WORK

Prior to the commencement of work the contractor shall furnish a schedule stating the order and tentative dates in which the work will be performed. This schedule shall be updated on a day-to-day basis and the Contractor shall organize his work to minimize the disruption of normal traffic flow and parking.

1.08 PRECONSTRUCTION CONFERENCE

After the Contractor's schedule of work is submitted and prior to the start of work a preconstruction conference will be held to work out an integrated order of work and to provide for traffic control and public safety during construction.

1.09 COOPERATION AND COORDINATION WITH PROPERTY OWNERS

The Contractor shall schedule his work to minimize inconvenience or disruption of residences during the course of the work. Any private property which is disturbed by the work shall be repaired to its original condition and to the satisfaction of the Public Works Director. The cost of said repairs shall be included in the prices paid for the various items of work and no extra compensation shall be allowed therefor.

1.10 WORKING HOURS

The Contractor shall schedule his working to occur only from 8 a.m. to 5 p.m. on Monday to Friday. Deviations from this restriction shall be approved by the Town Manager.

1.11 AUTHORITY OF THE PUBLIC WORKS DIRECTOR

The Public Works Director shall decide all questions which may arise as to the quality and acceptability of the final work product and shall decide all questions which may arise as to the interpretations of the plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor and as to compensation. His decision shall be final.

1.12 PROJECT RECORD DOCUMENTS

The Contractor shall mark up clearly and legibly one set of paper prints to show the As-Built conditions. They shall include all information as shown on the contract set of clean drawings

and a record of all deviation, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings and all changes which are made after the final inspection of the contract work. These As-Built marked prints shall be kept current and available on the job site at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by details and notes. No construction work shall be concealed until it has been inspected, approved and recorded. The As-Built marked prints will be jointly inspected for accuracy and completeness by the Agency Engineer's representative and a responsible representative of the construction contractor prior to submission of the monthly pay estimate. Failure to keep the As-Built marked prints on a current basis shall be sufficient justification to suspend progress payments. The drawings shall show the following information, if applicable, but not be limited thereto:

1. The location of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

2. The location and identification of all surface installations within 10 feet of the construction area.

3. The location and dimensions of any changes within the building or structure.

4. Correct grade or alignment of roads, structures, or utilities if any changes were made from contract plans.

5. Correct elevations if changes were made in site grading.

6. Change in details of design or additional information obtained from working drawings specified to be prepared or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

7. The topography and grades of all drainage installed or affected as part of the project construction.

8. All changes or modifications which result from the final inspection.

The As-Built marked prints shall be delivered to the Agency Engineer at the time of final inspection for his review and approval. All approval and acceptance of As-Built drawings shall be accomplished before final payment is made to the Contractor.

1.13 EXISTING FACILITIES

Attention is directed to Section 8-1.10 of the State Specifications and these special provisions.

It is not the intent of the plans to show the exact locations of existing underground utilities or structures and the agency Engineer assumes no responsibility therefor. Whenever any such utilities are indicated thereon the Contractor shall be responsible for verifying their actual location and depth in the field, by potholing if necessary. The Contractor shall be responsible for any damage to utilities shown on the plans, or as specified herein, as a result of his operations.

Existing utilities in the easements on private property are not shown on the plans; the contractor shall be responsible for locating said utilities prior to any construction and shall keep said utilities continuously functioning during the course of the work. If the contractor for his own reasons needs to shut off or relocate any of said utilities, the Contractor shall give advance notice to and coordinate with the owner of the property and the occupant.

Equipment operating under PG&E electric and Pacific Bell communications lines shall observe minimum clearance from the lines, and all other requirements, as set forth in Article 86 of the Electrical Safety Orders of the State division of Industrial Safety and Pacific Bell requirements.

If applicable the Contractor shall keep the existing drainage system and sanitary sewer system fully functional at all times. If the Contractor for his own reasons desires to block off any portion of these systems, he shall construct a bypass system capable of handling the flow. This bypass system, if constructed, will be for the convenience of the Contractor and shall be constructed at his own expense.

The Contractor shall exercise care not to damage existing property including but not limited to trees, shrubs and landscaping outside the work area. Any damage caused by the contractor shall be replaced by the Contractor at his expense.

Prior to commencing any excavation, the Contractor shall notify the following three (3) days in advance:

Underground Service Alert (800) 642-2444

Full compensation for complying with the above provisions shall be considered as having been included in the price paid for various contract items of work and no separate payment will be made thereafter.

1.14 MATERIALS AND WORKMANSHIP

A. General:

All materials and workmanship shall be in accordance with these Contract Documents, The County Standard Drawings and Specifications, and the State Plans and Specifications as defined in Section 1.00 of these Special Provisions.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for general requirements for furnishing, installing, operating, and removing temporary project facilities and controls as required to perform and complete the Work.

1.02 REFERENCES

A. American National Standards Institute (ANSI):

ANSI S1.4 Specification for Sound Level Meters

B. State of California, Department of Transportation (Caltrans), Standard Specific

Section 12 Construction Area Traffic Controls Devices

Section 82 Markers and Delineators

C. State of California, Department of Transportation (Caltrans), Traffic Manual:

Chapter 5, Manual of Traffic Controls for Construction and Maintenance Work

D. State of California (Caltrans), Standard Plans

1.03 TRAFFIC PLAN AND CONTROLS

A. Traffic Control Plan:

1. Prepare and submit a traffic control plan to illustrate extent of the Contractor's involvement in the traffic scene of the neighborhood jurisdictions. The traffic control plan shall include drawings showing routes, detours, lane closures, traffic decking, signage, striping, barriers, warning signals and lights, and other traffic control devices and facilities required. The traffic control plan shall include explanatory narrative as required to complete the plan.

2. The traffic control plan shall be submitted for approval directly to the jurisdictional authorities involved, with an informational copy furnished to the Town of Fairfax. Two copies of approved traffic control plans shall be furnished to the Town of Fairfax for record purposes.

B. Permits: Apply for and obtain all permits from jurisdictional authorities as required to perform work in the public right-of-way, including encroachment permits and hauling permits. Environmental permits shall be supplied by the town. Contractor must obtain all required permits from the town. Contractor shall pay all town permit fees. Two copies of issued permits shall be furnished to the Town of Fairfax for record purposes.

C. Control Devices and Facilities:

1. Temporary traffic control devices and facilities shall conform with applicable requirements of the Caltrans Traffic Manual, Chapter 5, Manual of Traffic Controls for Construction and Maintenance Work Zones.

2. Furnish, install, operate, maintain, and remove when no longer required, all traffic control and protective devices required for the approved traffic plan.

3. Traffic control and protective devices shall include temporary directional electrical warning signs, detour signs, danger signals; temporary barricades and guard rails; crash cushions; temporary lighting, overhead warning lights, and flashing lights; temporary pavement markings, removal of permanent and temporary pavement markings; and the services of qualified flaggers.

4. Maintain communication with the jurisdictional authorities regarding the Contractor's operations in maintaining and controlling traffic.

D. Traffic Control Signs: Each change in location of traffic shall be adequately posted with signs mounted on barricades or standard posts in accordance with requirements of Caltrans Standard Specifications Section 12. The Contractor shall make arrangements for providing temporary no parking signs.

1. "No Parking" signs and barricades shall be posted 48 hours in advance, and the jurisdictional authority shall be notified daily of all such posted "No Parking" zones.

E. Pavement Marking: Install necessary temporary and permanent pavement marking as required in connection with the temporary street work, and remove or obliterate existing or temporary pavement markings whenever vehicle traffic is moved to a newly available pavement area or to different traffic patterns.

F. Redirecting Traffic:

1. All channelizing, shifting of traffic lanes, and barricading of traffic in connection with the Work will be subject to approval of the appropriate jurisdictional authority. Existing local standards for signing and marking of construction areas shall apply in addition to the requirements of Caltrans Standard Specifications Section 12.

2. When required by the Contract Specifications, or indicated on the Contract Drawings, or required by responsible public agencies, the Contractor shall construct, maintain, and remove detours and detour bridges for the use of public traffic.

3. Signage for detours shall conform with the Caltrans Traffic Manual, Chapter 5, Manual of Traffic Controls for Construction and Maintenance Work Zones.

4. Failure or refusal of the Contractor to construct and maintain detours at the proper time shall be sufficient cause for closing down the Work until such detours are in satisfactory condition for use by public traffic.

G. Temporary Closing to Traffic: Prior to temporary closing to traffic part of any street, sidewalk, or other access, or to changing traffic patterns from those indicated on the Contract Drawings, obtain approval from appropriate jurisdictional authority, and comply with imposed conditions, at least two weeks before such closures or changes are made. Deviations will be for an emergency condition affecting life and property only, and the Contractor shall immediately notify the appropriate jurisdictional authority of any such emergency changes. Copies of all approvals shall be furnished to the Town Representative.

H. Temporary Walkways: In areas where removal of existing sidewalks is necessary, access to adjacent businesses, entrances, and properties shall be maintained by temporary walkways having a width of not less than 4 feet.

I. Intersections and Street Crossings: Intersections and street crossings shall be excavated and decked in stages as indicated. Construction shall be phased so that the required number of traffic lanes on each street will provided at all times during these operations. Upon completion of decking installation, traffic in all directions shall be fully maintained. Trenches or open excavations shall be properly bridged where traffic lanes are to be open to traffic.

J. Temporary Paving and Patching: Construct, maintain, and remove temporary pavement and patching required to safely and expeditiously handle vehicle and pedestrian traffic, within or adjacent to the jobsite. Temporary pavement and patching composition shall conform to the specifications of the local jurisdictional authority. Any construction, maintenance, or removal required by the Contractor's operations off site shall conform to the requirements specified herein.

K. New and Existing Traffic Control Devices:

1. Arrange with respective county and municipal authorities to provide governmental services as required for salvaging reusable street-name and traffic signs, removal of parking meters, and for removal, relocation, and adjustment of traffic signals.

2. The Contractor shall provide such work and construction services as may be required by county and municipal authorities to assist in salvaging reusable street-name and

traffic signs, removing of parking meter posts and bases, and removing, relocating and adjusting of traffic signals, all in accordance with jurisdictional standards and regulations.

3. Traffic signal conduits and detector loops damaged as a result of the Contractor's operations shall be replaced immediately. The Contractor shall notify the jurisdictional authority at least 48 hours in advance of performing any breaking or cutting of pavement and excavation work in the vicinity of traffic signals.

4. Should any signals be rendered inoperative by the Contractor's operations, the Contractor shall immediately provide a temporary signal system capable of controlling vehicular and pedestrian movements within the intersection to the satisfaction of the jurisdictional authority. All signal work shall be performed by a contractor or installer approved by the jurisdictional authority.

1.04 HAUL ROUTES

A. Make arrangements with the various jurisdictional authorities for access to streets and roads for transporting materials, equipment, excess earth and soil materials, and debris to and from the site of the Work.

B. All such access or haul routes shall be indicated on the traffic control plan and shall be submitted to the jurisdictional authorities for approval as specified in Article 1.03 herein.

C. These haul routes shall be maintained and cleaned of all dirt and debris resulting from the Contractor's use of these streets and roads. Any damage to streets and roads resulting from the Contractor's use shall be properly repaired and, at completion of this Contract, restored to their original condition or better.

1.05 CONSTRUCTION OPERATIONS UNDER TRAFFIC

A. Definitions: Construction equipment is defined for the purposes of this Article as all types of equipment, vehicles, and tools used in connection with construction work. The term workers includes every person or firm performing work in or adjacent to public streets.

B. Construction Equipment: When in traffic lanes, all vehicles and equipment shall be operated at normal traffic speeds. If this is not practicable, a slow moving vehicle emblem shall be displayed in accordance with the Motor Vehicle Code. Construction equipment shall not be parked in any lane intended for use by normal traffic. Equipment parked or stored at the work site shall be behind a guard rail, barrier, curb, or other protective device.

C. One-Way Traffic: No construction equipment shall be operated in traffic lanes, except in the designated direction of travel for respective lanes.

D. Construction Operations:

1. Schedule surface operations so that work is not carried on intermittently throughout the area. Excavation or construction activities shall be scheduled and pursued to completion as required to permit opening of street areas to traffic without unnecessary delays.

2. No construction work involving occupancy of traffic lanes shall be performed during adverse weather conditions or adverse road conditions, and traffic shall be properly safeguarded by use of flashers and lights in addition to the signs and other markings specified herein. During these periods, no construction deliveries shall take place over a travel lane or immediately adjacent thereto.

3. When traffic conditions dictate, the Contractor shall modify its work operation for such length of time as required to alleviate the hazardous traffic conditions.

E. Equipment Travel:

1. No construction equipment other than that designated and used for general highway transportation shall be moved on streets during hours of darkness or periods of adverse weather conditions which reduce normal visibility.

2. Any construction equipment or material required for construction operations which exceeds the maximum vehicle dimensions specified in the Motor Vehicle Code, shall be moved only in accordance with established State and local regulations. No such oversize load shall be moved over public streets without first obtaining approval of the appropriate jurisdictional authority.

F. Crossing Traffic Lanes: Construction equipment entering the traveled way from the median shall be safeguarded by a CMS and with flaggers as required. Where traffic speeds are high, slow-moving construction equipment entering the traveled way shall be protected by a "rolling barricade" supplied by the California Highway Patrol (CHP). This operation shall be performed at off-peak hours and requires coordination between the Contractor and the CHP, with the cost being borne by the Contractor.

G. Flaggers: When flagging is required, provide qualified flaggers and flagging in accordance with the requirements of the Caltrans Traffic Manual, Chapter 5, Manual of Traffic Controls, Section 5.07.

H. Removal of Traffic Control Devices: All temporary signs, barricades, barrier curbs, crash cushions, drums, and cones used to safeguard traffic in connection with construction work shall be removed at the close of the work day, unless the state of the work is such that warning devices are still needed and are adapted for night closing.

I. Storage: No material or traffic control devices shall be stored on any lane intended for traffic use.

1.06 PORTABLE CHANGEABLE MESSAGE SIGN (CMS)

A. When conditions warrant, portable changeable message signs shall be furnished, placed, operated, and maintained at locations indicated or designated Town Representative, in accordance with Section 12-3.01. "General," of the Caltrans Standard Specifications.

B. A CMS shall be placed at a location 800 to 1000 feet upstream from the beginning of temporary barriers alerting motorists of slow trucks ingressing or egressing the median.

C. The message shall read "CAUTION - SLOW TRUCKS AHEAD," unless other words are required by the Town Representative.

D. The CMS shall be in continuous operation during the hours when trucks are entering or leaving the median at a rate greater than two trucks per hour.

E. When two trucks or less per hour are leaving the median, the CMS shall be in operation only during the time when trucks are entering the traveled way. The CMS shall be turned off after the truck has safely entered the traveled way.

F. Each portable changeable message sign unit shall consist of a 3-line matrix sign panel, a controller unit, a power supply, and a structural support system all mounted on a trailer. The unit shall be assembled to form a complete self-contained portable changeable message sign which can be delivered to the site of the work and placed in immediate operation. The complete message sign unit shall be capable of operating in an ambient air temperature range of minus 20 degrees C to plus 70 degrees C and shall not be affected by mobile radio transmissions.

G. The trailer shall be equipped with at least 3 adjustable outrigger leveling pads near the frame corners to permit stable job site installations. The unit shall be capable of resisting overturning under wind loads of 60 mph with the sign in the fully elevated position. The overall width of the trailer unit, including the sign and mounting brackets, shall not exceed 102 inches while being towed.

H. The message displayed on the sign shall be visible from 1200 feet and shall be legible from a distance of 750 feet, at noon on a cloudless day, by persons with vision corrected to 20/20. The sign shall be capable of displaying a minimum of 8 characters per line on each of three lines.

I. The sign face shall be flat black and shall be protected from sun-glare by a method which does not interfere with the clarity of the sign message. The sign shall be raised and lowered by means of a power-driven lifting mechanism.

J. The matrix sign shall be capable of a complete alphanumeric selection.

K. Lamp matrix type signs shall be equipped with an automatic dimming operational mode which automatically compensates for the influence of a temporary light source or other abnormal lighting conditions. The sign shall have manual dimming operation modes of three or more different lamp intensities.

L. Non-lamp matrix signs shall be internally illuminated at night.

M. The controller shall be an all solid-state unit containing all the necessary circuitry for the storage of at least five pre-programmed messages. The controller shall be installed in a location allowing the operator to perform all functions from one position. A keyboard entry system shall be provided to allow an operator to generate an infinite number of additional messages over the pre-programmed five. The keyboard shall be equipped with a security lockout feature to prevent unauthorized use of the controller.

N. The controller shall contain a non-volatile memory to hold the keyboard created messages in memory during a non-power period. It shall allow for a variable message display rate which allows the operator to match the information display to the speed of the approaching motorists. The flashing off time shall be operator adjustable within the control cabinet.

O. Full operation height shall be with the bottom of the sign at least 7 feet above the ground and the top no more than 14 feet, 6 inches above the ground.

P. The portable changeable message signs, when no longer required for the work, shall remain the property of the Contractor.

1.07 POLLUTION ABATEMENT - GENERAL REQUIREMENTS

A. Comply with the General Conditions, Article GC7.10. Conduct construction operations in a manner which will minimize pollution of the environment surrounding the area of the Work by all practicable means and methods. Apply specific controls as specified in the Contract Specifications and as follows:

1. Waste Materials: No waste or eroded materials shall be allowed to enter natural or man-made water or sewage removal systems. Eroded materials from excavations, borrow areas, or stockpiled fill shall be contained within the Work area. The Contractor shall develop methods for control of erosion as specified in Article 1.08 herein.

2. Burning: No burning of waste materials or debris will be permitted.

3. Burying: No burying of waste materials and debris will be permitted.

B. Provide for and maintain the flow of all sewers, drains, house or inlet connections, and all water courses which may be encountered during progress of the Work. Do not allow the contents of any sewer, drain or house or inlet connection to flow into trenches or

outside of the work area unless in an approved area consistent with State and Federal regulations. Immediately remove from proximity of the work all offensive matte, using such precautions as are required by jurisdictional authorities.

1.08 STORM WATER POLLUTION PREVENTION PLAN

A. Prior to commencement of Work at the site, provide Town with a Storm Water Pollution Prevention Plan (SWPPP) prepared in accordance with:

1. The Caltrans Storm Water Quality Handbooks:

   a. Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual; and

   b. Construction Site Best Management Practices (BMPs) Manual.

B. Submit SWPPP to Town for review in accordance with Section 01 30 00, Submittal Procedures. Provide the SWPPP to Town prior to commencement of Work at the site.

C. The SWPPP shall include all of the requirements in paragraphs 1.13B of this Section. Particular attention shall be paid to:

1. Site Map

2. Locations of all equipment and materials storage

3. Location of off-site fueling area and concrete washouts

4. Locations of all other staging areas, stockpile areas, and disposal sites

5. Location of sanitation facilities

6. All erosion and sediment control BMPs, as well as non-storm water BMPs

D. Water Pollution Control Drawings shall be of sufficient size and scale to detail BMP locations. Remove all extraneous information from the base sheets to improve clarity, including geometric equations, notes, details, and all data not related to water pollution control work. Use a copy of the appropriate Drawing(s) as a base sheet(s) with the pertinent stage of construction drawn in as an overlay to accurately reflect site conditions at various phases of construction. Provide enlarged detail mapping as necessary to detail BMP locations.

E. Revise and update the SWPPP whenever there is a change in construction operations that may affect the site drainage patterns or discharge of pollutants to surface waters, groundwaters, or a separate municipal storm sewer system.

F. Contractor shall be responsible for all fines, damages, and job delays incurred due to failure to implement the SWPPP.

G. Keep a copy of the SWPPP, together with updates and revisions at the site. Furnish copies of the SWPPP at the request of Town.

1.09 CREEK PROTECTION NOTES

A. Protective fabric/tarps shall be installed under and on both sides of the storm drain outlet at San Anselmo Creek to prevent any debris from inadvertently falling into the creek channel during the installation o the 48" HDPE storm drain.

B. All construction staging areas shall be located away from any drainage areas to prevent runoff from construction areas from entering the creek.

C. No debris, soil, silt, sand, cement concrete, or washing thereof, or other construction related materials or wastes, soil or petroleum products or other organic or earthen material shall be allowed to enter the creek. All discarded material including washings and any accidental spills shall be removed and disposed of at an approved disposal site.

1.10 DUST CONTROL

A. Provide dust control at all times, including holidays and weekends, as required to abate dust nuisance on and about the site which is a result of construction activities. Dust control shall be by means of sprinklered water or by other approved methods, except that chemicals, oil, or similar palliative shall not be used.

B. Quantities and equipment for dust control shall be sufficient to effectively prevent dust nuisance on and about the site; and when weather conditions warrant, sprinklering equipment shall be on hand at all times for immediate availability.

C. The Town of Fairfax shall have authority to order dust control work whenever conditions warrant, and there shall be no additional cost to the Town therefor. Dust control shall be effectively maintained whether or not the Town of Fairfax orders such work.

D. Complaints from the public shall be reported to the Town and shall be acted on immediately.

E. Where earthwork operations are in progress, keep exposed earth surfaces dampened continuously. Also, keep dirt accessways and roads dampened continuously.

F. If portions of the site are temporarily inactive or abandoned for whatever reason, provide dust control and abatement continuously during such periods of inactivity.

G. Where dust resulting from construction activities has collected on public sidewalks and streets, hose down such sidewalks and streets to abate flying dust particles. Clean all sidewalks and streets from accumulated dirt and dust.

1.11 MUD CONTROL

A. Take proper measures to prevent tracking of mud onto public streets, drives, and sidewalks. Such measures shall include, but are not limited to, covering muddy areas on the site with clean, dry sand.

B. All egress from the site shall be maintained in a dry condition, and any mud tracked onto streets, sidewalks, or drives shall be immediately removed, and the affected area shall be cleaned. The Engineer may order such work at any time the conditions warrant.

C. Where trucks will leave a muddy site and enter paved public streets, the Contractor shall maintain a suitable truck wheel-washing facility and crew. All trucks, or other vehicles leaving the site, shall be cleaned of mud and dirt, including mud and dirt clinging to exterior body surfaces of vehicles.

D. All trucks coming to the site or leaving the site with materials or loose debris shall be loaded in a manner which will prevent dropping of materials or debris on streets. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately.

1.12 NOISE CONTROL

A. Requirements: Minimize noise caused by construction operations, and provide working machinery and equipment fitted with efficient noise suppression devices. Employ other noise abatement measures as necessary for protection of employees and the public. In addition, restrict working hours and schedule operations in a manner which will minimize, to the greatest extent feasible, disturbance to residents and/or students in the vicinity of the Work.

B. Definitions:

1. Daytime refers to the period from 7:00 a.m. to 7:00 p.m. local time daily except Sundays and legal holidays.

2. Nighttime refers to all other times including all day Sunday and legal holidays.

3. Construction Limits are defined for the purpose of these noise control requirements as right-of-way lines, construction easement boundaries, or property lines as indicated on the Contract Drawings.

4. Zones, Special Zones, and Special Construction Sites outside of the Construction Limits shall be as designated by the local authority having jurisdiction. Such

specially designated zones shall be treated by the Contractor as if they were within the Construction Limits.

C. Monitoring:

1. Promptly inform the Town's Representative of any complaints received from the public regarding noise. Describe the action proposed and the schedule for implementation, and subsequently inform the Town Representative of the results of the action.

2. Monitor noise levels day and night and for each new activity or piece of equipment. Start by measuring 3 times a day plus once a night for three consecutive days. Monitor noise levels at least at least once a week thereafter.

D. Measurement Procedure:

1. Except where otherwise indicated, perform all noise measurements using the A-weight network and "slow" response of an instrument complying with the criteria for a Type 2 General Purpose sound level meter as described in ANSI S1.4.

2. Measure impulsive or impact noises with an impulse sound level meter complying with the criteria of IEC 179 for impulse sound level meters. As an alternative procedure, a Type 2 General Purpose sound level meter on C-weighting and "fast" response may be used to estimate peak values of impulsive or impact noises. Transient meter indications of 125 dBC "fast" or higher will be considered as indications of impulsive noise levels of 140 dB or greater.

3. Measure noise levels at buildings affected acoustically by the Contractor's operations at points between 3 feet and 6 feet from the building face to minimize the effect of reflections.

4. Measure noise levels at points on the outer boundaries of Construction Limits or Special Construction Sites for noise emanating from within.

5. Where more than one criterion of noise limits are applicable, use the more restrictive requirement for determining compliance.

E. Continuous Construction Noise: Prevent noise from stationary sources, parked mobile sources, or any source or combination of sources producing repetitive or long-term noise lasting more than one hour from exceeding the following limits:

1. Maximum Allowable Continuous Noise Level, dBA:

Affected Residential Area	Daytime	Nighttime
Single family residence	60	50

Along an arterial or in multi-family residential areas, including hospitals	65	55
In semi-residential/commercial areas, including hotels	70	60

Affected Commercial Area	At All Times
In semi-residential/commercial areas, including schools	65
In commercial areas with no nighttime residency	65

Affected Industrial Areas	
All locations	65

F. Intermittent Construction Noise: Prevent noises from non-stationary mobile equipment operated by a driver or from any source of non-scheduled, intermittent, non-repetitive, short-term noises not lasting more than four hours from exceeding the following limits:

1. Maximum Allowable Intermittent Noise Level, dBA:

Affected Residential Area	Daytime	Nighttime
Single family residence areas	75	60
Along an arterial or in multi-family residential areas, including hospitals	75	65
In semi-residential/commercial areas, including hotels	75	70

Affected Commercial Area	At All Times
In semi-residential/commercial areas, including schools	80
In commercial areas with no nighttime residency	85

Affected Industrial Area	At All Times
All locations	90

1.13 TEMPORARY SANITARY FACILITIES

A. Provide adequate temporary toilet conveniences, washing facilities, and drinking water for use of all employees and persons engaged on or about the Work, including subcontractors and their employees. Drinking water shall be potable, and drinking water facilities shall be clean and sanitary.

B. Locate sanitary facilities where approved by authorities having jurisdiction and maintain in a clean and sanitary condition during the course of the Work. Keep such facilities adequately supplied with toilet paper, paper toweling, paper cups, and related supplies as required.

C. At completion of the Work, sanitary facilities shall be properly disinfected and all evidence of same removed from the site.

1.14 ENCLOSED STORAGE AND SHOPS

A. Provide all temporary storage and shop rooms that may be required at the site for safe and proper storage of tools, materials, and equipment. Construct such rooms only in locations indicated or as approved by the Town's Representative, and so as not to interfere with the proper installation and completion of other work.

B. Remove such rooms within three days of receipt of notices from the Town that removal is necessary, and incur all expenses for such removal.

C. Storage of gasoline or similar fuels shall conform with NFPA regulations and local fire department regulations and shall be confined within definite boundaries apart from buildings as approved by the Town's Representative and jurisdictional fire marshal.

1.15 PROTECTIVE BARRICADES AND SAFETY PRECAUTIONS

A. Construct and maintain barricades, lights, shoring, warning signs, and flashing lights as required by Federal and State safety ordinances and as required to protect the Town's property from injury or loss and as necessary to protect the public and adjacent properties from harm and damage. Provide walks around obstructions made in a public place for prosecuting the Work. Leave all protection in place and maintain until removal is authorized.

B. Guard and protect all workers, pedestrians, vehicles, structures, fencing, landscaping and the public from excavations, construction equipment, obstructions, and other dangers with adequate railings, guard rails, k-rails, temporary walks, barricades, warning signs, directional signs, overhead protection, planking, decking, danger lights, and other suitable safeguards.

1.16 TEMPORARY FENCING

A. Furnish, construct, maintain, and later remove temporary fencing around the project site perimeter as indicated.

B. Except as otherwise specified herein, temporary fencing shall conform to the Standard Drawings and Specifications Standards for permanent fences .

C. Used materials may be employed for temporary fencing, provided such used materials are good, sound, and are suitable for the purpose intended.

D. Fencing materials may be commercial quality, provided the dimensions and sizes of said materials are equal to, or greater than, the dimensions and sizes indicated on the Standard Drawings or specified in the Contract Specifications. Additional fencing options include the following:

1. Posts may be either metal or wood.

2. Galvanizing and painting of steel items will not be required.

3. Treating wood with wood preservatives will not be required.

4. Concrete footings for metal posts will not be required, except where portable footings are required for temporary anchorage of posts.

E. Temporary fencing which is damaged from any cause during the progress of the Work shall be repaired or replaced by the Contractor at no additional cost to the Town.

F. When no longer required for the Work, temporary fencing shall be removed. Removed fencing and related materials shall become the property of the Contractor and shall be removed from the site of the Work, except as otherwise provided herein.

G. Holes and other damages caused by the removal of temporary fences shall be properly filled to match adjacent surfaces.

1.17 SECURITY

A. Provide for security of the Work and the site until final inspection and acceptance of the Work. Storage areas shall be suitably fenced and lighted and routinely patrolled by security guards.

B. The Town assumes no responsibility for protection of structures and finished work or for loss of materials and equipment from the time that Contract operations have commenced until final acceptance of the Work.

C. If watchman service is deemed necessary by the Contractor, such protection shall be provided by the Contractor, and all costs therefor shall be paid for by the Contractor.

D. Damaged, lost, or stolen materials and equipment, whether or not stored or already installed, shall be replaced by the Contractor with new specified materials and equipment, including reinstallation expenses where applicable, at no additional cost to the Town.

1.18 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations to a minimum depth of 2 feet.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 78 36

GUARANTEE

TOWN OF FAIRFAX

PASTORI STORM DRAIN OUTFALL

Project Description: Pastori Storm Drain Outfall, The Town of Fairfax

Date of Acceptance: _____

We hereby guarantee that the work we have installed for the Town has been done in accordance with the approved Plans and Specifications as well as all applicable State and local regulations and that the work as installed will fulfill the requirements of the guarantee. We agree to repair or replace any or all of our work, together with any other adjacent damages resulting from our work, that may prove to be defective in its workmanship or material within a period of ONE YEAR from the date of acceptance of the above-named work by Town without any expense whatsoever to the Town, ordinary wear and tear and unusual abuse or neglect excepted.

Within fifteen (15) days after being notified in writing by Town of any defects in the work, we agree to commence and prosecute with due diligence all work necessary to fulfill the terms of this guarantee, and to complete the work within a reasonable period of time (not to exceed thirty (30) days after commencement of the repair work); and in the event of our failure to so comply, we collectively and separately, do hereby authorize said Town to proceed to have such work done at our expense and we will honor and pay the cost and charges therefor upon demand.

DATED: _____

CONTRACTOR

By: _____

Title: _____

(To be signed and notarized before acceptance of project.)

SECTION 02 40 00

DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for the demolition and removal of material, including backfilling of resultant excavations and depressions, as indicated.

B. Extent of demolition work shall be as follows:

1. See Sheet EN3, Demo & Bank Stabilization

C. Restoration of existing structures and facilities to remain in place which are damaged by demolition and removal operations.

1.02 RELATED SECTIONS

A. Section 01 50 00 - Temporary Facilities and Controls

1.03 REFERENCES

A. American National Standards Institute (ANSI):

ANSI A10.6 Safety Requirements for Demolition Operations

B. California Code of Regulations (CCR):

CCR Title 8, Chapter 4, Subchapter 4 – Construction Safety Orders

CCR Title 24, Part 2, California Building Code, Chapter 33, Section 3303, Protection of Pedestrians during Construction or Demolition

1.04 PERMITS

A. Obtain all special permits and licenses and give all notices required for performance and completion of the demolition and removal work, hauling, and disposal of debris.

1.05 SUBMITTALS

A. Demolition Plan

1. Submit a comprehensive demolition plan, describing the proposed sequence, methods, and equipment for demolition, removal, and disposal of material; include salvage if required. Do not proceed with demolition until the designated approval authority has approved the demolition plan.

B. Shop Drawings

1. Include drawings in plan of all structures to be demolished. Indicate stages or phases of the demolition work.

C. Permits

1. Submit copies of demolition, hauling, and debris disposal permits and notices for record purposes. Include description of proposed haul routes.

1.06 SITE CONDITIONS

A. Erect and maintain temporary bracing, shoring, lights, barricades, signs, and other measures as necessary to protect the public, workers, and adjoining property from damage from demolition work, all in accordance with applicable codes and regulations.

B. Open depressions and excavations occurring as part of this work shall be barricaded and posted with warning lights when accessible through adjacent property or through public access. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

C. Protect utilities, pavements, and facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by demolition operations.

D. Protection of Utilities: Protect active sewer, water, gas, electric, and other utilities; and drainage and irrigation lines indicated or, when not indicated, found or otherwise made known to the Contractor before or during demolition work.

E. Maintain existing utilities and protect from damage as necessary to satisfy the requirements of jurisdictional utility companies and related codes and regulations.

F. Make arrangements with affected utility companies and districts to provide the information and services necessary to coordinate and complete the Work.

G. Do not disconnect or shut down any part of the existing utilities and services, except by permission of authorities having jurisdiction. Submit schedule of estimated shut-down time in order to obtain such permission, and notify all interested parties, neighbors, utilities, and municipal and county authorities, as required.

H. Utilities to be removed shall not be removed until shut-down time can be kept to a

minimum. Do not remove an existing utility line or service until the replacement line, crossover, or capping is ready to be performed.

I. Notify the Town and utility owners 72 hours before performing any excavation work. Notify affected utilities by calling Underground Service Alert (USA) at 1-800-227-2600. Contact utility owners not covered by USA, by calling the affected utility owners directly.

J. Protect active underground utilities from damage. If underground utilities are damaged in any way, notify the Engineer and affected utilities immediately for corrective action.

K. Noise and Dust Abatement: Comply with requirements specified in Section 01 50 00, Temporary Facilities and Controls. In addition, provide continuous noise and dust abatement as required to prevent disturbance and nuisance to the public and workers and to the occupants of adjacent premises and surrounding areas. Dampen or cover areas affected by demolition operations as necessary to prevent dust nuisance.

L. The Contract Drawings and related documents may not represent all surface conditions at the site and adjoining areas. The known surface conditions are as indicated, and shall be compared with actual conditions before commencement of work.

M. Existing utilities and drainage systems below grade are located from existing documents and from surface facilities such as manholes, valve boxes, area drains, and other such surface fixtures.

N. If existing active services encountered are not indicated or otherwise made known to the Contractor and interfere with the permanent facilities under construction, notify the Engineer in writing, requesting instructions on their disposition. Take immediate steps to ensure that the service provided is not interrupted, and do not proceed with the work until written instructions are received from the Engineer.

O. Thicknesses of existing pavements are from previous construction documents, and do not imply the actual depth or thickness of the total pavement or base material, where it occurs. Remove pavement of whatever thickness as required.

PART 2 - PRODUCTS

2.01 MATERIALS, EQUIPMENT, AND FACILITIES

A. Furnish all materials, tools, equipment, devices, appurtenances, facilities, and services as required for performing the demolition and removal work.

PART 3 - EXECUTION

3.01 PRESERVATION OF REFERENCE MARKERS

A. Record the locations and designation of survey markers and monuments prior to their removal. Provide three reference points for each survey marker and monument removed, established by a licensed civil engineer or land surveyor currently registered in the State of California.

B. Store removed markers and monuments during demolition work, and replace them upon completion of the work. Re-establish survey markers and monuments in conformance with the recorded reference points. Forward to the Town a letter verifying re-establishment of survey markers and monuments, signed by a licensed civil engineer or land surveyor currently registered in the State of California.

3.02 DEMOLITION

A. Perform demolition in accordance with the approved Demolition Plan.

B. Operational procedures shall be in accordance with the approved Demolition Plan.

C. Blasting will not be permitted.

3.03 RESTORATION OF EXISTING STRUCTURES AND FACILITIES

A. All damage to existing structures and facilities, including utilities, which are to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of demolition and removal operations. The cost of repairing existing structures and facilities damaged by the Contractor's operations shall be at the Contractor's expense.

3.04 CLEANUP

A. Provide a clean and orderly site.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Forms

1. Metal forms
2. Plywood forms
3. Steel ties and or spreaders

B. Wall Forms

1. Exposed concrete surfaces
2. Unexposed concrete surfaces
3. Sealant

1.02 REFERENCES

A. ACI 301 Standard Specifications for Structural Concrete

B. ACI 347 Guide to Formwork for Concrete

C. APA PS-1 American Plywood Association Standard for Construction and Industrial Plywood

1.03 SUBMITTALS

A. Product Data

1. Form release agent.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except for metal forms, use new materials conforming to ACI 347.

B. Materials may be reused during progress of work, provided they are completely cleaned and reconditioned, re-coated for each use, and capable of producing formwork of required quality.

C. For footings and foundations us Douglas fir boards or planks secured to wood or steel stakes, substantially constructed to shapes as indicated and to support required loads.

D. For studs, walers and supports, use standard grade or better Douglas fir, dimensions as required to support loads but not less than two-inches x four-inches.

E. Exposed Concrete Surfaces

1. Use 3/4-inch minimum thickness Douglas fir plywood, grade B/B, Class I or II, exterior, sanded both sides, complying with National Standard PS-1.

2. Seal edges and coat both faces with colorless coating that will not affect application of applied finishes.

F. Unexposed Concrete Surfaces

1. Use one-inch x six-inch minimum Douglas fir boards, surfaced one side and two edges, or 3/4-inch minimum thickness Douglas fir plywood, grade B/B plyform Class I or II, sanded both sides.

2.02 DESIGN FORMWORK

A. Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by concrete structure.

B. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained strength for that purpose.

C. Construct formwork so concrete members and structures are of correct size, shape alignment, elevation and position.

D. Design forms and falsework to include assumed values of load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structure during construction.

E. Provide shores and struts during concrete operations, using wedges or jacks, or a combination thereof.

F. Support form materials by structural members spaced sufficiently close to prevent objectionable deflection.

G. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities, and within allowable tolerances.

H. Provide formwork, sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and prevent fins.

PART 3 - EXECUTION

3.01 FORMS

A. Construct forms complying with ACI 347 to exact sizes, shapes, lines and dimensions shown on the drawings, and as required to obtain accurate alignment, location, grades, and level and plumb Work in finished structure.

B. Provide for offsets, recesses, chamfers, anchorages, inserts and other features as required.

C. All reinforcing steel, anchor bolts, dowels, and inserts to be accurately placed and securely held in place prior to placing of concrete or grout.

3.02 FABRICATION

A. Fabricate forms for easy removal without hammering or prying against concrete surfaces.

B. Provide crush plates where stripping my damage cast concrete surfaces.

C. Hold inner and outer forms for vertical concrete together with combination steel ties and spreaders.

D. Space ties symmetrically in tiers and rows, each tier plum from top to bottom and each row level.

E. For exposed concrete surfaces, provide form ties of removable type with she-bolts equipped with permanent plugs.

3.03 FORMS FOR EXPOSED CONCRETE

A. Drill forms to suit ties being used, and to prevent leakage of cement paste around tie holes

B. Do not splinter forms by driving ties through improperly prepared holes.

C. Provide sharp, clean corners at intersecting planes, without visible edges or offsets.

D. Back joints with extra studs or girts to maintain true, square intersections.

E. Use extra studs, wales and bracing to prevent objectionable bowing of forms between studs, and to avoid bowed appearance in concrete.

F. Do not use narrow strips of form material which will produce bow.

3.04 CORNER TREATMENT

A. Unless shown otherwise, form chamfers with 2 inch x 2 inch strips, accurately formed and surfaced to produce uniformly straight lines and tight edges.

B. Extend terminal edges to required limit, and miter chamfer strips at changes in direction.

3.05 FORM RELEASE AGENT

A. Coat form contact surfaces with form release agent compound before reinforcement is placed.

B. Do not allow excess form release agent material to accumulate in forms or to come in contact with surfaces which will bond to fresh concrete.

C. Apply form release agent material in strict accordance with its manufacturer's recommendations.

3.06 FORM REMOVAL

A. Do not disturb or remove forms until concrete has hardened sufficiently to permit form removal with complete safety.

B. Do not strip abutment, ramp, and landing forms in less than seven days.

C. Do not remove shoring until member has acquired sufficient strength to support its own weight, load upon it, and added load of construction.

3.07 FINISHED SURFACES

A. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged.

B. Release sleeve nuts or clamps, and pull form ties neatly.

C. Do not permit steel spreaders, form ties, or other metal to project from, or be visible on, any concrete surface except where indicated.

D. Solidly pack form tie holes, rod holes, and similar holes in the concrete with approved grout and finish smooth and flush with surrounding concrete surfaces.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete Forms

1. Bridge abutments, flatwork, ramps, stairs, and landings.
2. Fence and light pole foundations.

B. Concrete Reinforcing

1. Detailing
2. Bending
3. Placement
4. Amounts of cover for cast-in-place concrete
5. Anchor bolts
6. Dowels
7. Inserts
8. Lap Splices

C. Curing Compound and Sealer

1.02 RELATED SECTIONS

A. Section 03 10 00 - Concrete Formwork

1.03 REFERENCES

A. ACI 304 Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete

B. ACI 305R Hot Weather Concreting

C. ACI 306R Cold Weather Concreting

D. ACI 308 Standard Specification for Curing Concrete

E. ACI 309 Guide for Consolidation of Concrete

F. ACI 315 Details and Detailing of Concrete Reinforcement

G. ACI 318 Building Code Requirements for Reinforced Concrete and Commentary

H. ASTM C33 Standard Specification for Concrete Aggregates

I. ASTM C94 Standard Specification for Ready-Mixed Concrete

J. ASTM C150 Standard Specification for Portland Cement

K. ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

L. ASTM C494 Standard Specification for Chemical Admixtures for Concrete

M. ASTM A615 Standard Specification for Plain Billet-Steel Bars for Concrete Reinforcement

N. ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

O. ASTM C979 Standard Specification for Integral Concrete Coloring System

P. California Code of Regulations (CCR):

1. CCR Title 8, Chapter 4, Subchapter 4 B Construction Safety Orders

2. CCR Title 24, Part 2, California Building Code, Chapter 33, Section 3303, Protection of Pedestrians during Construction or Demolition

1.04 SUBMITTALS

A. Product Data

1. Curing / Sealing Compounds

2. Admixtures

3. Source of Concrete and Aggregates

4. Concrete Mix

B. Shop Drawings

1. Reinforcing Diagrams

2. Bar Schedules

C. Curing

1. Curing Method

D. Test Reports

1. Mill Test Reports

a. Reinforcing Steel

b. Cement

2. Concrete Mix Designs

Concrete Mix including water-cement ratio, concrete mix ingredients and proportions, admixtures type and quantities, design slump, aggregate size, design 28 day compressive strength, and cylinder break-strength history of the mix.

E. Delivery

With each batch of concrete, furnish certified delivery tickets listing information in Paragraphs 13.1 and 13.2 of ASTM C94. Maximum delivery temperature of concrete is 100 degrees Fahrenheit (F). Minimum delivery temperature as follows:

Atmospheric Temperature	Minimum Concrete Temperature
30 degrees to 40 degrees F	60 degrees F
0 degrees to 30 degrees F	70 degrees F

PART 2 - PRODUCTS

2.01 MATERIALS

A. Portland Cement

Clean, fresh, Type II, low alkali, Portland cement conforming with ASTM C150.

B. Pozzolan-Class F fly-ash shall be in conformance with ASTM C618.

C. Aggregates

1. Aggregates shall be graded in accordance with the Simplified Practice Recommendations size number 57 (SPR No. 57) 1" to #4 complying with specifications of ASTM D 448.
2. Natural aggregates shall be free from deleterious materials, conforming to ASTM C33. Aggregate is not to be potentially reactive as defined in Appendix XI of ASTM C33. Aggregates to be thoroughly and uniformly washed before use.

D. Mixing Water

Fresh, clean, potable and free from oil, acid, alkali, organic matter or other deleterious substances.

E. Admixtures

Admixtures, if used, shall be of a type conforming to ASTM C494 that increases the workability of the concrete, will not impair the strength of the concrete, and is not used to reduce the cement content of the mix. Do not use Calcium Chloride.

F. Liquid Membrane-Forming Curing Compound

Is to be clear or translucent, suitable for spray application and is to conform to ASTM C309, Type 1.

G. Properties

1. 28 day strength of concrete cast-in place shall be a minimum of:

   a. 4,000 psi for new abutment beam.

   b. 2,500 psi for lean concrete for infill between wingwall and separate existing foundation.

2. The water/cement ratio of concrete cast in place shall be:

   a. 0.44 or less for 4,000 psi.

   b. 0.58 or less for 2,500 psi.

3. Slump of concrete not to exceed four (4) inches.

4. 15% of total cement weight shall be Pozzolan-Class F Fly-ash. Fly-Ash to be in conformance with ASTM C618.

5. Entrained air in concrete mix shall be 3% ∀1%.

2.02 REINFORCING STEEL

A. Bar reinforcement to be ASTM A615, Grade 60.

PART 3 - EXECUTION

3.01 REINFORCING

A. Reinforcing detailing, bending, and placing shall be in accordance with the provisions of ACI 315 and ACI 318.

B. Reinforcing steel to be provided with the following minimum amounts of cover for cast-in-place concrete:

1. Concrete deposited against earth - three inches.

2. Concrete surface (formed or unformed) exposed to earth or weather - two inches.

C. All reinforcing steel shall be accurately placed and securely held in place prior to placing of concrete.

D. Horizontal bars to lap a minimum of 40 bar diameters and tied with16 gauge black annealed wire. Bars may be spaced against earth with three inch concrete Adobies.@

3.02 MIXING CONCRETE

A. All concrete materials to be measured accurately for each batch and mixed thoroughly until aggregate is coated with mortar. Combined ingredients to be mixed for a minimum of 1-1/2 minutes.

B. Concrete batching and mixing to comply with ACI 318 and ASTM C94, delivered to site. Batch mixing at the Site is not permitted.

3.03 PLACING CONCRETE

A. Preparation

1. Remove hardened concrete, wood chips, shavings and other debris from forms.

2. Remove hardened concrete and foreign materials from interior surfaces of mixing and conveying equipment.

3. In-place reinforcement shall be inspected and approved by the Town of Fairfax before depositing concrete.

4. Forms and reinforcing bars to be clean and wetted prior to placing of the concrete.

B. Conveying Concrete

Convey concrete from mixer to final place of deposit by a method that will prevent segregation. Method of conveying concrete is subject to approval of the TOWN.

C. Placing

1. Concrete to be placed in conformance with the recommendations of ACI 304.

2. Do not place concrete when weather conditions prevent proper placement and consolidation, or when concrete has attained its initial set, or has combined its water and cement content more than 1-1/2 hours.

3. Deposit concrete as near as practicable in its final position. Prevent splashing of forms or reinforcement with concrete in advance of placing concrete.

4. Do not drop concrete freely more than five feet. Where greater drops are required, use a tremie or flexible spout attached to a suitable hopper.

5. Discharge contents of tremies or flexible spouts in horizontal layers not exceeding 20 inches in thickness, and space tremies such as to provide a minimum of lateral movement of concrete.

6. Continuously place concrete until an entire unit between construction joints is placed. Rate and method of placing concrete to be such that no concrete between construction joints will be deposited upon or against partly set concrete.

7. Continuously place all concrete with no more than 10 minutes elapsed time between pours. Sequence concrete pours such that each pour is placed on or adjacent to concrete that has been in place no more than 10 minutes.

D. Consolidation

Conform to ACI 309. Immediately after depositing, spade concrete next to forms, into corners and recesses, work around reinforcement and into angles of forms, tamp lightly by hand, and compact with mechanical vibrator. Vibrate concrete to produce thorough compaction, leaving no voids, complete embedment of reinforcement and concrete of uniform and maximum density without segregation of mix. Do not transport concrete in forms by vibration. Carry on vibration continuously with placing of concrete. Do not insert vibrator into concrete that has begun to set.

3.04 HOT OR COLD WEATHER

A. Follow the recommendations of ACI 305R and ACI 306R for hot and cold weather conditions.

3.05 CONCRETE FINISHES

A. Finish of formed surfaces to be smooth and free of fins, honeycomb, or segregation. When defects occur, they are to be remedied by chipping cavities and patching, or by other methods approved by the TOWN.

B. Exposed surfaces to be Asacked@ by rubbing cement mortar into voids with burlap or canvas. Fins to be ground smooth and loose mortar to be removed.

C. Vertical edges of walls to have 1/2-inch chamfer.

D. Horizontal edges of walls to have 1/2-inch chamfer.

E. Exposed unformed surfaces to be steel troweled to a smooth dense finish, prior to the application of the curing compound/sealer. Walking surfaces shall receive a medium broom finish perpendicular to the direction of travel after steel troweling.

3.06 PROTECTION AND CURING

A. In conformance with ACI 308, except as otherwise specified herein.

B. Initial curing to immediately follow the finishing operation. Protect exposed surfaces of concrete from premature drying, wash by rain and running water, wind, mechanical injury, and excessively hot or cold temperatures. Concrete not covered with membrane or other curing material to be kept continuously wet for at least seven days after placing. Keep wood forms continuously wet to prevent moisture loss until forms are removed. Cure exposed concrete surfaces as described below. Other curing methods may be used if approved by the TOWN.

1. Liquid Curing and Sealing Compounds

   Apply by spray or roller in accordance with the manufacturer's instructions. Apply immediately after finishing. Maximum coverage to be 400 square feet per gallon on steel troweled surfaces, and 300 square feet per gallon on floated or broomed surfaces for the curing/sealing compound.

2. Plastic sheets

   Apply as soon as concrete has hardened sufficiently to prevent surface damage. Utilize widest practical width sheet and overlap adjacent sheets two inches. Tightly seal joints with tape.

3. Paper

   Utilize widest practical width paper and overlap adjacent sheets two inches. Tightly seal joints with tape.

C. Provisions are to be made to keep overspray for curing/sealing compounds from extending beyond concrete surfaces. Spray of curing/sealing compounds to cease if sustained winds exceed 10 miles per hour.

3.07 CLEANING

A. Cleaning of equipment for delivery or placement of concrete is prohibited on site.

3.08 ACCEPTANCE

A. Surfaces of exposed concrete are to be uniform in appearance and free from rock pockets, fins, honeycombs, and other blemishes. All form-tie holes shall be filled with grout and finished smooth.

END OF SECTION

SECTION 31 20 00

EARTHWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for the excavation, filling, recompacting, grading and disposal of excess material.

1.02 RELATED SECTIONS

A. Section 31 23 19 – Dewatering

B. Section 31 23 33 – Trenching and Backfilling

C. Section 32 11 23 - Aggregate Base

1.03 REFERENCES

A. ASTM C136-84a – Standard Method for Sieve Analysis of Fine and Coarse Aggregate

B. ASTM D1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort

C. ASTM D2922 – Density of Soil and Soil-Aggregate in Place by Nuclear Methods

D. Caltrans – State of California Standard Specifications; latest edition

1.04 DEFINITIONS

A. Compaction

1. The degree of compaction is specified as percent compaction. Maximum densities refer to the maximum laboratory dry soil densities obtainable at optimum moisture content as determined by ASTM D1557.

2. Percent compaction (relative compaction) is the ratio of the measured field dry density to the laboratory maximum dry density.

B. Excavation Slope: Excavation slope shall be defined as an inclined surface formed by removing material from below existing grade.

1.05 SUBMITTALS

A. Product Data

1. Fill materials

2. Source of concrete and aggregate for approval

B. Test Reports

1. Gradation (ASTM C136)

2. Density-In-Place (ASTM D2922)

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Class 2 Aggregate Base

1. Class 2 aggregate base for subsequent backfill and/or pavement base to be ¾ inches maximum Class 2 aggregate base conforming to Caltrans, Section 26

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Surplus Material

1. Unless otherwise specified, surplus excavated material shall be disposed of off site in accordance with applicable ordinances and environment requirements at the expense of the Contractor.

B. Hauling

1. When hauling is down over highways or city streets, loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading.

2. Loads shall be watered after trimming to eliminate dust.

C. Subgrade

1. Unless directed otherwise on the drawings, existing subgrade shall be compacted to 90% RC, 12" in depth, prior to placement of base material.

2. Subgrade shall be inspected for compliance to the soils report by the Owner/Geotechnical engineer prior to filling or on achieving final cut depth

D. Finish Grading

1. Finish surfaces shall be smooth, compacted and free from irregularities. The degree of finish shall be that normally obtainable with a blade-grader.

2. Finish grades shall be as specified on the plans, except where a local change in elevation is required to match existing conditions, or to ensure proper drainage.

3. When the work is at an intermediate stage of completion, lines and grades shall be as specified within 0.5 foot or as necessary to provide adequate drainage.

3.02 FIELD QUALITY CONTROL

A. Fill material shall be placed in horizontal layers and compacted with power operated tampers, rollers, idlers, or vibratory equipment. Material type, maximum layer depth, relative compaction, and general application are specified in Table A, below. Unless otherwise specified, fill classes shall be used where specified in Table A under General Application.

Table A: Fill Classification

Material Type	Maximum Uncompressed Layer Depth (Inches)	Minimum Relative Compaction (Percent)	General Application
Aggregate Base	8"	95%	Roadway Grades

3.03 TESTS

A. Inspection Trenches

1. Owner will direct Contractor to construct inspection trenches in compacted or consolidated backfill to determine that Contractor has complied with these Specifications.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications and procedure for the dewatering of excavations and disposal of water.

1.02 SUBMITTALS

A. Prior to installation of the dewatering system, submit shop drawings and design data indicating the following:

1. The proposed type of dewatering system
2. Arrangement, location and depths of system components
3. Complete description of equipment and instrumentation to be used, with installation, operation and maintenance procedures
4. Methods of disposal of pumped water
5. Necessary permits for water disposal

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Furnish all materials, tools, equipment, facilities, and services as required for providing the necessary dewatering work and facilities.

B. Provide backup equipment as necessary for the replacement and for unanticipated emergencies.

PART 3 - EXECUTION

3.01 DEWATERING

A. Keep excavation and drilled shaft foundations reasonably free from water during construction.

B. Disposal of water shall not damage property or create a public nuisance.

C. Have on hand pump equipment and machinery in good working condition for emergencies and workmen available for its operation.

D. Dewatering systems shall operate continuously until drilled shaft foundations are poured.

E. Groundwater shall be controlled to prevent softening of the bottom of excavations, or formation of "quick" conditions.

F. Dewatering systems shall not remove natural soils.

G. Control surface runoff to prevent entry or collection of water excavations.

H. Release of groundwater shall be controlled to prevent disturbance of the natural foundation soils or compact fill.

I. There shall be no discharge of turbid water on site.

J. Discharge or disposal of water shall be controlled to prevent erosion.

END OF SECTION

SECTION 31 23 25

CONTROLLED DENSITY FILL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Portland cement

B. Fly ash

C. Air-entraining admixture

D. Aggregate

1.02 RELATED SECTIONS

A. Section 31 00 00 – Earthwork.

B. Section 33 05 28 – Trenching and Backfilling for Utilities.

1.03 MEASUREMENT AND PAYMENT

A. General. Measurement and payment for controlled density fill will be either by the lump-sum method or by the unit-price method, as determined by the listing of the bid item for controlled density fill indicated in the Bid Schedule of the Bid Form.

B. Lump Sum. If the Bid Schedule indicates a lump sum for controlled density fill, the lump-sum method of measurement and payment will be in accordance with Section 01 20 00 – Price and Payment Procedures, Article 1.03.

C. Unit Price. If the Bid Schedule indicates a unit price for controlled density fill, the unit-price method of measurement and payment will be as follows:

1. Measurement. Except as specified otherwise in other Sections of these Specifications or the Contract Specifications, controlled density fill will be measured for payment by the cubic yard, and quantities will be computed, based on the neat lines, section profiles, and dimensions indicated on the Contract Drawings.

2. Payment. Controlled density fill will be paid for at the indicated Contract unit prices for the computed quantities as determined by the measurement method specified in Article 1.03, C.1, herein.

1.04 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C33 – Specification for Concrete Aggregates
2. ASTM C94 – Specification for Ready-Mixed Concrete
3. ASTM C150 – Specification for Portland Cement
4. ASTM C231 – Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
5. ASTM C260 – Specification for Air-Entraining Admixtures for Concrete
6. ASTM C618 – Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete

1.05 DEFINITION

A. Controlled density fill (CDF) is a flowable mixture of aggregate and cementitious material containing sufficient Portland cement to develop a 28-day compressive strength of between 50 and 150 psi, that self compacts upon backfill placement.

1.06 SUBMITTALS

A. General. Refer to Sections 01 33 00 – Submittal Procedures, and Section 01 33 23 – Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.

B. Mix Design. Submit controlled density fill mix design in accordance with applicable requirements of Section 03 05 15 – Portland Cement Concrete.

C. Test Sample. Provide test sample in accordance with applicable requirements of ASTM C231.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Portland Cement: ASTM C150, Type I or Type II.

B. Fly Ash: ASTM C618, Class F. Fly ash shall not inhibit air entrainment.

C. Air-Entraining Admixture: ASTM C260.

D. Aggregate: ASTM C33, graded aggregate, maximum size of 3/8-inch.

E. Water: Potable

2.02 MIX DESIGN

A. Requirements. Controlled density fill shall be composed of cementitious materials, aggregate, water, and an air-entraining admixture, as follows:

1. Cementitious materials shall be Portland cement in combination with fly ash.

2. Admixture shall be an air-entraining agent.

B. Aggregate Content. CDF mixture shall contain no aggregate larger than 3/8-inch. Amount passing a No. 200 sieve shall not exceed 12 percent. No plastic fines shall be present.

C. Air Content. Total calculated air content of the sample, prepared in accordance with ASTM C231, shall not exceed 30 percent.

D. Strength. Controlled density fill shall have an unconfined compressive strength at 28 days of 50 psi to a maximum of 150 psi.

PART 3 – EXECUTION

3.01 MIXING AND DELIVERY

A. Controlled density fill shall be batched at a ready mixed plant and shall be mixed and delivered to the work site by transit mixing trucks, in accordance with ASTM C94.

3.02 INSTALLATION

A. Controlled density fill material shall be placed in the excavations and trenches to be backfilled to the indicated elevations in level layers. Do not perform any vibratory consolidation or compaction.

B. Equipment and traffic shall not be permitted on the controlled density fill until the surface of the CDF will withstand the weight of the equipment and traffic without displacement or damage.

C. Provide steel trench plates to span trenches where required to provide passage for vehicles and other equipment.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for excavating, backfilling and compacting for the installation of pipe and pipeline appurtenances (i.e. manholes, catch basins, area drains, etc.)

1.02 RELATED SECTIONS

A. Section 31 20 00 - Earthwork

B. Section 31 23 19 - De-watering

C. Section 31 23 25 - Controlled Density Fill

D. Section 32 11 23 - Aggregate Base

E. Section 33 40 00 - Site Drainage System

1.03 REFERENCES

A. Marin Municipal Water District Standard Specifications - Latest Edition

B. North Marin Water District Standard Specifications - Latest Edition

C. San Rafael Sanitation District Standard Specifications - Latest Edition

D. Novato Sanitary District Standard Specifications - Latest Edition

E. PG&E Standard Specifications - Latest Edition

F. AT&T Standard Specifications - Latest Edition

G. Marin County Uniform Construction Standards, May 2008

H. California Plumbing Code - Latest Edition

I. Caltrans Standard Specifications and Drawings - Latest Edition

PART 2 - PRODUCTS

2.01 BACKFILL MATERIAL

A. Trench backfill shall consist of Class 2 Aggregate Base and Control Density Fill where indicated as shown in the plans.

2.02 PIPING MATERIAL

A. Refer to Section 33 40 00 - Site Drainage System

PART 3 - EXECUTION

3.01 EXCAVATION

A. General

1. Keep trench dry throughout construction operations

2. Trench excavation shall follow the alignment of the pipe or utility centerline

3. No more than 100 LF of trench shall be open at one time

B. Shoring and Bracing

1. Contractor is responsible for any damage or injury resulting from his construction operations. Contractor shall perform, at his own expense, all necessary repair work or reconstruction.

2. Contractor will be responsible for all shoring with bracing design and installation.

C. Excavation Required Beyond Trench Limits

1. Excavation (bell holes) where necessary in the sides and bottom of the trench at pipe joint locations shall be large enough to make joints and permit inspection.

2. Excavation to a greater depth than shown on the plans may be ordered by the Project Geotechnical Consultant if the native material at the bottom of the trench will not provide proper support for the pipe or if the excavation is in rock.

3. Remove all adjacent, saturated material where pipeline leaks occur.

3.02 UTILITIES

A. Location

1. Approximate known locations of underground utilities and structures are indicated on the plans. Contractor shall determine exact location of underground utilities and structures prior to construction.

2. Adjustments of pipe alignment and elevation will be authorized by the Owner where exploratory work indicates the need.

B. Excavation Around Utilities

1. Excavation and other work under or adjacent to utilities shall not interfere with their safe operations and use.

2. Probe carefully to determine the exact location of utility and hand excavate where necessary to avoid damage.

3. In the event of damage incurred during construction near such structures or property, Contractor shall immediately notify the Owner and other appropriate utility or public safety authorities and shall arrange for immediate repairs at Contractor's expense.

C. Tunneling Under Utilities

1. Tunneling may be allowed for short distances with the approval from the Project Geotechnical Consultant.

3.03 BLASTING

A. Blasting will not be permitted.

3.04 BACKFILL OF TRENCHES

A. Prior to backfilling, the trench shall be cleared of all wood and debris.

B. Backfill pipeline trenches to the level of the original ground surface or the underside of the pavement base course.

C. Backfill material shall not be dropped directly on the pipe.

D. Carefully remove timbering, sheeting, shoring and sheet piling, according to the instructions of the shoring system designer or the manufacturer, using methods that will minimize caving. If caving is occurring, the shoring system will be required to remain in place up to one to six inches above the top of the pipe.

E. Jetting of trench backfill is not permitted.

F. If trench has been excavated below the specified depth, that portion of the trench shall be backfilled with Class 2 or select material and compacted before pipe installation, at the Contractor's expense.

G. If pipe or conduit has less than 18 inches of final cover, trench shall be backfilled with Control Density Fill (CDF) to a depth specified by the Engineer.

END OF SECTION

SECTION 32 11 23

AGGREGATE BASE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for furnishing, spreading, and compacting aggregate base course for pavements as indicated.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):

ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

ASTM D3017 Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

B. State of California, Department of Transportation (Caltrans), Standard Specifications:

Section 17 Watering

Section 26 Aggregate Bases

C. State of California, Department of Transportation (Caltrans), Standard Test Methods:

Calif. Test 201Method of Soil and Aggregate Sample Preparation Aggregates

Calif. Test 202Method of Tests for Sieve Analysis of Fine and Coarse Aggregates

Calif. Test 205Method of Determining Percentage of Crushed Particles

Calif. Test 216Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates

Calif. Test 217Method of Test for Sand Equivalent

Calif. Test 229Method of Test for Durability Index

Calif. Test 301Method of Test for Resistance "R" Value of Treated and Untreated Bases, Subbases and Basement Soils by the Stabilometer

PART 2 - PRODUCTS

2.01 AGGREGATE BASE MATERIAL

A. Class 2 aggregate base shall be free of vegetable matter and other deleterious substances. Coarse aggregate, material contained on the No. 4 sieve, shall consist of material of which 25 percent by weight shall be crushed particles as determined by California Test Method No. 205. Class 2 aggregate base shall conform to one of the following gradings, determined in accordance with California Test Method No. 202:

Percentage Passing Sieves for ¾" maximum

Sieve Sizes	
2 inch	**----**
1 ½ inch	**----**
1 inch	**100**
3/4 inch	**90-100**
No. 4	**35-60**
No. 30	**10-30**
No. 200	**2-9**

B. Class 2 aggregate base shall conform to the following additional requirements:

Tests	Test Method No. Calif.	Requirements
Resistance (R-Value)	301	78 min.
Sand Equivalent	217	22 min.

Tests	Test Method No. Calif.	Requirements
Durability Index	229	35 min.

2.02 SOURCE QUALITY CONTROL

A. Submit certificate of compliance for approval prior to installation of material.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Call for an inspection by the Engineer and obtain written acceptance of the prepared subgrade or subbase before proceeding with the placement of aggregate base course.

B. The subgrade or subbase to receive aggregate base course, immediately prior to spreading, shall conform to the compaction and elevation tolerances indicated for the material involved and shall be free of standing water and loose or extraneous material.

3.02 INSTALLATION STANDARDS

A. Aggregate base course shall be applied over the prepared subgrade or subbase and compacted in accordance with Section 26 of the Caltrans Standard Specifications.

B. Aggregate base course shall be minimum uniform thickness after compaction of dimensions indicated. Where not indicated, compacted thickness shall be six inches for driveways/sidewalks and eight inches for roadways.

C. All compaction expressed in percentages in this section refers to the maximum dry density as determined by California Test Method No. 216.

3.03 SPREADING OF MATERIAL

A. Aggregate for base course shall be delivered as uniform mixture of fine and coarse aggregate and shall be spread in layers without segregation.

B. Aggregate base course material shall be free from pockets of large and fine material. Segregated materials shall be remixed until uniform.

C. Aggregate base material shall be moisture-conditioned to near optimum moisture content in accordance with the applicable requirements of Section 17 of the Caltrans Standard Specifications.

D. Aggregate base course six inches and less in thickness may be spread and compacted in one layer. For thicknesses greater than six inches, the base course aggregate shall be spread and compacted in two or more layers of uniform thickness not greater than six inches each.

3.04 COMPACTING

A. Relative compaction of each layer of compacted aggregate base material shall be not less than 95 percent as determined by California Test Method No. 216.

B. Thickness of finished base course shall not vary more than 3/4 inch from the indicated thickness at any point. Base which does not conform to this requirement shall be reshaped or reworked, watered, and recompacted to achieve compliance with specified requirements.

C. The surface of the finished aggregate base course at any point shall not vary more than 3/4 inch above or below the indicated grade.

3.05 FIELD QUALITY CONTROL

A. Perform field tests in accordance with ASTM D2922 to determine compliance with specified requirements for density and compaction of aggregate base material, and with ASTM D3017 to determine moisture-content compliance of the installed base course.

END OF SECTION

SECTION 32 12 16

ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for providing asphaltic concrete paving as indicated.

1.02 RELATED SECTIONS

A. Section 31 20 00 - Earthmoving

B. Section 32 11 23 - Aggregate Base

1.03 REFERENCES

A. State of California, Department of Transportation (Caltrans), Standard Specifications

Section 39 Asphalt Concrete

Section 92 Asphalts

Section 93 Liquid Asphalts

Section 94 Asphaltic Emulsions

B. State of California, Department of Transportation (Caltrans), Standard Test Methods

Calif. Test 202Method of Tests for Sieve Analysis of Fine and Coarse Aggregates

Calif. Test 304Method of Preparation of Bituminous Mixtures for Testing

Calif. Test 366Method of Test for Stabilometer Value

Calif. Test 375Determining the In Place Density and Relative Compaction of AC Pavement

1.04 PROTECTION

A. Protect concrete pavements and walks, curbs and bases, and other improvements adjacent to the operations with suitable materials. The Contractor shall be

responsible for any damage caused by the Contractor's employees or equipment and shall make necessary repairs. Building and other surfaces shall be covered with paper or other protection, where required. All damage caused by the Contractor's operations shall be prepared or replaced as required.

PART 2 - PRODUCTS

2.01 BASE COURSE MATERIAL

A. Class 2 Aggregate Base. Percentage composition by weight of aggregate base material shall conform to the 3/4 inch maximum grading when determined by California Test 202.

2.02 TACK COAT (VERTICAL SURFACES)

A. Tack Coat: Diluted SS-1 or SS-1h emulsion or undiluted RS-1 emulsion in conformance with Section 94 or the Caltrans Standard Specifications.

2.03 ASPHALT PAVING MATERIALS

A. Paving Asphalt: All purpose, aged residue, steam refined, PG 64-16 grade, in accordance with Section 92 of the Caltrans Standard Specifications.

B. Aggregate: Type A, with the grading of the combined aggregate conforming to 1/2 inch maximum size, medium grading, as specified in Section 39 of the Caltrans Standard Specifications.

C. Mixing Facilities: Asphalt concrete surfacing material shall be furnished from an approved commercial asphalt central mixing plant.

2.04 SOURCE QUALITY CONTROL

A. Contractor shall submit Certificate of Compliance from manufacturer for approval prior to installation.

2.05 A.C. DIKE/BERM

A. A.C. dikes shall be per Caltrans Standard A87, Type B. Dikes shall be installed by means of a continuance automatic curbing machine.

B. A.C. berms shall be installed as detailed in the drawing.

PART 3 - EXECUTION

3.01 PLACING OF BASE COURSE

A. The Contractor shall call for an inspection by the Engineer and obtain written approval of the subgrade before proceeding with the base course.

B. Base course shall be minimum uniform thickness after compaction of dimensions indicated. Where not indicated, compacted thickness shall be six inches for parking stalls and eight inches for roads, driveways, and aisles of parking areas.

C. Base course shall be placed over finished subgrade and compacted in accordance with Section 32 11 00 - Aggregate Base.

D. After base course has been completed, the Contractor shall call for an inspection by the Engineer and obtain written approval before proceeding with application of the asphalt wearing surface.

3.02 PLACING ASPHALT CONCRETE

A. Areas to be paved shall be covered with a layer of hot asphalt concrete surfacing not less than the thickness indicated after compaction. Where not indicated, compacted thickness shall be two inches for parking stalls and three inches for roads, driveways, and aisles of parking areas.

B. Paving asphaltic concrete shall be delivered, laid, rolled, and finished in accordance with Section 39 of the Caltrans Standard Specifications.

C. Before placing asphalt concrete, a tack coat (paint binder) shall be applied to all vertical surfaces against which asphalt concrete surfacing will be placed. Tack coat (paint binder) shall be applied in accordance with Section 39-4 of the Caltrans Standard Specifications at the rate of from 0.02 to 0.10 gallons per square yard.

D. Finish surface of the wearing course shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, cold joints, or other irregularities.

E. Finish paving shall conform to slopes, lines, and finish grades indicated, and shall drain properly. Where adjacent surfaces are intended to be flush (as at concrete gutters, walks, and paving), they shall conform smoothly at all joints.

F. Ridges, indentations, and other objectionable marks left in the surface of the asphalt concrete by paving or rolling equipment shall be eliminated by rolling. The use of equipment that leaves ridges, indentations, or other objectionable marks in the asphalt concrete shall be discontinued, and other acceptable equipment shall be employed.

G. Where cold joints are indicated or necessary, cut back the placed and compacted cold asphalt a minimum of three inches with a concrete or masonry power saw, so that a vertical face of compacted full thickness material is exposed. Treat this surface with a tack coat before proceeding with the placement of new asphaltic concrete surfacing.

H. Finish paving shall conform to finish elevations within plus or minus 0.01 of a foot and shall be level to within plus or minus 1/4 inch in 10 feet when measured with a 10 foot straightedge in any direction.

3.03 FIELD QUALITY CONTROL

A. The Contractor shall control the quality of the work and shall provide adequate testing to assure compliance with these Specifications.

B. After completion of paving work, all paving shall be flooded with water, and any resulting "ponds" shall be ringed with chalk. Such hollows shall be corrected with addition of asphalt paving materials and rerolling until all paving is completely level and free from hollows and high spots.

C. The Engineer shall perform in-place density and compaction tests of the completed pavement in accordance with California Test 375 to determine compliance with specified requirements. Test shall be performed as often as necessary to verify compliance, but not less frequently than the following:

1. One test for each street or driveway intersection for which asphalt pavement replacement is required.

2. One test for every 1,000 square yards of asphalt pavement at locations where the paved area exceeds 1,000 square yards.

3.04 MAINTENANCE OF PAVEMENT

A. Upon completion of final rolling, traffic shall not be permitted on the finished pavement for at least six hours, and until the asphalt concrete has cooled sufficiently to withstand traffic without being deformed.

B. Finished pavement shall be maintained in finished clean condition until the work is accepted by the District.

END OF SECTION

SECTION 33 40 00

SITE DRAINAGE SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for site and subdrainage and area runoff collection system and connection to existing storm drainage system as indicated.

1.02 RELATED SECTIONS

A. Section 31 23 33 - Trenching and Backfilling

1.03 REFERENCES

A. American Society of State Highway and Transportation Officials (AASHTO)

AASHTO M252M	Specification for Corrugated Polyethylene Pipe
AASHTO M294M	Specification for Corrugated Polyethylene Pipe, 300 1200 mm

B. American Society for Testing and Materials (ASTM)

ASTM F667	Standard Specification for Large Diameter Corrugated Polyethylene Pipe and Fittings
ASTM F405	Standard Specification for Corrugated Polyethylene Pipe and Fittings
ASTM C76	Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

C. Marin County Uniform Construction Standards - May 2008

D. Caltrans Standard Specifications - Latest Edition

1.04 SUBMITTALS

A. Shop Drawings

Detailed drawings that indicate site drainage in plan and section, including relationship to other systems, interfaces, and drainage structures, connections, alignment, grade, bedding and backfill, and other pertinent data.

B. Product Data

Submit manufacturer's product data for pipe and pipe connection materials.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Pipe Connection Requirements

Ends of pipe shall be bell and spigot to assure continuous alignment of pipe and leakproof joints.

C. High Density Polyethylene Pipe (HDPE)

Pipe: HDPE pipe conforming to ASTM D3212, or ASTM 1417 for pipe sizes four inch - 60 inch (ADS N-12 1B WT pipe or equivalent)

D. PVC Perforated Pipe (PVC Perp)

Pipe: PVC Perforated Pipe shall conform to ASTM D-3034, SDR 35, solvent weld joints for pipe sizes 4", 6" and 8". Perforations shall be 2 rows of ½" holes on 5" centers, 120° apart.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPE

A. Laying Pipe

1. Lay pipe to line and grade indicated. Bell and spigot type, lay bells in cross-cuts cut in trench. Lay pipe with the bell or grooved end uphill.

2. Prevent dirt from getting into pipe joints.

3. Remove pipe which is cracked, checked, spalled, or damaged from the work.

4. Clean interior of pipe of cement, dirt, and extraneous matte as the work progresses.

B. Pipe Joints

1. Pipe joints shall be made secure and watertight.

2. Employ appropriate equipment to draw the sections of the pipe tightly together.

C. Visual Test Method

1. Slowly pull a television camera through storm drain and inspect for visual leaks, separated joints and cracks in pipe and manholes. Repair leaks and joints. Replace cracked pipe. Re-inspect pipe.

D. Backfilling

1. Piping shall not be covered with backfill material, until inspected, and approved by the Engineer.

2. After making up pipe joints, fill space between pipe and sides of trench with backfill material half-way up the pipe. Both sides shall be filled for full width of trench at same time and carefully compacted so as to hold the pipe in its proper position.

3. After pipe has been installed, inspected, and approved, place and compact backfill as specified in Section 31 23 33 - Trenching and Backfilling.

END OF SECTION

SECTION 35 42 37

RIP RAP BANK PROTECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications for rock rip rap bank protection.

1.02 RELATED SECTIONS

A. Section 31 20 00 - Earthwork

1.03 QUALITY ASSURANCE

A. Qualifications

1. Provide sufficient experienced workmen and supervisors who shall be present at all times during the execution of this portion of the work and who shall be thoroughly familiar with the materials and methods involved. In the acceptance or rejection of the work, no allowance will be made by the District for lack of skill on the part of workmen.

1.04 JOB CONDITIONS

A. Documents

Thoroughly examine all Contract Documents. Discrepancies, omissions or conflicts in the Contract Documents, or doubt as to the meaning thereof, shall be brought to the attention of the District prior to the bid opening. Addenda will be issued to clarify the discrepancies, omissions, conflicts or meaning and shall become a part of the contract. Oral instructions are not valid under this section of the specifications.

B. Drawings

The drawings show the general arrangement of all work under this section. Any work indicated on the drawings, but not specifically mentioned in the specifications, or vice versa, shall be furnished and installed. It is not within the scope of the drawings to show all necessary off-sets, obstructions, or structural conditions. It shall be the responsibility of the Contractor to install his work in such a manner that it will conform to the structure.

C. Visiting the Premises

Before submitting his bid, Contractor shall visit the premises and become familiar with all existing conditions pertaining to the execution of the work contemplated under this section. No request for additional payment due to the Contractor's failure to allow for working conditions will be valid.

PART 2 - MATERIALS

2.01 ROCK

A. All rock products shall be clean, hard, sound, durable, uniform in quality and free from any detrimental quantity of soft, friable, thin elongated or laminated pieces, disintegrated material, organic matter, oil alkali, or other deleterious substance.

B. Rock shall be of such character that is shall not disintegrate from the action of air, water or from conditions to be met during handling and placing. Rock rip-rap shall be dense, sound, resistant to abrasion and free from cracks or weak cleavage planes.

2.02 GEOTEXTILE

A. Geotextile shall be free of folds, tears, and wrinkles.

2.03 LARGE WOODY DEBRIS (LWD)

LWD shall consist of Douglas Fir or Redwood log with the following attributes:

A. Minimum Diameter at breast height (DBH) of 18 inches, where DBH is 1.4 meters above ground level at standing condition;

B. Trunk length as shown on Sheet EN4, measured from the top of the root crown to the tip of the log;

C. All twigs and branches removed from the trunk to stubs no longer than two inches;

D. Free from rot and decay;

E. Free from damage, such as abrasion, splitting, fractures, crushing or shearing;

F. Legally harvested;

G. For LWD with root wads attached:

1. Root wad consisting of stout roots, such that roots are a minimum of 2

inches in diameter, forming a root wad at least 4 feet in diameter

2. Roots 2 inches diameter or larger shall not be cut

3. Root wad intact even if it is greater than 4 feet in diameter

4. Soil removed

PART 3 - EXECUTION

3.01 ROCK

A. A footing trench shall be excavated along the toe of the slope as shown on the plans.

B. Rocks shall be so placed as to provide a minimum of voids and the larger rocks shall be placed in the toe course and on the outside surface of the slope protection.

C. Local surface irregularities of the slope protection shall not vary from the planned slopes by more than one foot measured at right angles to the slope.

D. Where the rip rap is placed on a slope, the placing shall commence at the toe of the slope and progress up the slope. The larger pieces of rip rap shall be placed in the bottom courses.

E. The rip rap shall be laid closely such that a reasonable semblance of courses is achieved. Smaller pieces of rip rap shall be used to fill the voids.

F. Where rip rap is placed on a geotextile, it shall be undertaken so that there is no tearing or damage to the geotextile.

G. Orient ends of key at a 30-degree angle to the direction of flow.

3.02 GEOTEXTILE

A. The geotextile shall be joined so that the material laps and shall be pinned together.

B. On slopes, the upper portion of the geotextile shall be fixed to prevent sliding during installation.

C. The placement operation shall be such that the geotextile is not exposed to daylight for more than three days.

END OF DOCUMENT

APPENDIX

CONDITIONS CONTRACTOR MUST COMPLY WITH AND IMPLEMENT

A. Per the conditions of approval for environmental permitting, the contractor must comply with and implement:

1. Terms and Conditions 2 and 3 listed on pages 26 and 27 in the National Marine Fisheries Service (NMFS) Biological Opinion – Letter from NMFS to Lieutenant Colonel Torrey A. DiCiro and Alessandro Amaglio, U.S. Army Corps of Engineers, dated June 4, 2012 (attached).

2. Avoidance and Minimization Measures on pages 4 through 11 in the California Department of Fish and Game final Streambed Alteration Agreement, Notification No. 1600-2012-0005-R3 (attached).

3. NWP Program General Conditions 2, 4, 6, 8, 9, 12 and 18 in the attachment to the U.S. Army Corps of Engineers Nationwide Permit authorization letter to Georgia McDaniel, CSW/Stuber-Stroeh Engineering Group, Inc., dated June 12, 2012 (attached).

4. Implementation of appropriate Best Management Practices (BMPs) to avoid and minimize erosion, sedimentation, and pollutant transport to waters of the state during construction and conditions 2, 3, 4, 5, and 6 on pages 3-4 in the Section 401 Water Quality Certification – Letter from Bruce Wolf, San Francisco Bay Regional Water Quality Control Board to Michael Rock, Town of Fairfax, dated June 14, 2012, (attached). The turbidity monitoring required in condition 6 will be conducted by A.A. Rich and Associates, however, contractor must comply with turbidity requirements in conditions 5 and 6.

   Please note on page 5 that the 401 WQC states: "Failure to meet any condition of a certification may subject you to civil liability imposed by the Water Board to a maximum of $5,000 per day of violation or $10 for each gallon of waste discharged in violation of the certification."

B. Per the *Bank Stabilization for Pastori Storm Drain Outfall Fish Collection and Relocation Plan*, dated January 26, 2011, prepared by A.A. Rich and Associates (attached), contractor must coordinate with A.A Rich & Associates during the dewatering and fish relocation process. See Note 1 on Sheet EN2, Dewatering Plan.

C. Per the *Pastori Storm Drain Outfall Final Initial Study, Environmental Checklist, and Mitigated Negative Declaration* certified by the Town Council on June 6, 2012 (attached), the contractor must comply with and implement the Mitigation Measures listed in the Reporting/Monitoring Record on pages 36 through 41.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

June 4, 2012

In response refer to:
2011/00628

Lieutenant Colonel Torrey A. DiCiro
Department of the Army
San Francisco District
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Alessandro Amaglio
Environmental Officer
Federal Emergency Management Agency
Region IX-Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, California 94607-4052

Dear Colonel DiCiro:

Thank you for your letter of February, 25 2011, requesting initiation of formal consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), and the Essential Fish Habitat (EFH) provisions of the Magnuson Stevens Fishery Conservation and Management Act (MSA) for the Town of Fairfax's (Town) proposed Pastori Avenue Storm Drain Project (Project) located along San Anselmo Creek in Fairfax, Marin County, California (Corps file #2011-0058N).

The enclosed biological opinion is based on our review of the Town's proposal to replace an existing storm drain and describes NMFS' analysis of potential effects on threatened Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*) and designated critical habitat for CCC steelhead and CCC coho salmon (*O. kisutch*) in accordance with section 7 of the ESA. Threatened CCC steelhead are present within the project's action area and San Anselmo Creek is designated critical habitat for this species and coho salmon. In the enclosed biological opinion, NMFS concludes the project is not likely to jeopardize the continued existence of threatened CCC steelhead. NMFS has also concluded the proposed project is not likely to result in the destruction or adverse modification of critical habitat for CCC steelhead or CCC coho salmon. However, NMFS anticipates take of CCC steelhead will occur during project construction. CCC steelhead are likely to be present during dewatering of the work site for construction.

An incidental take statement which applies to this project with non-discretionary terms and conditions is included with the enclosed biological opinion.

The MSA requires all Federal agencies to consult with NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect EFH. Only species managed under a Federal fishery management plan are covered by the MSA. The proposed project will occur within an area identified as EFH for coho salmon and Chinook salmon, managed under the Pacific Coast Salmon Fishery Management Plan. The proposed project includes design and staging considerations to minimize potential adverse effects, and will improve habitat conditions. As such, NMFS anticipates only temporary and minor adverse effects to EFH. Thus, no additional EFH conservation recommendations are currently provided.

Please contact Amanda Morrison at 707-575-6083 or Amanda.Morrison@noaa.gov if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,

For Rodney R. McInnis
Regional Administrator

Enclosure

cc: Chris Yates, NMFS, Long Beach, CA
Roberta Morganstern, Corps Regulatory Division, San Francisco, CA
Michael Rock, Town of Fairfax, CA
Georgia McDaniel, CSW/Stuber-Stroeh Engineering Group, Inc., Novato, CA
Ryan Olah, USFWS, Sacramento, CA
Copy to Administrative File: 151422SWR2011SR0013

Enclosure

BIOLOGICAL OPINION

ACTION AGENCY: U.S. Army Corps of Engineers, San Francisco
Federal Emergency Management Agency, Oakland

ACTION: Pastori Avenue storm drain replacement on San Amselmo Creek, Fairfax, California.

CONSULTATION CONDUCTED BY: National Marine Fisheries Service, Southwest Region

TRACKING NUMBER: 2011/00628

DATE ISSUED: **June 4, 2012**

I. CONSULTATION HISTORY

The Town of Fairfax (Town), through the Governor's office of California Emergency Management Agency (CalEMA), was approved for funding by the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program to replace the storm-damaged Pastori Avenue storm drain. For purposes of the Endangered Species Act (ESA) section 7 consultation, the U.S. Army Corps of Engineers (Corps) will be acting as the lead agency for this project per an existing agreement with FEMA which designates the Corps as the lead agency for "small projects" that involve both the Corps and FEMA. Small projects are defined as projects receiving less than $48,900 (2000 dollars) in PA funds from FEMA.

By letter dated February 25, 2011, the Corps requested initiation of formal consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531, *et seq*.) regarding the proposed Pastori Avenue Storm Drain Project (Project) in Fairfax, California (Corps File No. 2011-00058N). The Corps determined the proposed project may adversely affect threatened Central California Coast (CCC) steelhead and designated critical habitat due to dewatering and relocating fish in San Anselmo Creek for construction purposes.

On May 10, 2011, staff from California Department of Fish and Game (CDFG) and the San Francisco Bay Regional Water Quality Control Board (RWQCB) attended a site visit with the Town of Fairfax's (Town) biological consultant to examine the location of the proposed Pastori Avenue Storm Drain Project. NMFS staff was invited to the site visit, but were unable to attend

and recommended the site visit occur without their participation. Upon seeing the existing conditions of the storm drain and adjacent footing, CDFG and RWQCB staff recommended that the existing concrete footing be stabilized. The Town's biological consultant conferred with their staff engineers and determined that 4 Perma Jacks® (steel piers) or the equivalent should be installed on the face of the concrete footing to stabilize it.

On June 13, 2011, the Corps notified the NMFS of the proposed changes to the project description and the Corps agreed to provide revised engineer drawings.

Between May and November 2011, the Town's biological consultant provided information to CalEMA regarding the addition of Perma Jacks® to the project description and revised engineer drawings.

By letter dated November 30, 2011, the Town's biological consultant provided revised engineering drawings including the addition of Perma Jacks® to NMFS, the Corps, RWQCB, and CDFG.

II. DESCRIPTION OF PROPOSED ACTION

The Corps proposes to issue a permit under Section 404 of the Clean Water Act (CWA) and FEMA proposes to provide funding to the Town to replace an existing 24-inch diameter storm drain outfall along the bank of San Anselmo Creek adjacent to Pastori Avenue that was damaged during severe floods in December 2005 and January 2006. The Town proposes to replace the structure with a 48-inch diameter storm drain and stabilize the earthen bank below the outfall with 33 cubic yards of 1-2 ton rock riprap. The Project will improve storm water drainage from the adjacent neighborhood by increasing the size of the outfall to match the diameter of the existing pipe underneath Pastori Avenue. Stabilization of the bank below the outfall will reduce future bank erosion along San Anselmo Creek. Construction in and near the stream is scheduled to occur between June 15 and October 15, and is expected to take approximately 13 weeks, in either 2012 or 2013, depending on the start date. Although work will be completed during the dry season, it is anticipated that some surface streamflow in San Anselmo Creek will be present. The project proposes to dewater the work site for construction purposes. Fish, including CCC steelhead, in the work area will be collected and relocated prior to dewatering the work site. NMFS does not anticipate any interrelated or interdependent actions associated with the proposed action.

A. Description of Proposed Work

1. <u>Storm Water Outfall and Bank Slope Protection Design and Construction</u>

The existing 24-inch diameter portion of the Pastori Avenue storm drain (about 25 linear feet of pipe) will be replaced with a 48-inch diameter high-density polyethylene (HDPE) pipe to match

the diameter of the upper portion of the storm drain pipe underneath Pastori Avenue. Increasing the size of the storm drain outfall will reduce the water velocities discharged into San Anselmo Creek by 75 percent (CSW/ST2 2010b).

When the storm drain outfall was damaged in 2005/2006, storm water began to be discharged directly onto the bank resulting in erosion of the stream bank. The Town temporarily placed rock riprap varying in size from 0.5-2.0 feet in diameter beneath the failed culvert to prevent the creek bank from eroding further. The Town proposes to replace the existing rock riprap with larger rock riprap (2.75-3.6 feet in diameter) keyed into the creek bed. The existing rock will be removed, stockpiled, and then used in the new rock slope protection structure. The new structure will extend along 28 linear feet of bank along San Anselmo Creek (an area of about 0.007 acres).

To enhance instream habitat conditions in San Anselmo Creek at the location of the new rock slope protection structure, a large rootwad with trunk will be installed in the base of the rock. This large woody debris feature will be placed at the margin of the existing pool and at an elevation to function under low flow conditions for the purpose of enhancing summer rearing habitat and winter refugia for steelhead. Construction activities for installation of the storm water outfall, rock slope protection and rootwad would be performed with standard construction equipment such as an excavator, dump truck, dozer, and backhoe.

2. Dewatering and Fish Relocation

To facilitate construction, a portion of San Anselmo Creek will be dewatered at the project site. The dewatered section will begin at the top of the fish ladder underneath Pastori Avenue Bridge and end approximately 100 feet downstream. In order to reduce impacts on steelhead from dewatering and construction activities, the Project proposes to capture and relocate fish from the 100-foot long reach subject to dewatering. The Town has prepared a Fish Collection and Relocation Plan (A.A. Rich and Associates 2011) for the proposed project. In accordance with this plan fish will be relocated in two phases: 1) fish will be collected before dewatering the pool; and 2) fish will be collected concurrently with dewatering. Two phases are proposed because electrofishing, the chosen method of fish capture, loses its efficacy in deeper water.

Block nets will be installed upstream and downstream of the area to be dewatered to prevent fish from moving into and out of the project area. The nets will remain in place during all fish relocation activities and while the stream is dewatered. Prior to dewatering, qualified fisheries biologists will relocate as many fish as possible from the pool using electrofishers. Following this initial fish collection (the following day), the stream will begin to be dewatered and the biologists will continue to collect and relocate any remaining fish from the site in the same manner as before. Fish will be collected primarily by electrofishing, but seines, dip nets, and traps may also be used, if appropriate. Collected fish will be relocated to a suitable location in San Anselmo Creek upstream or downstream of the work site.

Temporary cofferdams will be installed at the upstream and downstream limits of the dewatered area and a pipeline installed to divert the stream flow of San Anselmo Creek around the work site. The diversion pipe will initiate at the top of the Pastori Avenue Bridge fish ladder and terminate at a pool about 100 feet downstream. Cofferdams will be constructed with sandbags or gravel bags, and will not contain erodible material such as soil or fine sediment. Cofferdams will be installed and removed by hand.

Construction is anticipated to take 13 weeks and will be performed between June 15 and October 15. Following construction, all water diversion structures (cofferdams and pipeline) will be removed and disturbed channel areas will be restored to natural grade and substrate condition. There is no vegetation within the Project footprint. Consequently, no vegetation measures are proposed. Construction equipment will access the site from the adjacent stream bank and upland area.

B. Action Area

The proposed project is located in the Town of Fairfax, Marin County, California, along San Anselmo Creek adjacent to Pastori Avenue just north of the Pastori Avenue Bridge crossing over San Anselmo Creek (Figure 1). The action area extends along 200 linear feet of San Anselmo Creek and includes the stream's bed and banks. The area of direct impact due to stream diversion, fish capture and relocation, and construction activities is approximately 100 feet. No vegetation will be disturbed. Indirect effects to water quality from turbidity and sedimentation arising from project construction are expected to extend an additional 100 feet downstream of the dewatered reach. These water quality effects are expected to be limited to approximately 100 linear feet due to summer time low flow conditions. Laterally, the action area encompasses the left and right banks, the creek channel, and the associated floodplain and riparian corridor.

Figure 1. Map showing the location of the Pastori Avenue Storm Drain Project.

III. ANALYTICAL FRAMEWORK

A. Jeopardy Analysis

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which evaluates the CCC steelhead (*Oncorhynchus mykiss*) Distinct Population Segment's (DPS) range-wide conditions, the factors responsible for that condition, and the species' likelihood of both survival and recovery; (2) the Environmental Baseline, which evaluates the condition of this listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the likelihood of both survival and recovery of this listed species; (3) the Effects of the Action, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on this species in the action area; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on this species.

The jeopardy determination is made by adding the effects of the proposed Federal action and any Cumulative Effects to the Environmental Baseline and then determining if the resulting changes in species status in the action area are likely to cause an appreciable reduction in the likelihood of both the survival and recovery of this listed species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on the range-wide likelihood of both survival and recovery of this listed species and the role of the action area in the survival and recovery of this listed species. The significance of the effects of the proposed Federal action is considered in this context, taken together with cumulative effects, for purposes of making the jeopardy determination. We use a hierarchical approach that focuses first on whether or not the effects on salmonids in the action area will impact their respective population. If the population will be impacted, we assess whether this impact is likely to affect the ability of the population to support the survival and recovery of the DPS or Evolutionary Significant Unit (ESU).

B. Adverse Modification Analysis

This biological opinion does not rely on the regulatory definition of destruction or adverse modification of critical habitat at 50 CFR §402.02, which was invalidated by the 9th Circuit Court of Appeals in 2004. Instead, we have relied upon the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

The adverse modification analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which evaluates the range-wide and watershed-wide condition of critical habitat for the CCC steelhead DPS CCC coho salmon ESU in terms of primary constituent elements (PCEs – sites for spawning, rearing, and migration), the factors responsible for that condition, and the resulting conservation value of the critical habitat overall; (2) the

Environmental Baseline, which evaluates the condition of critical habitat in the action area, the factors responsible for that condition, and the conservation value of critical habitat in the action area; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs in the action area and how that will influence the conservation value of affected critical habitat units; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the conservation value of affected critical habitat units.

For purposes of the adverse modification determination, we add the effects of the proposed Federal action on CCC steelhead critical habitat in the action area, and any Cumulative Effects, to the Environmental Baseline and then determine if the resulting changes to the conservation value of critical habitat in the action area are likely to cause an appreciable reduction in the conservation value of critical habitat range-wide. If the proposed action will negatively affect PCEs of critical habitat in the action area we then assess whether or not this reduction will impact the value of the DPS critical habitat designation as a whole.

C. Use of Best Available Scientific and Commercial Information

To conduct the assessment, NMFS examined an extensive amount of information from a variety of sources. Detailed background information on the biology and status of the listed species and critical habitat has been published in a number of documents including peer reviewed scientific journals, primary reference materials, and governmental and non-governmental reports. Additional information regarding the effects of the project's actions on the listed species in question, their anticipated response to these actions, and the environmental consequences of the actions as a whole was formulated from the aforementioned resources, and the following:

1) *San Francisco Bay Area Joint Aquatic Resource Permit Application (JARPA).* Signed by Michael Rock, Town Manager, Town of Fairfax. February 2011.

2) "Bank Stabilization for Pastori Storm Drain Outfall" engineering drawings EN1-EN4. Prepared for Town of Fairfax. Prepared by CSW/Stuber-Stroeh Engineering Group, Inc. April 2010, revised November 2011.

3) *Fish Collection and Relocation Plan*. Prepared for Town of Fairfax. Prepared by A.A. Rich and Associates. January 2011.

4) *Hydrology and Hydrologic Analysis*. Prepared for the Town of Fairfax. Prepared by CSW/ Stuber-Stroeh Engineering Group, Inc. April 2010.

5) *Alternatives Analysis*. Prepared for the Town of Fairfax. Prepared by CSW/ Stuber-Stroeh Engineering Group, Inc. May 2010.

6) *Fisheries Resource Assessment for the Town of Fairfax Project Sites*. Prepared for the Town of Fairfax. Prepared by A.A. Rich and Associates, December 2006.

7) *Geomorphic Assessment of Town of Fairfax Project Sites, Final Report*. Prepared for the Town of Fairfax. Prepared by Fluvial Geomorphology Consultants, July 2006.

8) *Draft Lake or Streambed Alteration Agreement, Notification No*. 1600-2012-0005-R3. Prepared by CDFG. Signed by Michael Rock, Town Manager, Town of Fairfax. May 20, 2012.

Information was also provided in emails messages, and telephone conversations between May 2011 and February 2012. For information that has been taken directly from published, citable documents, those citations have been referenced in the text and listed at the end of this document. A complete administrative record of this consultation is on file at the NMFS North Central Coast Office (Administrative Record Number 151422SWR2011SR00133).

IV. STATUS OF THE SPECIES AND CRITICAL HABITAT

This biological opinion analyzes the effects of the Town's Pastori Avenue Storm Drain Project on the CCC steelhead DPS and designated critical habitat for this species. CCC steelhead are listed as threatened under the ESA (71 FR 834). The CCC steelhead DPS includes steelhead in coastal California streams from the Russian River to Aptos Creek, and the drainages of Suisun Bay, San Pablo Bay, and San Francisco Bay. CCC steelhead occur in San Anselmo Creek and are expected to be present at the Project site during construction. San Anselmo Creek, including the project area, is designated as critical habitat for CCC steelhead (70 FR 52488).

Historically, Corte Madera Creek watershed supported coho salmon (*Oncorhynchus kisutch*). Recorded observations of coho within the watershed date from 1926 to 1984 (Cronin 1980 as cited in Leidy et al. 2005b; Fry 1936; Hallock and Fry Jr. 1967; Leidy et al. 2005; Scofield 1926 as cited in Leidy et al. 2005b). The last sighting of coho was in 1984 (Leidy et al. 2005). Based on this information, NMFS considers endangered CCC coho extirpated from San Anselmo Creek and the greater Corte Madera Creek watershed. However, Corte Madera Creek is designated critical habitat for endangered CCC coho salmon (64 FR 24049).

A. Species Description and Life History

Steelhead are anadromous forms of *O. mykiss*, spending some time in both fresh- and saltwater. The older juvenile and adult life stages occur in the ocean, until the adults ascend freshwater streams to spawn. Unlike Pacific salmon, steelhead are iteroparous, or capable of spawning more than once before death (Busby et al. 1996). Although one-time spawners are the great majority, Shapolov and Taft (1954) reported that repeat spawners are relatively numerous (17.2 percent) in California streams. Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings),

fry (juveniles newly emerged from stream gravels), and young juveniles all rear in freshwater until they become large enough to migrate to the ocean to finish rearing and maturing to adults.

General reviews for steelhead in California document much variation in life history (Barnhart 1986; Busby et al. 1996; McEwan 2001; Shapovalov and Taft 1954). Although variation occurs, in coastal California juvenile steelhead usually live in freshwater for 1 to 2 years before emigrating to the ocean. Juvenile steelhead emigration from their natal streams occurs episodically during winter and spring months, and generally occurs during high flow events. Barnhart (1986) reported that peak smolt migration occurs in March and April, and steelhead smolts in California typically range in size from 140 to 210 millimeter (mm) (fork length). Once they leave their natal streams, steelhead will spend 1 to 3 years in the ocean before returning to spawn.

Adult winter-run steelhead typically migrate from the ocean to freshwater between December and April, peaking in January and February (Fukushima and Lesh 1998). Steelhead females build redds to bury eggs for a several month-long incubation period. Redds are generally located in areas where the hydraulic conditions are such that fine sediments, for the most part, are sorted out and streamflow is constant. This is because, during the incubation period, the intragravel environment must permit a constant flow of water to deliver dissolved oxygen and to remove metabolic wastes. Other intragravel parameters such as the gravel permeability, water temperature, substrate composition, and organic material in the substrate effect the survival of eggs to fry emergence (Chapman 1988; Everest et al. 1987; Shapovalov and Taft 1954). Adult steelhead may spawn 1 to 4 times over their life span.

Steelhead fry rear in edgewater habitats of streams and move gradually into pools and riffles as they grow larger. Cover, water temperature, sediment, and food items are important habitat components for juvenile steelhead. Cover in the form of woody debris, rocks, overhanging banks, and other in water structures provide velocity refuge and a means of avoiding predation (Bjornn et al. 1991; Shirvell 1990). Steelhead, however, tend to use riffles and other habitats not strongly associated with cover during summer rearing more than other salmonids. In winter, juvenile steelhead become less active and hide in available cover, including gravel or woody debris. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Water temperature can influence the metabolic rate, distribution, abundance, and swimming ability of rearing juvenile steelhead (Barnhart 1986; Bjornn and Reiser 1991; Myrick and Cech Jr. 2005). Optimal temperatures for steelhead growth range between 10 and 20 degrees (°) Celsius (C) (Hokanson et al. 1977; Myrick and Cech Jr. 2005; Wurtsbaugh and Davis 1977). Fluctuating diurnal water temperatures are also important for the survival and growth of salmonids (Busby et al. 1996).

Turbidity (i.e., water clarity) also can influence the behavior, distribution and growth of juvenile salmonids (Cordone and Kelley 1961; Newcombe and McDonald 1991; Redding et al. 1987; Newcombe and Jensen 1996; Sigler et al. 1984). The impacts of turbidity on juvenile salmonids are largely linked to factors such as background turbidity levels and the duration of turbid conditions. Bisson and Bilby (1982) found that juvenile coho salmon that were acclimated to

clear water did not exhibit significant sediment avoidance until the turbidity reached 70 nephlometric turbidity units (NTUs). Sigler et al. (1984) observed avoidance of turbid water by juvenile steelhead and coho when exposed to turbidities as low as 38 NTUs and 22 NTUs, respectively, for a period of 15-17 days. Sigler et al. (1984) also observed that fish kept in these turbid conditions had lower growth rates than fish kept in clear water for the same amount of time.

B. Species and Critical Habitat Status

In this biological opinion, NMFS assesses four population viability parameters to help us understand the status of CCC steelhead and the population's ability to survive and recover. These population viability parameters are: abundance, population growth rate, spatial structure, and diversity (McElhany et al. 2000). While there is insufficient information to evaluate these population viability parameters in a thorough quantitative sense, NMFS has used existing information to determine the general condition of each population and factors responsible for the current status of this DPS.

We use these population viability parameters as surrogates for numbers, reproduction, and distribution, the criteria found within the regulatory definition of jeopardy (50 CFR §402.02). For example, the first three parameters are used as surrogates for numbers, reproduction, and distribution. We relate the fourth parameter, diversity, to all three regulatory criteria. Numbers, reproduction, and distribution are all affected when genetic or life history variability is lost or constrained resulting in reduced population resilience to environmental variation at local or landscape-level scales.

1. CCC Steelhead

Historically, approximately 70 populations[1] of steelhead existed in the CCC steelhead DPS (Spence et al. 2008, Spence et al. 2012). Many of these populations (about 37) were independent, or potentially independent, meaning they had a high likelihood of surviving for 100 years absent anthropogenic impacts (Bjorkstedt et al. 2005). The remaining populations were dependent upon immigration from nearby CCC steelhead DPS populations to ensure their viability (Bjorkstedt et al. 2005; McElhany et al. 2000).

While historical and present data on abundance are limited, CCC steelhead numbers are substantially reduced from historical levels. A total of 94,000 adult steelhead were estimated to spawn in the rivers of this DPS in the mid-1960s, including 50,000 fish in the Russian River - the largest population within the DPS (Busby et al. 1996). Recent estimates for the Russian River are on the order of 4,000 fish (NMFS 1997). Abundance estimates for smaller coastal streams in

[1] Population as defined by Bjorkstedt et al. 2005 and McElhaney et al. 2000 as, in brief summary, a group of fish of the same species that spawns in a particular locality at a particular season and does not interbreed substantially with fish from any other group. Such fish groups may include more than one stream. These authors use this definition as a starting point from which they define four types of populations (not all of which are mentioned here).

the DPS indicate low but stable levels with recent estimates for several streams (Lagunitas, Waddell, Scott, San Vincente, Soquel, and Aptos creeks) of individual run sizes of 500 fish or less (62 FR 43937). Some loss of genetic diversity has been documented and attributed to previous among-basin transfers of stock and local hatchery production in interior populations in the Russian River (Bjorkstedt et al. 2005). In San Francisco Bay streams, reduced population sizes and fragmentation of habitat has likely also led to loss of genetic diversity in these populations. For more detailed information on trends in CCC steelhead abundance, see: NMFS 1997; Busby et al. 1996; Good et al. 2005; Spence et al. 2008; Williams et al. 2011.

CCC steelhead have experienced serious declines in abundance and long-term population trends suggest a negative growth rate. This indicates the DPS may not be viable in the long term. DPS populations that historically provided enough steelhead immigrants to support dependent populations may no longer be able to do so, placing dependent populations at increased risk of extirpation. However, because CCC steelhead remain present in most streams throughout the DPS, roughly approximating the known historical range, CCC steelhead likely possess a resilience that is likely to slow their decline relative to other salmonid DPSs or ESUs in worse condition. In 2005, a status review concluded that steelhead in the CCC steelhead DPS remain "likely to become endangered in the foreseeable future" (Good et al. 2005). On January 5, 2006, NMFS issued a final determination that the CCC steelhead DPS is a threatened species, as previously listed (71 FR 834).

A more recent viability assessment of CCC steelhead concluded that populations in watersheds that drain to San Francisco Bay are highly unlikely to be viable, and that the limited information available did not indicate that any other CCC steelhead populations could be demonstrated to be viable[2] (Spence et al. 2008). Research monitoring data from 2008/09 and 2009/10 of adult CCC steelhead returns shows a decline in adults across the range of the DPS compared to the last ten years (Jeffrey Jahn, personal communication, 2010). The most recent status update found that the status of the CCC steelhead DPS remains "likely to become endangered in the foreseeable future" (Williams et al. 2011), as new and additional information available since Good et al. (2005), does not appear to suggest a change in extinction risk. On December 7, 2011, NMFS chose to maintain the threatened status of the CCC steelhead (76 FR 76386).

2. <u>CCC Steelhead Critical Habitat</u>

The condition of CCC steelhead critical habitat, specifically its ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined that present depressed population conditions are, in part, the result of the following human-induced factors affecting critical habitat[3]: logging, agricultural and mining

[2] Viable populations have a high probability of long-term persistence (> 100 years).

[3] Other factors, such as over fishing and artificial propagation have also contributed to the current population status of this species. All these human induced factors have exacerbated the adverse effects of natural factors such as drought and poor ocean conditions.

activities, urbanization, stream channelization, dams, wetland loss, and water withdrawals, including unscreened diversions for irrigation. Impacts of concern include alteration of stream bank and channel morphology, alteration of water temperatures, loss of spawning and rearing habitat, fragmentation of habitat, loss of downstream recruitment of spawning gravels, loss of large woody debris, degradation of water quality, removal of riparian vegetation resulting in increased stream bank erosion, increases in erosion and sedimentation in streams from upland areas, loss of shade (higher water temperatures) and loss of nutrient inputs (Busby et al. 1996; 70 FR 52488). Water development has drastically altered natural hydrologic cycles in many of the streams in the DPS. Alteration of flows results in migration delays, loss of suitable habitat due to dewatering and blockage; stranding of fish from rapid flow fluctuations; entrainment of juveniles into poorly screened or unscreened diversions, and increased water temperatures harmful to salmonids. Overall, the current condition of CCC steelhead critical habitat is degraded, and does not provide the full extent of conservation value necessary for the recovery of the species.

3. CCC Coho Salmon Critical Habitat

The condition of CCC coho salmon critical habitat, specifically its ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined that present depressed population conditions are, in part, the result of the following human induced factors affecting critical habitat: logging, agricultural and mining activities, urbanization, stream channelization, dams, wetland loss, and water withdrawals and unscreened diversions for irrigation.

Numerous studies have demonstrated that land use activities associated with logging, road construction, urban development, mining, agriculture, and recreation, have significantly degraded coho salmon critical habitat quantity and quality in the CCC coho salmon ESU. Migration, spawning, and rearing PCEs have been degraded or lost. Impacts of concern include alteration of stream bank and channel morphology, alteration of water temperatures, loss of spawning and rearing habitat, fragmentation of habitat, loss of downstream recruitment of spawning gravels and large woody debris, degradation of water quality, removal of riparian vegetation resulting in increased stream bank erosion and higher water temperatures, increases in erosion entry to streams from upland areas, loss of shade (higher water temperatures), and loss of nutrient inputs (61 FR 56138).

Depletion and storage of natural river and streamflows have drastically altered natural hydrologic cycles in many of the streams in the ESU. Alteration of flows results in migration delays, loss of suitable habitat due to dewatering and blockage, stranding of fish from rapid flow fluctuations, entrainment of juveniles into poorly screened or unscreened diversions, and increased water temperatures harmful to salmonids (61 FR 56138). Overall, current condition of CCC coho salmon critical habitat is degraded, and does not provide the full extent of conservation value necessary for the recovery of the species.

C. Global Climate Change

Global climate change presents an additional potential threat to CCC steelhead and designated critical habitat for CCC steelhead and CCC coho salmon. Modeling of climate change impacts in California suggests that average summer air temperatures are expected to increase (Lindley et al. 2007). Heat waves are expected to occur more often, and heat wave temperatures are likely to be higher (Hayhoe et al. 2004). Total precipitation in California may decline; critically dry years may increase (Lindley et al. 2007; Schneider 2007). The Sierra Nevada snow pack may decrease by as much as 70 to 90 percent by the end of this century under the highest emission scenarios modeled (Luers et al. 2006). Wildfires are expected to increase in frequency and magnitude, by as much as 55 percent under the medium emissions scenarios modeled (Luers et al. 2006). Vegetative cover may also change, with decreases in evergreen conifer forest and increases in grasslands and mixed evergreen forests. The likely change in amount of rainfall in Northern and Central Coastal streams under various warming scenarios is less certain, although as noted above, total rainfall across the state is expected to decline.

For the California North Coast, some models show large increases (75 to 200 percent) in rainfall amounts while other models show decreases of 15 percent to 30 percent (Hayhoe et al. 2004). It has been estimated that snowmelt contribution to runoff in the San Francisco Bay and San Joaquin Delta may decrease by about 20 percent per decade over the next century (Cloern et al. 2011). Many of these changes are likely to further degrade CCC steelhead and CCC coho salmon freshwater habitat by, for example, reducing stream flows during the summer and raising summer water temperatures. Estuaries may also experience changes detrimental to salmonids. Estuarine productivity is likely to change based on changes in freshwater flows, nutrient cycling, and sediment amounts (Scavia et al. 2002). Cloern et al. (2011) estimates that the salinity in San Francisco Bay could increase by 0.30-0.45 practical salinity unit (psu) per decade due to the confounding effects of decreasing freshwater inflow and sea level rise. In marine environments, ecosystems and habitats important to juvenile and adult salmonids are likely to experience changes in temperatures, circulation, water chemistry, and food supplies (Brewer and Barry 2008; Feely 2004; Osgood 2008; Turley 2008). The projections described above are for the mid to late 21st Century. In shorter time frames, climate conditions not caused by the human addition of carbon dioxide to the atmosphere are more likely to predominate (Cox and Stephenson 2007; Smith et al. 2007).

V. ENVIRONMENTAL BASELINE

The Environmental Baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem in the action area. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of State or private actions which are contemporaneous with the consultation in process (50 CFR §402.02).

A. Action Area Overview

San Anselmo Creek is a tributary to Corte Madera Creek and is located within the Corte Madera Creek watershed. The climate is Mediterranean, with over 90 percent of annual precipitation occurring between November and April. Cool, moist coastal fog generally alternates with clear, warm weather during the months of May through September, and significant rainfall during that time is rare. Flows within the watershed are highly variable and can go quickly from low base flow conditions to high flows and then quickly recede again. The estimated 10-year peak discharge at the Pastori Bridge, adjacent to the Project's action area, is about 1,900-2,000 cfs (CSW/ST2 2010a). During the dry season, flows in San Anselmo Creek are typically 1 cfs or less with intermittent dry areas in late summer and early fall. Water in the channel in the action area persists throughout the year due to a large deep pool located downstream of the Pastori Avenue Fish Ladder.

B. Status of CCC Steelhead and Critical Habitat in Action Area

Steelhead within San Anselmo Creek are part of the broader Corte Madera Creek population; historically a potentially independent population (Bjorkstedt et al. 2005). Fish surveys performed between 1936 and 2006 (A.A. Rich and Associates 2000; A.A. Rich and Associates 2006; Leidy et al. 2005) document the historic and continued presence of steelhead within San Anselmo Creek and the Corte Madera Creek watershed. Rich and Associates (2000) report juvenile steelhead densities in San Anselmo Creek ranging from 0 to 1.2 fish per square foot.

PCEs of designated critical habitat for CCC steelhead and CCC coho salmon in the project area include sites for migration, spawning and rearing. Essential features of designated critical habitat for listed salmonids in freshwater consist of adequate (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions (64 FR 24049 and 70 FR 5288).

Within the action area of this project, PCEs are generally good to excellent for steelhead spawning and rearing. Pools interspersed by shallow riffles provide habitat diversity and complexity for juvenile steelhead rearing. Clean gravels are available in some riffle areas for steelhead spawning and egg incubation. Riparian vegetation is well-developed and consists primarily of native plant species, including alders, bays, and fern understory. Water temperatures may become too warm for steelhead on hot summer days, but nighttime cooling allows for steelhead to tolerant daytime thermal stress.

For CCC coho salmon, the existing pools and riffles would provide habitat complexity, but high water temperatures and lack of in-stream cover present marginal conditions for juvenile coho salmon rearing. In general, the Corte Madera Creek watershed has not provided habitat

conditions to support a reproducing coho population since the 1970s or earlier. Leidy *et al*. (2003) notes current habitat conditions in the Corte Madera Creek watershed are only supportive of steelhead.

C. Factors Affecting the Species Environment in the Action Area

The 200-foot long action area of San Anselmo Creek is bordered by houses on the east bank, a large field on the west bank, and the Pastori Avenue Bridge and fish ladder on the north (upstream end). The east stream bank is vertical near the storm drain outfall, and becomes less steep downstream. The west stream bank is near vertical and about 15 to 20 feet high throughout the action area.

Intensive timber harvesting and livestock grazing in the Corte Madera Creek watershed during the 1800s resulted in extensive stream channel entrenchment, which progressed quickly after the initial disturbances and leveled off in the early and mid-1900s (Marin County 2009). Exposed bedrock outcrops and constructed grade-control structures throughout the channel network have slowed channel incision while accelerating channel widening (Marin County 2009). This has led to the current state of San Anselmo Creek, in which steep stream banks are present throughout many of the reaches, including the action area. These steep banks are susceptible to erosion during high flow events. Portions of the bank in the action area have been stabilized with rock or concrete to prevent further erosion and protect property. There is also a large amount of concrete remnants located in the channel that are likely from failed bank stabilizations in and adjacent to the action area.

In order to limit downcutting at the Pastori Avenue Bridge crossing a large concrete apron was installed as a grade control structure. A fish ladder was added to the bridge's apron in the 1970s to allow for fish passage (Figure 2). The ladder design is an Alaskan Steeppass which is poorly suited for providing adult steelhead passage at typical migration flows (Michael Love and Associates 2006). At migration flows the hydraulic capacity of the ladder is overwhelmed, and there is inadequate attraction flow for upstream migrating steelhead to find the downstream outfall. For example, in the winter of 2006 steelhead were observed attempting to swim up the sloping face of the apron rather than attempt to go up the ladder (Michael Love and Associates 2006). Additionally, the ladder does not provide adequate upstream passage conditions for juvenile salmonids. Alaskan Steeppass ladders are highly susceptible to plugging with debris which can result in blocked passage conditions. A recent fish passage assessment of barriers in the Corte Madera Creek watershed identified the site as a high priority for treatment (Ross Taylor and Associates 2003).

A large, deep (greater than 3 feet) pool is located immediately downstream of the Pastori Bridge's concrete apron (Figure 2) and the Town's storm water outfall discharges into this pool area. The existing outfall is undersized at the discharge end and produces outflows to San Anselmo Creek at eroding velocities. The Town has placed rock riprap along the bank to prevent

further erosion. At the Pastori Bridge, concrete walls, bridge supports, and wingwalls extending below the bridge comprise both banks of San Anselmo Creek.

Source: Ross Taylor and Associates 2003

Figure 2. Pastori Avenue Fish Ladder on San Anselmo Creek Adjacent to the Work Site.

C. Previous Section 7 Consultations and Section 10 Permits in the Action Area

No formal or informal consultations pursuant to section 7 of the ESA have been previously conducted by NMFS within the action area.

NMFS' Section 10(a)(1)(A) research and enhancement permits and section 4(d) limits or exceptions could potentially occur within this project's action area on San Anselmo Creek. Salmonid monitoring approved under these programs includes carcass surveys, smolt outmigration trapping, and juvenile density surveys. In general, these activities are closely monitored and require measures to minimize take during the research activities. Although the permit expired in December 2010, A.A. Rich and Associates had a section 10(a)(1)(A) permit that authorized the take of CCC steelhead in the action area for scientific research purposes. A.A. Rich and Associated conducted research activities in the action areas in 2006, the results of

these activities can be found in *Fishery Resources Assessment for the Town of Fairfax Project Sites* (A.A. Rich and Associates 2006).

VI. EFFECTS OF THE ACTION

The purpose of this section is to identify the direct and indirect effects of the proposed action, and any interrelated or interdependent activities, on threatened CCC steelhead, CCC steelhead critical habitat, and CCC coho salmon critical habitat. Our approach was based on knowledge and review of the ecological literature and other relevant materials. We used this information to gauge the likely effects of the proposed project via an exposure and response framework that focuses on what stressors (physical, chemical, or biotic), directly or indirectly caused by the proposed action, that salmonids are likely to be exposed to. Next, we evaluate the likely response of salmonids to these stressors in terms of changes to salmonids survival, growth, and reproduction, and changes to the ability of PCEs to support the value of critical habitat in the action area. PCEs include sites essential to support one or more life stages of the species. These sites for migration, spawning, and rearing in turn contain physical and biological features that are essential to the conservation of the species. Where data to quantitatively determine the effects of the proposed action on CCC steelhead, their critical habitat, and CCC coho salmon critical habitat were limited or not available, our assessment of effects focused mostly on qualitative identification of likely stressors and responses.

Construction activities associated with the Project are expected to affect steelhead through fish relocation, dewatering of stream reaches, and temporary increased sediment mobilization. Construction is scheduled to occur between June 15 and October 15. Only juvenile steelhead are expected to be in the action area during this construction period. Effects to CCC steelhead and CCC coho salmon critical habitat include the temporary impacts of dewatering and sediment mobilization noted above, and long-term effects of the placement of hardscape materials and a rootwad in the stream channel. The potential effects of these activities are presented in detail below.

A. Fish Collection and Relocation

To facilitate construction of the project, 100 feet of channel will be temporarily dewatered at the project site. The project proposes to collect and relocate fish in this area before and during dewatering to avoid fish stranding and exposure to construction activities. Juvenile steelhead and other fish will be captured by electrofishing; however, seines, dip nets, and traps may also be used. Fish within the 100 linear feet of channel in the immediate project area will be captured and then transported by a qualified fisheries biologist for relocation to a site in San Anselmo Creek upstream or downstream outside of the construction zone.

Limited data is available to estimate the number of steelhead that may encountered during relocations and dewatering activities. A.A. Rich and Associates (2006) electrofished several

sites near the Pastori Avenue Bridge and found steelhead abundances ranging between 0 and 7 fish per site (unspecified site lengths). California Department of Fish and Game (CDFG) electrofished 100 linear feet of stream at the Pastori Avenue Bridge in the summer of 1969 and found a total of 183 steelhead (Jones 1969, as cited in Leidy et al. 2005). Based on this information, and the proposed timing of the Project, NMFS expects the maximum number of steelhead that will be captured and relocated from the action area to be 200 pre-smolting juvenile steelhead.

Fish relocation activities pose a risk of injury or mortality to rearing juvenile salmonids. Any fish collecting gear, whether passive (Hubert 1996) or active (Hayes et al. 1996) has some associated risk to fish, including stress, disease transmission, injury, or death. The amount of unintentional injury and mortality attributable to fish capture varies widely, depending on the method used, the ambient conditions, and the expertise and experience of the field crew. Since fish relocation activities will be conducted by qualified fisheries biologists following both CDFG and NMFS Electrofishing guidelines (NMFS 2000), direct effects to, and mortality of juvenile salmonids during capture will be minimized.

Based on information from other relocation efforts, NMFS estimates injury and mortalities will be less than three percent of those steelhead that are relocated. Data on fish relocation efforts since 2004 shows most mortality rates are below three percent for steelhead (CDFG 2007; 2008; 2009; 2010; Collins 2004). Fish that avoid capture during relocation effects may be exposed to risks described in the following section on dewatering.

Although sites selected for relocating fish should have similar water temperature as the capture sites and should have ample habitat, in some instances relocated fish may endure short-term stress from crowding at the relocation sites. Relocated fish may also have to compete with other fish causing increased competition for available resources such as food and habitat. Frequent responses to crowding by steelhead include emigration and reduced growth rates (Keeley 2003). Some of the fish released at the relocation sites may choose not to remain in these areas and move either upstream or downstream to areas that have more vacant habitat and a lower density of steelhead. As each fish moves, competition remains either localized to a small area or quickly diminishes as fish disperse. NMFS cannot accurately estimate the number of fish affected by competition, but does not believe this impact will adversely affect the survival chances of individual steelhead, or cascade through the watershed population of these species based on the small area that will likely be affected and the small number of steelhead likely to be relocated. Sufficient habitat appears to be available in within the action area to sustain fish relocated without crowding other juvenile steelhead.

B. Project Site Dewatering

Cofferdams with sand bags and a pipeline bypass system will be used to temporarily divert flows around the work site during construction. The project will require dewatering of 100 linear feet of San Anselmo Creek in the action area. NMFS anticipates temporary changes to instream flow within and downstream of the project site during dewatering prior to construction. These

fluctuations in flow are anticipated to be small, gradual, and short-term. Once the actual dewatering operation is completed, stream flow above and below the work site should be the same as free-flowing pre-project conditions except within the dewatered reach where stream flow is bypassed. Stream flow diversion and project work area dewatering are expected to cause temporary loss, alteration, and reduction of aquatic habitat. Stream flow diversions could harm individual rearing juvenile steelhead by concentrating or stranding them in residual wetted areas before they are relocated. Rearing steelhead could be killed or injured if crushed during construction of the water bypass system; however, fish relocation effects are expected to remove the majority of fish in the area and direct mortality is expected to be minimal.

Juvenile steelhead that avoid capture in the project work area will likely die during dewatering activities due to desiccation or thermal stress. Due to the pre-dewatering fish relocation efforts to be performed by qualified biologists, NMFS expects that the number of juvenile steelhead that will be killed as a result of stranding during dewatering activities will not exceed one percent of the fish within the action area prior to dewatering. Using the data from San Anselmo Creek described above, NMFS estimates no more than two juvenile steelhead will remain in the dewatered area and be subject to these effects.

The temporary cofferdams and water diversion structure in the stream are not expected to impact juvenile steelhead movements in San Anselmo Creek beyond typical summer low-flow conditions. NMFS expects the cofferdams and sand bags will restrict movement of juvenile steelhead in a manner similar to the normal seasonal isolation of pools by intermittent flow conditions that typically occur during summer within San Anselmo Creek as described by A.A. Rich and Associates (2000). Although steelhead probably do not always experience intermittent flows in the action during the summer, stream flow becomes very low and riffle areas very shallow. Considering the seasonal low flow and dry streambed conditions experienced by juvenile steelhead in San Anselmo Creek, the limited duration of water diversion (13 weeks) is unlikely to adversely affect individual steelhead rearing upstream or downstream of the site during construction. Based on the quality of the habitat in and near the action area, NMFS expects these fish will be able to find food and cover upstream or downstream of the project reach as needed during the 13 weeks of project construction.

Benthic (bottom dwelling) aquatic macroinvertebrates within the project sites may be killed or their abundance reduced when creek habitat is dewatered (Cushman 1985). However, effects to aquatic macroinvertebrates resulting from stream flow diversions and dewatering will be temporary because construction activities will be relatively short-lived (13 weeks) and the dewatered reaches would be relatively small (about 100 feet). Rapid recolonization (typically one to two months) of disturbed areas by macroinvertebrates is expected following rewatering (Cushman 1985; Harvey 1986; Thomas 1985). In addition, the effect of macroinvertebrate loss on juvenile salmonids is likely to be negligible because food from upstream sources (via drift) would be available downstream of the dewatered areas since stream flow will be bypassed around the project work site. Food sources derived from the riparian zone will not be affected by

the project. Based on the foregoing, the loss of aquatic macroinvertebrates as a result of dewatering activities is not expected to adversely affect threatened CCC steelhead.

C. Toxic Chemicals

Construction in and adjacent to San Anselmo Creek will involve the use of heavy machinery in close proximity to the channel or in the dry channel bed. The use of heavy machinery in creek channels creates the potential for toxic materials associated with mechanical equipment, such as fuels, motor oils, and antifreeze to enter the stream or channel. Oils and similar substances from construction equipment can contain a wide variety of polynuclear aromatic hydrocarbons (PAHs), and metals. Both can result in adverse impacts to salmonids. PAHs can alter salmonid egg hatching rates and reduce egg survival as well as harm the benthic organisms that are a salmonid food source (Eisler 2000). Some of the effects that metals can have on salmonids are: immobilization and impaired locomotion, reduced growth, reduced reproduction, genetic damage, tumors and lesions, developmental abnormalities, behavior changes (avoidance), and impairment of olfactory and brain functions (Eisler 2000).

The project has included several measures which reduce the chances of toxins entering streams. These measures would ensure that instream construction work only occurs during the dry season (June 15 - October 15) and that heavy equipment will only be operated in a dry creek bed. Pollution control measures, such as storing fuels, lubricants, and solvents and refueling and servicing vehicles outside of the stream bed will be implemented. Due to these measures, NMFS expects that accidents will be minimized and toxic chemical contamination of the action area will be minimized to levels which are unlikely to adversely affect fish.

D. Sedimentation and Turbidity

The proposed action will result in the disturbance of the streambed and banks for equipment access and construction. NMFS anticipates these activities will result in small short-term increases in turbidity during rewatering and subsequent higher flows caused by winter storms after construction is completed. Instream and near-stream construction activities may cause temporary increases in turbidity (reviewed in Furniss et al. 1991; Reeves et al. 1991; and Spence et al. 1996)

Sediment may affect fish by a variety of mechanisms. High concentrations of suspended sediment can disrupt normal feeding behavior and efficiency (Berg and Northcote 1985; Bjornn et al. 1977; Cordone and Kelley 1961), reduce growth rates (Crouse et al. 1981), and increase plasma cortisol levels (Servizi and Martens 1992). High turbidity concentrations can reduce dissolved oxygen in the water column, result in reduced respiratory functions, reduce tolerance to diseases, and can also cause fish mortality (Berg and Northcote 1985; Gregory and Northcote 1993; Sigler et al. 1984; Velagic 1995; Waters 1995). Increased sediment deposition can fill pools and reduce the amount of cover available to fish, decreasing the survival of juveniles (Alexander and Hansen 1986).

Although sediment and turbidity may affect listed salmonids, sedimentation and turbidity levels associated with this project are not expected to rise to the levels discussed in the previous paragraph. Monitoring of projects with similar bed and bank disturbance (newly replaced culverts within Humboldt County) generally detailed temporary increases in turbidity following winter storm events (County of Humboldt 2002; 2003; 2004); the measured turbidity was generally less than the turbidity threshold commonly cited as beginning to cause minor behavioral changes (Bisson and Bilby 1982, Sigler et al. 1984), and always less than turbidity levels necessary to injure or kill salmonids.

For this project, minimal amounts of stream bed and bank will be disturbed, and the project will stabilize an actively eroding bank. During construction, sediment input to the creek is expected to be minimal, because the project proposes to use erosion control fabric and silt fencing to hold soil and sediment in place on the bank. NMFS does not anticipate elevated sediment levels associated with this project to result in harm, injury, or behavioral impacts that could reduce the survival chances for threatened CCC steelhead in the action area.

E. Critical Habitat Effects

San Anselmo Creek is designated critical habitat for CCC steelhead and CCC coho salmon. PCEs of designated critical habitat for CCC steelhead in freshwater include sites for spawning, rearing, and migration. Essential features of these sites include spawning gravels, water quality and quantity, natural cover including large substrate and aquatic vegetation, forage species, and migratory corridors free of obstructions (70 FR 52488). Essential features of designated critical habitat for coho salmon in freshwater consist of adequate (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions (64 FR 24049).

The potential effects of this project to designated critical habitat include the temporary loss of rearing sites during dewatering and minor, short-term disturbance of the bed and banks during construction. As discussed above, steelhead within the dewatered area will be relocated and sufficient habitat exists adjacent to the work site to support these individuals. The temporary loss of 100 linear feet of channel for a 13-week period during construction is not expected to adversely affect essential physical or biological features associated with critical habitat, because the site is expected to return to its previous condition after the water diversion system is removed.

Upon completion of construction the Project will reduce the velocity of storm water discharged from the storm drain and stabilize the eroding bank below the outfall. This will also reduce ponding of flood waters in the adjacent residential areas and thus reduce the introduction of landscape and household pollutants to San Anselmo Creek. The installation of rock riprap on the lower bank below the outfall would fill a portion of the existing pool and create more hardscape in the action area. This addition of rock to the channel will add an insignificant restriction to the

channel's ability to meander in the action area. The existing concrete wingwall and rock riprap extending downstream of the Pastori Bridge already prevents the channel from lateral movement on the same bank as the outfall and the addition of 28 feet of bank hardening, most of it located within the footprint of the existing riprap, is unlikely to make the already limited meander conditions appreciably worse. Natural geomorphic processes in and near the action area are limited by extensive development along the upper banks of San Anselmo Creek.

The applicant proposes to install a large log-rootwad that would extend from the rock riprap on the left bank into the low flow area of the pool to create cover for juvenile salmonid rearing and adult holding habitat. Currently, the pool contains very little cover. The incorporation of the log-rootwad into the riprapped bank will increase habitat complexity and diversity along the edge of the pool. Large woody debris provides instream cover for juvenile and adult salmonids. Rootwads can also provide areas of low velocity refuge during winter high flow events.

For the above reasons, the project's construction effects on critical habitat are considered minimal and post-construction, the project is expected to enhance instream cover in the large pool immediately downstream of the Pastori Avenue Bridge. An eroding bank area in the action area will be stabilized. Existing native riparian plants and trees at project site will be retained. Overall, the project is not expected to degrade PCEs within the action area to the extent that the value of critical habitat will be reduced. Some essential features of critical habitat will be improved. For example, the placement of the rootwad is likely to improve instream cover in the action area.

VII. CUMULATIVE EFFECTS

Cumulative effects are defined in 50 CFR §402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation". Any future Federal actions will be reviewed through separate section 7 consultation processes and not considered here.

The Corps provided NMFS information on two future actions that may result in cumulative effects within the action area: (1) the adoption and implementation of a Stormwater Management Ordinance by the Town and (2) implementation of flood reduction measures identified in the Capital Improvement Plan Study for Flood Damage Reduction and Creek Management in Flood Zone 9/Ross Valley (Stetson Engineers Inc. 2011). The future adoption and implementation of a Stormwater Management Ordinance by the Town would require new developments or redevelopment projects to prevent increases in peak stormwater runoff discharges from development sites. The Town anticipates that this ordinance would result a net decrease in the 10-year peak flow discharge from the Pastori Avenue storm water outfall.

Implementation of flood control measures identified in the Capital Improvement Study could include construction of off-stream detention basins. There are no specific flood control projects identified in the action area, but if construction of detention basins upstream of the action area

were to occur, it is estimated that peak flows in San Anselmo Creek under the Pastori Avenue Bridge could be reduced by as much as 100 cfs (CSW/ST2 2010a).

NMFS does not anticipate the cumulative effects of the actions described above to adversely effect on CCC steelhead or designated critical habitat. Given current baseline conditions and the cumulative actions described above, NMFS expects habitat conditions in the action area to experience minor improvements in the future. NMFS does not expect to see much improvement in habitat conditions in the near future due to existing land and water development in the watershed. In the long term, climate change may produce temperature and precipitation changes that may adversely affect steelhead habitat in the action area.

VIII. INTEGRATION AND SYNTHESIS

CCC steelhead are listed as threatened. Based on the extensive loss of historic habitat due to dams, and the degraded condition of remaining spawning and rearing areas, CCC steelhead populations in watersheds that drain to San Francisco Bay, including San Anselmo Creek, are likely unviable in the long-term absent efforts to improve and restore their habitat. Steelhead occur in San Anselmo Creek in densities and abundance lower than historic conditions. Spawning and rearing habitat in the creek, where it is accessible to steelhead, remains in good condition relative to habitat in nearby creeks. Juvenile CCC steelhead are expected to be present within the 200-foot long action area in San Anselmo Creek during construction. The number of individuals is expected to be as high as 200 due to the presence of a pool area at the downstream side of the Pastori Avenue Bridge. However, the juvenile steelhead present likely make up a very small proportion of steelhead in San Anselmo Creek, and high quality habitat conditions for summer rearing steelhead occur in areas upstream and downstream of the action area. Due to the timing of the proposed action, no adult steelhead or migrating steelhead smolts will be adversely affected by the project.

The creek will be temporarily disturbed during construction and placement of the riprap and the log-rootwad. Adverse effects to habitat, due to project construction, are expected to be temporary and associated with minor disturbances to the streambed, bank, and flow of the stream. Before and during dewatering the site for construction, fish will be collected and relocated from the work area. Experienced fish biologists are expected to work effectively and have low steelhead injury and mortality rates during fish collections. Fish that elude capture and remain in the project area during construction activities will likely be lost to thermal stress or crushed by heavy equipment, but this number is not expected to exceed two (2) individuals. Based on the low mortality rates for similar dewatering and fish relocation efforts, NMFS anticipates few juvenile steelhead will be harmed or killed during implementation of this project. Anticipated mortality from electrofishing is expected to not exceed 2 percent and mortality due to dewatering is not expected to exceed 1 percent of the fish within the area dewatered. Because no more than 200 juvenile steelhead are likely to be present, NMFS expects no more than six (6) juvenile steelhead will be harmed or killed by electrofishing and dewatering. Due to the

relatively large number of juveniles produced by each spawning pair, steelhead spawning in the San Anselmo Creek watershed in future years are expected to produce enough juveniles to replace the few that may be lost at the project site due to relocation and dewatering. It is unlikely that the small potential loss of juveniles by this project will impact future adult returns.

Potential impacts to designated critical habitat for CCC steelhead and CCC coho salmon are minor. The project is expected to maintain existing riparian vegetation and enhance instream cover in the large pool immediately downstream of the Pastori Avenue Bridge. Stabilization of the bank and increasing the size of the storm water outfall will prevent further erosion of the stream bank. The new bank stabilization structure will add an insignificant amount of hardscape to the channel within the action area of San Anselmo Creek that is unlikely to affect the channels currently limited geomorphic processes. Furthermore, natural cover, an essential feature of critical habitat, will be improved by the placement of a large rootwad in the action area.

Regarding future climate change effects in the action area, California could be subject to higher average summer air temperatures and lower total precipitation levels. The Sierra Nevada snow pack may decrease by as much as 70 to 90 percent by the end of this century under the highest emission scenarios modeled. Reductions in the amount of precipitation would reduce stream flow levels in Northern and Central Coastal rivers. Estuaries may also experience changes in productivity due to changes in freshwater flows, nutrient cycling, and sediment amounts. For this project, construction would be completed no later than 2013 and the above effects of climate change are unlikely to be detected within that time frame. The short-term effects of project construction will have completely elapsed prior to these climate change effects. Long-term benefits to habitat in the action area through the project's enhancement of a large pool may provide some increased resistance to climate change.

IX. CONCLUSION

After reviewing the best available scientific and commercial data, the current status of CCC steelhead, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' biological opinion that the Town of Fairfax's proposed Pastori Storm Drain Project on San Anselmo Creek is not likely to jeopardize the continued existence of threatened CCC steelhead.

After reviewing the best available scientific and commercial data, the current status of the critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' opinion that the construction of the Town of Fairfax's proposed Pastori Storm Drain Project on San Anselmo Creek is not likely to adversely modify or destroy critical habitat for CCC steelhead and CCC coho salmon.

X. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NMFS as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by the Corps and FEMA for the exemption in section 7(o)(2) to apply. The Corps and FEMA have a continuing duty to regulate the activity covered by this incidental take statement. If the Corps or FEMA (1) fails to assume and implement the terms and conditions, or (2) fails to require its designees to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps or FEMA must report the progress of the actions and its impact on the species to NMFS as specified in the incidental take statement (50 CFR §402.14(I)(3)).

A. Amount or Extent of Take

The amount or extent of take described below is based on the analysis of effects of the action done in the preceding biological opinion. If the action is implemented in a manner inconsistent with the project description provided to NMFS, and as a result take of listed species occurs, such take would not be exempt from section 9 of the ESA.

The number of threatened steelhead that may be incidentally taken during project activities is expected to be small, and limited to the pre-smolt juvenile life history stage. Take is anticipated to occur during fish relocation and dewatering in a 100-foot reach at the project site between June 15 and October 15. The number of juvenile steelhead encountered during dewatering and fish relocation is anticipated to be no more than 200 individuals. NMFS expects that no more than 3 percent of the juvenile steelhead (6 fish) within a 100-foot dewatering area of San Anslemo Creek will be injured or killed during fish relocation and dewatering activities.

B. Effect of the Take

In the accompanying biological opinion, NMFS has determined that the anticipated take is not likely to result in jeopardy to CCC steelhead.

C. Reasonable and Prudent Measures

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of CCC steelhead:

1. Undertake measures to ensure that harm and mortality to steelhead resulting from fish relocation and dewatering activities is low.

2. Undertake measures to minimize harm to steelhead resulting from construction of the project.

3. Undertake measures to minimize harm to steelhead from degradation of aquatic habitat and stream water quality.

4. Prepare and submit a report to document the effects of construction and relocation activities and performance.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps, its permittees, and FEMA, and its grantees, and their designees must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and present reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

    a. The qualified fisheries biologists conducting fish relocation and dewatering must monitor the construction site during placement and removal of cofferdams, channel diversions, and access ramps to ensure that any adverse effects to salmonids are minimized. The biologists must be on site during all dewatering events to capture, handle, and safely relocate steelhead. The Corps, permitee, or the biologist must notify NMFS biologist Amanda Morrison at (707) 575-6083 or Amanda.Morrison@noaa.gov one week prior to capture activities in order to provide an opportunity for NMFS staff to observe the activities.

    b. Steelhead must be handled with extreme care and kept in water to the maximum extent possible during rescue activities. All captured fish must be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream, and fish must not be removed from this water except when released. To avoid predation, the biologists must have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic predators. Captured salmonids will be relocated, as soon as

possible, to a suitable instream location in which suitable habitat conditions are present to allow for adequate survival of transported fish and fish already present.

c. If any salmonids are found dead or injured, the biologist must contact NMFS biologist Amanda Morrison by phone immediately at (707) 575-6083 or the NMFS Santa Rosa Area Office at 707-575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional protective measures are required. All salmonid mortalities must be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date and location of collection, fork length, and be frozen as soon as possible. Frozen samples must be retained by the biologist until specific instructions are provided by NMFS. The biologist may not transfer biological samples to anyone other than the NMFS Santa Rosa Area Office without obtaining prior written approval from the NMFS Santa Rosa Area Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NMFS deems appropriate.

2. The following terms and conditions implement reasonable and prudent measure 2:

a. The Corps, FEMA, their permitees and grantees must allow any NMFS employee(s) or any other person(s) designated by NMFS, to accompany field personnel to visit the project sites during activities described in this biological opinion.

b. Contractors must have a supply of erosion control materials, and fuel and hydraulic fluid spill containment supplies onsite to facilitate a quick response to unanticipated storm events, or fuel or hydraulic fluid spill emergencies.

c. All pumps used to divert live stream flow, outside the dewatered work area, will be screened and maintained throughout the construction period to comply with NMFS' Fish Screening Criteria for Anadromous Salmonids. See: http://swr.nmfs.noaa.gov/hcd/fishscrn.pdf.

3. The following terms and conditions implement reasonable and prudent measure 3:

a. Cofferdams or access ramps must be completely removed from the channel by October 15.

b. Once construction is completed, all temporary, construction related, project-introduced material (pipe, gravel, cofferdam, etc.) must be removed. Excess materials must be disposed of at an appropriate upland site.

4. The following term and condition implements reasonable and prudent measure 4:

a. The Corps, FEMA, or their permittees and grantees must provide a written report to NMFS by January 15 of the year following construction of the project. The report must be submitted to NMFS Santa Rosa Area Office, Attention: San Francisco Bay Branch Supervisor, 777 Sonoma Avenue, Room 325, Santa Rosa, California, 95404-6528. The report must contain, at a minimum, the following information:

i. **Construction related activities --** The report must include the dates construction began and was completed; a discussion of any unanticipated effects or unanticipated levels of effects on salmonids, a description of any and all measures taken to minimize those unanticipated effects and a statement as to whether or not the unanticipated effects had any effect on ESA-listed fish; the number of salmonids killed or injured during the project action; and photographs taken before, during, and after the activity from photo reference points.

ii. **Fish Relocation --** The report must include a description of the location from which fish were removed and the release site including photographs; the date and time of the relocation effort; pertinent information describing the where fish were relocated (e.g. water temperature, dissolved oxygen levels, stream flow, etc.), a description of the equipment and methods used to collect, hold, and transport salmonids; if an electrofisher was used for fish collection, a copy of the logbook must be included; the number of fish relocated by species; the number of fish injured or killed by species and a brief narrative of the circumstances surrounding ESA-listed fish injuries or mortalities; and a description of any problems which may have arisen during the relocation activities and a statement as to whether or not the activities had any unforeseen effects.

XI. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or to develop information. NMFS has the following conservation recommendation:

The Corps and the Town of Fairfax should work collaboratively with the property owner of the Pastori Avenue Bridge to replace the existing inadequate Alaskan Steeppass fish ladder with an effective fish passage structure. State-of-the art fish passage alternatives for the Pastori Avenue road crossing are presented in the May 31, 2006, report by Michael Love and Associates (2006).

XII. REINITIATION NOTICE

This concludes formal consultation for the Town of Fairfax's proposed Pastori Storm Drain Project on San Anselmo Creek. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, formal consultation must be reinitiated immediately.

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STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2012-0005-R3

Town of Fairfax
Pastori Storm Drain Outfall

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and the Town of Fairfax (Permittee), as represented by Michael Rock.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on February 3, 2012, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, DFG has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located on the left bank of San Anselmo Creek immediately downstream of the Pastori Avenue Bridge. The bridge is located southwest of the intersection of Pastori Avenue and Center Boulevard in the Town of Fairfax. Approximately 28 linear feet on the left bank of San Anselmo Creek will be impacted from the project. The project is located at Latitude 37°59'06"N and Longitude -122°34'58"W.

PROJECT DESCRIPTION

This project proposes to replace, repair, and stabilize the failing left bank of San Anselmo Creek at and below an existing storm drain outfall pipe. The existing storm drain pipe is undersized and produces high velocity discharges onto the bank during large rain events. The existing 24" storm drain will be enlarged to a 48" pipe. The stormwater outfall location will be protected with rock armoring to prevent future bank failure and erosion and will include a rootwad structure for habitat improvement.

A coffer dam will be installed at the upstream end of the Pastori Avenue Bridge and creek flow will be diverted through a pipe and discharged back into the creek downstream of the project site. The work site will be dewatered of any remaining standing water and native fish and aquatic organisms will be captured from the site and relocated to an appropriate location.

The existing 24" storm drain emerges from the downstream left wingwall of the Pastori Avenue Bridge. A small work crew will work from the bank to jack hammer a hole in the wingwall to accommodate the new larger storm drain pipe, which will extend back into Pastori Avenue and tie into a section of a 48" storm drain. Tarps and or drop cloths will be installed below the wingwall to capture and prevent debris from entering the creek during jack hammering.

Along the failed creek bank, a stable engineered rock slope protection (RSP) energy dissipation structure with a rootwad will be installed for bank protection. An approximately 28–foot long section of the creek channel will be impacted. Once the site has been dewatered, the work area will be cleared of remnant rip rap and loose material. No trees will be removed. A 15-foot long, 6-foot wide, and 3-foot deep keyway will be excavated at the edge of the channel to act as a toe foundation for the RSP and rootwad structure. A geotextile fabric will be laid within the keyway and up to the top of the repair slope. The key will be filled with large 1-2 ton mixed rock rip rap. The bank will then be built up at a 2:1 slope using consecutively smaller size rocks; the large voids in the RSP will be hand packed with smaller rocks. Approximately 35.5 cubic yards of rock material will be installed.

A rootwad with a minimum 48" diameter fan will be integrated into the rock fill material. The rootwad orientation and elevation will be installed such that at least three quarters of the trunk will be imbedded into the RSP and at least half of the rootwad fan will be located below the summer time water surface elevation, per engineering construction plans and notes (Bank Stabilization for Pastori Storm Drain Outfall, prepared by CSW/Stuber-Stroeh Engineering Group, Inc., dated 4-14-10).

The project also includes the installation of four (4) "perm-jack" piles to protect and support the existing wingwall footing. One and a half to two-ton boulders will be installed and integrated into the RSP bank protection contour on the creek side of the

existing concrete footing and the "perm-jack" piles. Voids that have developed between the concrete footing and wingwall will be filled with rocks and concrete.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- steelhead trout (*Oncorhynchus mykiss*)
- nesting birds
- aquatic vertebrates
- aquatic invertebrates
- riparian habitat

The adverse effects the project could have on the fish or wildlife resources identified above include:

- change in contour of stream channel and bank
- permanent or temporary loss bed or bank
- water quality degradation
- short-term release of contaminants
- dewatering
- increased erosion and sedimentation
- direct take of fish and other aquatic species
- disturbance to nesting birds and other wildlife

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFG personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify DFG if Permittee determines or learns that a provision in the Agreement

might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFG shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that DFG personnel may enter the project site at any time to verify compliance with the Agreement.

1.5 Conduct Only Specified Activities. Only those activities specifically mentioned in the Project Description may be conducted under this Agreement.

1.6 Notify DFG Prior to Work. The Permittee shall notify DFG by email at least five working days prior to commencement of covered activities. See contact information below.

1.7 Work According to Plans. Except as they are contradicted by measures required by this agreement, all work shall be conducted in conformance with the project description and measures included in the notification and the project design plans (Bank Stabilization for Pastori Storm Drain Outfall, prepared by CSW/Stuber-Stroeh Engineering Group, Inc., dated 4-14-10).

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

2.1 Work Period. To minimize adverse impacts to fish and wildlife, all work shall be confined to the period of June 15 to October 15. Revegetation shall not be confined to this period.

2.2 Work During Dry Weather Only. The work period for completing the work within the stream zone, shall be restricted to periods of minimum stream flow and dry weather. No phase of the project may be started if that phase and its associated erosion control measures can not be completed prior to the onset of precipitation. After any storm event, the Permittee shall inspect all sites currently under construction and all sites scheduled to begin construction within the next 72 hours for erosion and sediment problems and take corrective action as needed. Seventy-two hour weather forecasts from the National Weather Service shall be consulted and work shall not start back up until runoff ceases and there is less

than a 30% forecast for precipitation for the following 24-hour period.

2.3 No Equipment in the Live Stream. Equipment shall not be operated in wetted areas (including but not limited to ponded, flowing, or wetland areas) without written approval from DFG.

2.4 Biological Monitor on Site. The Permittee shall designate a person to monitor on-site compliance with all conditions of this Agreement. The monitor shall have received training in special status species identification. The Biological Monitor shall communicate to the person in charge when any activity is not in compliance with this Agreement and the activity shall immediately be stopped.

2.5 Qualified Biologist Approval. At least 30 days prior to commencing project activities covered by this Agreement, the Permittee shall submit to DFG, for review and approval, the qualifications of a biologist(s) that shall oversee the implementation of the conditions in this Agreement. Project activities covered by this Agreement may not commence unless DFG has approved the proposed biologist(s). At a minimum, the DFG-approved biologist(s) shall have a combination of academic training and professional experience in biological sciences and related resource management activities.

2.6 Qualified Biologist to Check Dewatered Area. The Qualified Biologist shall check daily for stranded aquatic life as the water level in the dewatering area drops and until dewatering facilities are removed. All stranded native aquatic vertebrates in the dewatered areas shall be immediately relocated to the nearest suitable habitat.

2.7 Divert Water Around Work Areas. Work shall be performed in isolation from the creek. If water is present then the Permittee shall construct coffer dams upstream and downstream of the work site and divert all flow from upstream of the upstream dam to a DFG approved location, through a suitably sized pipe. Coffer dams shall be constructed as close as practicable upstream and downstream of the work area. The coffer dams shall be constructed with clean gravel and bags, and may be sealed with sheet plastic. All materials shall be removed from the creek upon project completion. Normal flows shall be restored to the affected creek immediately upon completion of work at that location. If the coffer dams or stream diversion fail, they shall be repaired immediately. Diversion

shall be conducted such that water at the downstream end does not scour the channel bed or banks. No other diversion method shall be used without authorization of the DFG. If another diversion method is preferred, the Permittee must submit a plan detailing the desired diversion method. Authorization of any other diversion method shall be at the discretion of the DFG.

2.8 Screen Intake: The water diversion intake apparatus shall be screened with a fine mesh screen. The screen shall be cleaned as needed. The following National Marine Fisheries fish screening requirements shall be implemented:

2.8.1 A self-cleaning screen shall have at least 2.5 square feet of submerged screen material for each cubic foot per second (450 gallons per minute) of the maximum diversion rate. A screen which is not self -cleaning shall have at least 5 square feet of submerged screen material for each cubic foot per second of the maximum diversion rate. Round openings in the screen shall not exceed 3/32-inch diameter, square openings shall not exceed 3/32-inch measured diagonally, and slotted openings shall not exceed 0.069 inches in width. The screen may be constructed of any rigid woven, perforated, or slotted material that provides water passage while physically excluding fish. Screen material shall provide a minimum of 27% open area, but more open area is better. Stainless steel is recommended to minimize corrosion problems. The screen shall be designed to distribute the flow uniformly over the entire screen area. The screen face generally should be parallel to the flow of the stream. The screen shall be cleaned as frequently as necessary to prevent the approach velocity from exceeding 0.4 feet per second. The screen shall be kept in good repair, and shall be used whenever water is being diverted. The applicant is advised to consult with the National Marine Fisheries Service to ensure that all their design criteria are being met.

2.9 Dewater Work Site. Once water has been diverted around the work site (see Condition 2.7) the work site shall be dewatered. The site shall be dewatered to provide an adequately dry work area. Any muddy or otherwise contaminated water shall be pumped to a

settling tank or DFG-approved location prior to re-entering the creek. Work site dewatering can be accomplished using pumps and or siphons using National Marine Fisheries fish screening requirements. Site dewatering shall be consistent with the capture and relocation guidelines (see Condition 2.10).

2.10 Capture and Relocation. Any capture or relocation of aquatic species shall be conducted in conformance with this condition. The Qualified Biologist shall be on site and direct all dewatering and relocation activities. Capture and relocation shall be conducted in a manner that minimizes stress and injury to captured animals.

2.10.1 The Qualified Biologist shall be on site and direct all dewatering and relocation activities. Capture and relocation shall be conducted in a manner that minimizes stress and injury to captured animals.

2.10.2 Capture methods may include dip nets. All nets shall be made of a soft braded nylon material that is non abrasive. Mesh sizing shall be matched to species and the life stages likely encountered. Electrofishing shall be used as a last resort and only when appropriate according to the NMFS Guidelines for Electrofishing (Exhibit A).

2.10.3 A relocation site shall be identified and the most direct transportation route shall be determined prior to project activities.

2.10.4 Capture and handling of aquatic animals shall be minimized. Prior to the installation of the coffer dams, a fine mesh exclusion (block) net shall be placed across the wetted channel immediately upstream of the location of the diversion dam. Seining shall then be conducted starting upstream and moving in the downstream direction. Once seining has passed the limit of the downstream coffer dam location, an exclusion net shall be installed.

2.10.5 Initial dewatering shall be done at a slow rate.

2.10.6 The number of animals captured and moved at any one time shall be limited to the number that can be relocated without stress or injury.

2.10.7 Prior to handling animals, all hands and equipment shall be wetted down with stream water and shall be free of any materials including hand sanitizers, sunscreen or insect repellent. No animals shall be handled with dry hands or dry equipment.

2.10.8 An aeration system shall be used in any live well or other holding facility. The aerator shall be operating prior to placing animals in it to ensure that sufficient oxygen is present during the adjustment period and to minimize the build-up of toxic carbon dioxide in holding waters. The aeration rate and the number of animals in each holding facility shall be managed such that the dissolved oxygen concentration shall be maintained above 6 parts per million.

2.10.9 Water from the local collection site shall be used in live wells or other holding facilities during loading and transport. At no time will chlorinated tap water be used.

2.10.10 Live wells or other holding facilities shall be sufficiently sized to minimize stress.

2.10.11 Dotted smartweed (*Persicaria punctata*) shall not be placed or allowed to enter live wells or holding facilities.

2.10.12 Water temperatures within any live well or other holding facility shall be kept at or below water temperature at the collection site. Temperatures must be managed in such a way as to minimize stress; for example, floating a sealed bag of ice in each container.

2.10.13 If salmonid species are expected to be present, activities shall not be initiated when and if water temperatures exceed or are expected to exceed 68°F.

2.10.14 Any captured salmonids shall be tallied by species.

2.10.15 No non-native invasive animals captured shall be returned to the stream or released alive.

2.10.16 Before and after each relocation effort, all equipment shall be sterilized following follow the general gear cleaning protocols in the California Department of Fish and Game *Administrative Report 2005-02: Controlling the Spread of New Zealand Mud Snails on Wading Gear* (Exhibit B). Note: Formula 409 Disinfectant (50% dilution) has recently changed its formula and is no longer recommended. DFG "Tank Disinfection Protocol" shall also be followed (Exhibit C).

2.11 Nesting Birds. To protect nesting birds, no project activities shall occur from February 15 through August 31 unless nesting bird surveys have been completed by a qualified biologist. Surveys shall be conducted no more than seven (7) days prior to the start of construction activities. To prevent nest abandonment, a qualified biologist should survey within 250 feet of the proposed Project for nesting birds. If nest are found within the Project site or 250 feet from the Project then the qualified biologist shall establish suitable buffers prior to tree removal and/or ground-breaking activities. The established buffer(s) shall remain in effect until the young have fledged or the nest has been abandoned as confirmed by the qualified biologist. Surveys shall be conducted during periods of peak activity (early morning, dusk) and shall be of sufficient duration to observe movement patterns.

If nesting birds are found, buffers shall be established in consultation with DFG. Active nests found within the vicinity of the project area shall be monitored by the Qualified Biologist during all work activities for changes in bird behavior. Permittee shall perform at least two hours of pre-construction monitoring to characterize "normal" bird behavior. During work, should birds indicate unusual or distressed behavior that could be indicative of future nest abandonment, the biologist shall stop work immediately and consult with DFG.

2.12 Wildlife Encounters. If any wildlife is encountered during the course of project activities, said wildlife shall be allowed to leave the area unharmed and on their own volition.

2.13 Limit Disturbance to Vegetation. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

2.14 Stabilize Disturbed Areas. All exposed/disturbed areas within the project site shall be stabilized to the greatest extent possible. Erosion control measures, such as, silt fences, straw hay bales, gravel or rock lined ditches, water check bars, and broadcasted straw shall be used where ever silt laden water has the potential to leave the work site and enter State waters. Modifications, repairs and improvements to erosion control measures shall be made whenever it is needed. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream. Materials containing monofilament or plastic shall not be used.

2.15 Equipment Storage and Maintenance. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located outside of the creek channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the creek shall be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles must be moved out of the stream channel prior to refueling and lubrication.

2.16 Refueling of equipment. Refueling of construction equipment and vehicles shall not occur within 100 feet of any water body, or anywhere that spilled fuel could drain to a water body. Tarps or similar material shall be placed underneath the construction equipment and vehicles, when refueling, to capture incidental spillage of fuels. Equipment and vehicles operating in the project area shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.

2.17 Concrete. Concrete shall be excluded from surface water for a period of 30-days after it is poured/sprayed/pumped. During that time the concrete shall be kept moist and runoff from the concrete shall not be allowed to enter any water body. Commercial sealants may be applied to the concrete surface where difficulty in excluding flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is cured. If groundwater comes into contact with fresh concrete, it shall be prevented from flowing towards surface water.

2.18 Agreement Does Not Authorize Take of Listed Species. The Permittee shall comply with all applicable state and federal laws, including the California and Federal Endangered Species Act. This Agreement does not authorize the take of any state or federally endangered listed species. Liability for any take or incidental take of such species remains the responsibility of the Permittee for the duration of the project. Any unauthorized take of listed species may result in prosecution and nullification of the Agreement.

2.19 Remove Trash and Food Wastes. All trash will be properly stored and removed at the end of each work day.

2.20 No Pets on Site. No pets shall be permitted in the work area.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 Capture and Relocation Results. Permittee shall submit a report of capture and relocation activities to DFG within 30 days after relocation activities have been completed. The report shall include: species encountered, capture methods; methods used for handling, stress minimization, equipment cleaning and disinfection; sizes of holding facilities; descriptions of relocation sites; number by species of all captured salmonids; and all instances of mortality and injury.

3.2 Survey Reports. Reports for the nesting bird survey shall be provided to DFG no more than 14 days after the surveys have been completed.

3.3 Notification to the California Natural Diversity Database (CNDDB). If any listed, rare, or special status species are detected during project surveys or on or around the project site during project activities, the Permittee shall submit CNDDB Field Survey Forms to CNDDB within five working days of the sightings. Information on submitting data to CNDDB can be found at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp. Copies of such submittals shall also be submitted to the DFG regional office as specified below.

CONTACT INFORMATION

Any communication that Permittee or DFG submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFG specifies by written notice to the other.

To Permittee:

Michael Rock
Town of Fairfax
142 Bolinas Road
Fairfax, CA 94930
Phone: (415) 458-2345
Email: mrock@townoffairfax.org

To DFG:

Department of Fish and Game
Bay Delta Region
7329 Silverado Trail
Napa California 94558
Attn: Lake and Streambed Alteration Program – Timothy S. Dodson
Notification #1600-2012-0005-R3
Phone: (707) 944-5513
Email: tdodson@dfg.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute DFG's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

DFG may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before DFG suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee

an opportunity to correct any deficiency before DFG suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes DFG from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects DFG's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

DFG may amend the Agreement at any time during its term if DFG determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFG approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFG shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)). .

EFFECTIVE DATE

The Agreement becomes effective on the date of DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2013, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

Exhibit A. NMFS Guidelines for Electrofishing
Exhibit B. Controlling the Spread of New Zealand Mud Snails on Wading Gear
Exhibit C. Tank Disinfection Protocol

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify DFG in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR TOWN OF FAIRFAX

Michael Rock — 5-20-12

Michael Rock — Date

FOR DEPARTMENT OF FISH AND GAME

CJ Weightman — June 12, 2012

Craig J. Weightman — Date
Acting Environmental Program Manager

Prepared by: Timothy S. Dodson
Environmental Scientist

Date Sent: April 20, 2012

EXHIBIT A

National Marine Fisheries Service Guidelines for Electrofishing

National Marine Fisheries Service

Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act

June 2000

Purpose and Scope

The purpose of this document is to provide guidelines for the safe use of backpack electrofishing in waters containing salmonids listed by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA). It is expected that these guidelines will help improve electrofishing technique in ways which will reduce fish injury and increase electrofishing efficiency. These guidelines and sampling protocol were developed from NMFS research experience and input from specialists in the electrofishing industry and fishery researchers. This document outlines electrofishing procedures and guidelines that NMFS has determined to be necessary and advisable when working in freshwater systems where threatened or endangered salmon and steelhead may be found. As such, the guidelines provide a basis for reviewing proposed electrofishing activities submitted to NMFS in the context of ESA Section 10 permit applications as well as scientific research activities proposed for coverage under an ESA Section 4(d) rule.

These guidelines specifically address the use of backpack electrofishers for sampling juvenile or adult salmon and steelhead that are *not* in spawning condition. Electrofishing in the vicinity of adult salmonids in spawning condition and electrofishing near redds are not discussed as there is no justifiable basis for permitting these activities except in very limited situations (e.g., collecting brood stock, fish rescue, etc.). The guidelines also address sampling and fish handling protocols typically employed in electrofishing studies. While the guidelines contain many specifics, they are not intended to serve as an electrofishing manual and do not eliminate the need for good judgement in the field.

Finally, it is important to note that researchers wishing to use electrofishing in waters containing listed salmon and steelhead are not necessarily precluded from using techniques or equipment not addressed in these guidelines (e.g., boat electrofishers). However, prior to authorizing the take of listed salmonids under the ESA, NMFS will require substantial proof that such techniques/equipment are clearly necessary for a particular study and that adequate safeguards will be in place to protect threatened or endangered salmonids. Additional information regarding these guidelines or other research issues dealing with salmon and steelhead listed under the ESA can be obtained from NMFS' Protected Resources Divisions in:

Washington, Oregon, and Idaho
Leslie Schaeffer
NMFS
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2737
Phone: (503) 230-5433
FAX: (503) 230-5435
Internet Address: Leslie.Schaeffer@noaa.gov

California
Dan Logan
NMFS
777 Sonoma Ave., Room 325
Santa Rosa, California 95404-6515
Phone: (707) 575-6053
FAX: (707) 578-3435
Internet Address: Dan.Logan@noaa.gov

Appropriateness of Electrofishing

Backpack electrofishing for salmonids has been a principal sampling technique for decades, however, recent ESA listings underscore the need to regulate the technique and assess its risks and benefits to listed species (Nielsen 1998). With over 25 Evolutionarily Significant Units (ESUs) of threatened or endangered salmonids now identified along the U.S. West Coast, researchers can expect to encounter one or more listed species in nearly every river basin in California, Oregon, Washington, and Idaho. There are few if any non-invasive ways to collect distribution, abundance, or morpho-physiological data on salmonids in freshwater. This is reflected in the requirement that all activities that involve intentional take of juvenile salmonids for research or enhancement of an ESA listed species require an ESA Section 10 permit from NMFS. While NMFS has not precluded the use of electrofishing in all cases, researchers must present rigorous study designs and methods for handling fish prior to NMFS authorizing electrofishing to take listed salmonids under the ESA.

NMFS believes there is ample evidence that electrofishing can cause serious harm to fish and the general agency position is to encourage researchers to seek out other less invasive ways to sample listed species. Direct observation by snorkeling is one of the least invasive ways to collect information concerning abundance and distribution, although there can be both practical (e.g., poor viability) and statistical (e.g., large numbers of fish, low observation probability) constraints to direct observation. Preliminary efforts should be directed at study designs that use less invasive methods. If such methods cannot provide the quality of data required or when the benefit exceeds potential mortality risk, then electrofishing can be considered. Electrofishing used on a limited basis to calibrate direct observations (e.g., Hankin and Reeves 1988) is commonly used and methods are currently under development that increase the use of direct observation counts (e.g., bounded counts, "multiple snorkel passes") which, in many cases, will further reduce the need for electrofishing.

Electrofishing Guidelines

Training

Field supervisors and crew members must have appropriate training and experience with electrofishing techniques. Training for field supervisors can be acquired from programs such as those offered from the U. S. Fish and Wildlife Service - National Conservation Training Center (*Principles and Techniques of Electrofishing* course) where participants are presented information concerning such topics as electric circuit and field theory, safety training, and fish injury awareness and minimization. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing and should be conducted in waters that do not contain ESA-listed fish. Field crew training must include the following elements:

1. A review of these guidelines and the equipment manufacturer's recommendations, including basic gear maintenance.
2. Definitions of basic terminology (e.g. galvanotaxis, narcosis, and tetany) and an explanation of how electrofishing attracts fish.
3. A demonstration of the proper use of electrofishing equipment (including an explanation of how gear can injure fish and how to recognize signs of injury) and of the role each crew member

performs.

4. A demonstration of proper fish handling, anesthetization, and resuscitation techniques.
5. A field session where new individuals actually perform each role on the electrofishing crew.

Research Coordination

Research activities should be coordinated with fishery personnel from other agencies/parties to avoid duplication of effort, oversampling small populations, and unnecessary stress on fish. Researchers should actively seek out ways to share data on threatened and endangered species so that fish samples yield as much information as possible to the research community. NMFS believes that the state fishery agencies should play a major role in coordinating salmonid research and encourages researchers to discuss their study plans with these agencies prior to approaching NMFS for an ESA permit.

Initial Site Surveys and Equipment Settings

1. In order to avoid contact with spawning adults or active redds, researchers must conduct a careful visual survey of the area to be sampled before beginning electrofishing.
2. Prior to the start of sampling at a new location, water temperature and conductivity measurements should be taken to evaluate electroshocker settings and adjustments. **No electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the electrofishing survey. In addition, studies by NMFS scientists indicate that no electrofishing should occur in California coastal basins when conductivity is above 350 µS/cm.**
3. Whenever possible, a block net should be placed below the area being sampled to capture stunned fish that may drift downstream.
4. Equipment must be in good working condition and operators should go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a logbook.
5. Each electrofishing session must start with all settings (voltage, pulse width, and pulse rate) set to the **minimums** needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured, and generally not allowed to exceed conductivity-based maxima (Table 1). Only direct current (DC) or pulsed direct current (PDC) should be used.

Table 1. Guidelines for initial and maximum settings for backpack electrofishing.

	Initial settings	Maximum settings		Notes
Voltage	100 V	Conductivity (µS/cm)	Max. Voltage	In California coastal basins, settings should never exceed 400 volts. Also, no electrofishing should occur in these basins if conductivity is greater than 350 µS/cm.
		< 100	1100 V	
		100 - 300	800 V	
		> 300	400 V	
Pulse width	500 µs	5 ms		
Pulse rate	30 Hz	70 Hz		*In general*, exceeding 40 Hz will injure more fish

Electrofishing Technique

1. Sampling should begin using straight DC. Remember that the power needs to remain on until the fish is netted when using straight DC. If fish capture is unsuccessful with initial low voltage, gradually increase voltage settings with straight DC.
2. If fish capture is not successful with the use of straight DC, then set the electrofisher to lower voltages with PDC. If fish capture is unsuccessful with low voltages, increase pulse width, voltage, and pulse frequency (duration, amplitude, and frequency).
4. Electrofishing should be performed in a manner that minimizes harm to the fish. Stream segments should be sampled systematically, moving the anode continuously in a herringbone pattern (where feasible) through the water. Care should be taken when fishing in areas with high fish concentrations, structure (e.g., wood, undercut banks) and in shallow waters where most backpack electrofishing for juvenile salmonids occurs. Voltage gradients may be high when electrodes are in shallow water where boundary layers (water surface and substrate) tend to intensify the electrical field.
5. Do not electrofish in one location for an extended period (e.g., undercut banks) and regularly check block nets for immobilized fish.
6. Fish should not make contact with the anode. Remember that the zone of potential injury for fish is 0.5 m from the anode.
7. Electrofishing crews should be generally observant of the condition of the fish and change or terminate sampling when experiencing problems with fish recovery time, banding, injury, mortality, or other indications of fish stress.
8. Netters should not allow the fish to remain in the electrical field any longer than necessary by removing stunned fish from the water immediately after netting.

Sample Processing and Recordkeeping

1. Fish should be processed as soon as possible after capture to minimize stress. This may require a larger crew size.
2. All sampling procedures must have a protocol for protecting held fish. Samplers must be aware of the conditions in the containers holding fish; air pumps, water transfers, etc., should be used as necessary to maintain safe conditions. Also, large fish should be kept separate from smaller prey-sized fish to avoid predation during containment.
3. Use of an approved anesthetic can reduce fish stress and is recommended, particularly if additional handling of fish is required (e.g., length and weight measurements, scale samples, fin clips, tagging).
4. Fish should be handled properly (e.g., wetting measuring boards, not overcrowding fish in buckets, etc.).
5. Fish should be observed for general condition and injuries (e.g., increased recovery time, dark bands, apparent spinal injuries). Each fish should be completely revived before releasing at the location of capture. A plan for achieving efficient return to appropriate habitat should be developed before each sampling session. Also, every attempt should be made to process and release ESA-listed specimens first.
8. Pertinent water quality (e.g., conductivity and temperature) and sampling notes (e.g., shocker settings, fish condition/injuries/mortalities) should be recorded in a logbook to improve technique and help train new operators. *It is important to note that records of injuries or mortalities pertain to the entire electrofishing survey, including the fish sample work-up.*

Citations and Other References

Dalbey, S. R., T. E. McMahon, and W. Fredenberg. 1996. Effect of electrofishing pulse shape and electrofishing-induced spinal injury on long-term growth and survival of wild rainbow trout. North American Journal of Fisheries Management 16:560-569.

Hankin, D. G., and G. H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. Canadian Journal of Fisheries and Aquatic Sciences 45:834-844.

Hollender, B. A., and R. F. Carline. 1994. Injury to wild brook trout by backpack electrofishing. North American Journal of Fisheries Management 14:643-649.

Nielsen, J. L. 1998. Electrofishing California's endangered fish populations. Fisheries 23:6-12.

Nielsen, L.A., and D.L. Johnson, editors. 1983. Fisheries techniques. American Fisheries Society, Bethesda, Maryland.

Reynolds, J. B., and A. L. Kolz. 1988. Electrofishing injury to large rainbow trout. North American Journal of Fisheries Management 8:516-518.

Sharber, N. G., and S. W. Carothers. 1988. Influence of electrofishing pulse shape on spinal injuries in adult rainbow trout. North American Journal of Fisheries Management 8:117-122.

Sharber, N. G., S. W. Carothers, J.P. Sharber, J. D. deBos, Jr., and D. A. House. 1994. Reducing electrofishing-induced injury of rainbow trout. North American Journal of Fisheries Management 14:340-346.

Schreck, C.B., and P.B. Moyle, editors. 1990. Methods for fish biology. American Fisheries Society, Bethesda, Maryland.

EXHIBIT B

Controlling the Spread of New Zealand Mud Snails on Wading Gear

These procedures are sourced from Appendix 3 of the Department of Fish and Game, Controlling the Spread of New Zealand Mud Snails on Wading Gear, Administrative Report 2005-02 May 16, 2005.

The following procedures for cleaning NZMS infested wading gear can be followed upon exiting NZMS infested waters. Wading gear should be cleaned prior to leaving the site. If this is not possible then wading gear should be completely sealed inside of a large plastic bag and cleaned before it is used in any other waters. Three different cleaning protocols have been tested and found to be effective using specific cleaning solutions:

1) Immersion Procedure
    a. Remove wading gear upon exiting NZMS infested waters. **Avoid allowing infested wading gear to come in contact with interior surfaces of vehicles or camping gear such as tents or trailers.** NZMS can be transferred to any surface they come in contact with and they could later be transferred back to cleaned wading gear. Turn waders right side out and remove insoles from wading boots.
    b. Place waders, wading boots, boot insoles and the streambed contact end of a wading stick, if used, in a container of sufficient size to allow the gear to be completely covered by a cleaning solution.
    c. Pour sufficient cleaning solution into the container with the infested wading gear to completely cover the gear. It may be necessary to weight down the gear to ensure that it remains immersed in the cleaning solution.
    d. Allow the wading gear to remain in the cleaning solution for at least 5 minutes.
    e. Remove the wading gear from the cleaning solution one piece at a time and inspect it to make sure that all debris that could harbor NZMS has been removed from the gear as well as any NZMS that could be lodged in cracks or crevices. If necessary, use a stiff plastic bristled brush such as a kitchen brush to remove any remaining debris and mud.
    f. Rinse wading gear in clean water. **DO NOT USE WATER FROM THE NZMS INFESTED SOURCE**. This may reintroduce NZMS to the wading gear.
    g. Return cleaned wading gear to it appropriate storage container.

2) Dry Sack Procedure
    a. Remove wading gear upon exiting NZMS infested waters. **Avoid allowing infested wading gear to come in contact with interior surfaces of vehicles or camping gear such as tents or trailers.** NZMS can be transferred to any surface they come in contact with and they could later be transferred back to cleaned wading gear. Turn waders right side out and remove insoles from wading boots.
    b. Place waders, wading boots, and boot insoles into a dry sack (recommended size: 65 liter). Walking sticks will need to be cleaned separately outside of the dry sack to avoid rupturing the sack.

c. Add 8 to 10 liters of cleaning solution to dry sack and the seal dry sack.
d. Pick up the dry sack and shake it back and forth using a rolling motion to ensure that the contents are thoroughly coated with the cleaning solution. Continue shaking for approximately 30 seconds.
e. Let dry sack sit undisturbed for at least 5 minutes. Then repeat the shaking and mixing for another 30 seconds.
f. Open the dry sack and remove the contents one piece at a time and inspect it to make sure that all debris that could harbor NZMS has been removed from the gear as well as any NZMS that could be lodged in cracks or crevices. If necessary, use a stiff plastic bristled brush such as a kitchen brush to remove any remaining debris and mud.
g. Rinse wading gear in clean water. **DO NOT USE WATER FROM THE NZMS INFESTED SOURCE**. This may reintroduce NZMS to the wading gear.
h. Return cleaned wading gear to it appropriate storage container.

3) Spray Bottle Procedure (**Note:** this procedure has only been tested using a copper sulfate cleaning solution).
   a. Remove wading gear upon exiting NZMS infested waters. **Avoid allowing infested wading gear to come in contact with interior surfaces of vehicles or camping gear such as tents or trailers.** NZMS can be transferred to any surface they come in contact with and they could later be transferred back to cleaned wading gear. Turn waders right side out and remove insoles from wading boots.
   b. Place waders, wading boots, boot insoles and the streambed contact end of a wading stick, if used, in a container of sufficient size to allow the gear to be easily accessed.
   c. Using a standard 1 liter squeeze-trigger type spray bottle containing the cleaning solution, spray the wading gear to the point of saturation and runoff with the cleaning solution. Be sure to treat the inside of the wading boots as well as the outside. Use the stream setting to be sure and dislodge any debris from the wading boots. Be sure to treat both top and under side of gravel guards if they are permanently attached to the waders.
   d. Allow the wading gear to set for at least 5 minutes with the cleaning solution on it. Remove the wading gear one piece at a time and inspect it to make sure that all debris that could harbor NZMS has been removed from the gear as well as any NZMS that could be lodged in cracks or crevices. If necessary, use a stiff plastic bristled brush such as a kitchen brush to remove any remaining debris and mud.
   e. Rinse wading gear in clean water. **DO NOT USE WATER FROM THE NZMS INFESTED SOURCE**. This may reintroduce NZMS to the wading gear.

f. Return cleaned wading gear to it appropriate storage container.

4) Cleaning Solutions.
   a. a. Copper sulfate: Dissolve 3.785 grams of copper sulfate pentahydrate crystals (99.1% purity) for each gallon of solution you want to make. This will achieve a concentration of 252 mg/L of copper in the cleaning solution.
   b. Benzethonium chloride: Dissolve 7.57 grams of benzethonium chloride (97% purity) for each gallon of cleaning solution you want to make. This will achieve a concentration of 1,947 mg/L in the cleaning solution.

EXHIBIT C

Tank Disinfection Protocol

Tank Disinfection Protocol: 200 ppm active chlorine solution

1. Determine the percentage of active chlorine in commercial liquid bleach or bleaching powder.

    a. For example, the percentage of active chlorine in store bought liquid bleach (initial volume = 5.14 L) is <u>6%</u>.

    b. Calculate initial chlorine concentration:

    6% ÷ 100 X 1,000,000 = 60,000 ppm.

    Conclusion: The concentration of chlorine in store bought liquid is <u>60,000 ppm</u>.

2. Calculate total volume that will be treated with 5.14 L of store bought liquid bleach at a final chlorine concentration of 200 ppm

    a. Example calculation:
        1) <u>Variables</u>:
            Initial bleach $Volume_1$ = 5.14 L
            Initial chlorine $Concentration_1$ = 60,000 ppm
            Final $Volume_2$ treated = unknown
            Final chlorine $Concentration_2$ in tank = 200 ppm
        2) <u>Equation</u>:
            $Volume_1$ ($Concentration_1$) = $Volume_2$ ($Concentration_2$)
        3) <u>Calculation</u>:
            5.14 L (60,000 ppm) = V_2 (200 ppm)

            308,400 = V_2 (200 ppm)

            1,542L = V_2

    b. Conclusion: One standard store bought container of bleach (5.14L) will treat 1,542 L (407 gallons) at a final chlorine concentration of 200 ppm.
    c. Adjust the foregoing calculation according to unknown variables.

3. Tank treatment
    a. Pour the bleach slowly into the tank, mixing as you pour and then fill the tank up to full capacity with clean water.
    b. Let the bleach stand in the tank for 1 hour.
    c. Completely empty the tank and rinse thoroughly with clean water.
    d. Dispose of bleach solution into a municipal waste water treatment system.

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET, 16TH FLOOR
SAN FRANCISCO, CALIFORNIA 94103-1398

REPLY TO
ATTENTION OF

JUN 12 2012

RECEIVED
JUN 13 2012
CSW/STUBER-STROEH

Regulatory Division

SUBJECT: File Number 2011-00058N

Ms. Georgia McDaniel
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, California 94949

Dear Ms. McDaniel:

This correspondence is in reference to your submittal of February 1, 2011 on behalf of the Town of Fairfax, concerning Department of the Army (DA) authorization to replace the storm drain outfall structure and stabilize the stream bank associated with the repair. The project area is located on the left bank (looking downstream) of San Anselmo Creek, downstream from the Pastori Avenue bridge in the Town of Fairfax, County of Marin, California.

Work within U.S. Army Corps of Engineers' (Corps) jurisdiction would include partial demolition of the existing concrete headwall for installation of a 48 inch diameter HDPE pipe, and installation of a rootwad to improve habitat. Work will require placement of 33 cubic yards of fill within 0.006 acre(s) below the plane of ordinary high water in waters of the U.S.

Section 404 of the Clean Water Act (CWA) generally regulates the discharge of dredged or fill material below the plane of ordinary high water in non-tidal waters of the United States, below the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters. Section 10 of the Rivers and Harbors Act generally regulates construction of structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States. Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce. A Preliminary JD has been completed for your site. Preliminary JDs are written indications that there may be waters of the U.S. on a parcel or indications of the approximate location(s) of waters of the U.S. on a parcel. Preliminary JDs are advisory in nature and may not be appealed.

Based on a review of the information in your submittal and the current condition of the site, as verified during a field investigation on February 14, 2011, the project qualifies for authorization under Department of the Army Nationwide Permit #3 for *Maintenance*, 77 Fed. Reg.10184, February 21, 2012, enclosure 1, pursuant to Section 404 of the CWA of 1972, as

amended (33 U.S.C. § 1344 *et seq*). The project must be in compliance with the terms of the NWP, the general conditions of the Nationwide Permit Program, and the San Francisco District regional conditions cited in enclosure 2. You must also be in compliance with any special conditions specified in this letter for the NWP authorization to remain valid. Non-compliance with any term or condition could result in the revocation of the NWP authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This NWP authorization does not obviate the need to obtain other State or local approvals required by law.

All work shall be completed in accordance with the plans and drawings "Bank Stabilization for Pastori Storm Drain Outfall" consisting of 4 sheets dated April 14, 2010, sheets 3 and 4 revised November 21, 2011, provided as enclosure 4.

This verification will remain valid for two years from the date of this letter. Activities which have commenced (i.e, are under construction) or are under contract to commence in reliance upon a NWP will remain authorized provided the activity is completed within 12 months of the date of a NWP's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5 (c) or (d). The Chief of Engineers will periodically review NWPs and their conditions and will decide to either modify, reissue, or revoke the permits. If a NWP is not modified or reissued within five years of its effective date, it automatically expires and becomes null and void. It is incumbent upon you to remain informed of any changes to the NWPs. Changes to the NWPs would be announced by Public Notice posted on our website (http://www.spn.usace.army.mil/regulatory/index.html). Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, enclosure 3, verifying that you have complied with the terms and conditions of the permit.

This authorization will not be effective until you have obtained a Section 401 water quality certification from the San Francisco Regional Water Quality Control Board. If the RWQCB fails to act on a valid request for certification within two months after receipt of a complete application, the Corps will presume a waiver of water quality certification has been obtained. You shall submit a copy of the certification to the Corps prior to the commencement of work.. You shall comply with all terms and conditions set forth by the certification of Regional Water Quality Control Board.You shall consider such conditions to be an integral part of the NWP authorization for your project.

General Condition 18 stipulates that project authorization under a NWP does not allow for the incidental take of any federally-listed species in the absences of a biological opinion (BO) with incidental take provisions. As the principal federal lead agency for this project, the Corps initiated consultation with the National Marine Fisheries Service (NMFS) to address project related impacts to list species, pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. Section 1531 *et seq.*). By letter of June 4, 2012, NMFS issued a BO

(#2011/00628) cited in enclosure 5. As the principal federal lead agency for this project, the Corps initiated consultation with the National Marine Fisheries Service (NMFS) to address project related impacts to Essential Fish Habitat (EFH) for various life stages of fish species managed with the Pacific Groundfish Fishery Management Plan, Coastal Pelagics Fishery Management Plan, and Pacific Coast Salmon Fishery Management Plan, pursuant to Magnuson-Stevens Fishery Conservation and Management Act of 1996, as amended (16 U.S.C. § 1801 *et seq.*). NMFS issued conservation recommendation to replace the existing inadequate Alaskan Steeppass fish ladder cited in enclosure 5 in the BO.

In order to ensure compliance with this NWP authorization, the following special conditions shall be implemented:

1. To remain exempt from the prohibitions of Section 9 of the Endangered Species Act, the non-discretionary Terms and Conditions for incidental take of federally-listed Species shall be fully implemented as stipulated in the enclosed Biological Opinion dated June 4, 2012. Project authorization under the NWP is conditional upon compliance with the mandatory terms and conditions associated with incidental take. Failure to comply with the terms and conditions for incidental take, where a take of a federally-listed species occurs, would constitute an unauthorized take and non-compliance with the NWP authorization for your project. The NMFS is, however, the authoritative federal agency for determining compliance with the incidental take statement and for initiating appropriate enforcement actions or penalties under the Endangered Species Act.

2. The Corps initiated consultation with the National Marine Fisheries Service (NMFS) to address project related impacts to Essential Fish Habitat. The conservation recommendation to replace the existing inadequate fish ladder shall be fully implemented as stipulated.

3. The BO outlines "Reasonable and Prudent Measures" and "Terms and Conditions" to minimize take of listed steelhead. A certified fisheries biologist will monitor and implement fish re-location as described on pages 26 through 28 including reporting requirements which are incorporated into this authorization.

You may refer any questions on this matter to Roberta Morganstern of my Regulatory staff by telephone at 415-503-6782 or by e-mail at Roberta.A.Morganstern@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, referencing file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you

would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/regulatory/.

Sincerely,

Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copy Furnished (w/o encls):

Town of Fairfax, Mr. Michael Rock, Town Manager

Copies Furnished (electronically):

CA RWQCB, Oakland, Santa Rosa, CA Attn: Mr. Bill Hurley
NMFS Santa Rosa Area Office, Santa Rosa, California 95404-6528 Attn: Ms. Amanda Morrison
California Department of Fish and Game, Attn: Mr. Tim Dodson

NWP Program General Conditions (2012)

1. *Navigation.* (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements.* No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. *Spawning Areas.* Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas.* Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. *Suitable Material.* No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. *Water Supply Intakes.* No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. *Adverse Effects From Impoundments.* If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. *Management of Water Flows.* To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. *Fills Within 100–Year Floodplains.* The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment.* Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls.* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. *Removal of Temporary Fills.* Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance.* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project.* The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers.* No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. *Tribal Rights.* No activity or its operation may impair reserved tribal rights, including, but not limited to,\ reserved water rights and treaty fishing and hunting rights.

18. *Endangered Species.* (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until

Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species specific regional endangered species conditions to the NWPs. (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. (f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at *http://www.fws.gov/* or *http:// www.fws.gov/ipac* and *http://www.noaa.gov/fisheries.html* respectively.

19. *Migratory Birds and Bald and Golden Eagles.* The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. *Historic Properties.* (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete preconstruction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h–2(k)) prevents the Corps from granting a permit or

other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. *Discovery of Previously Unknown Remains and Artifacts.* If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. *Designated Critical Resource Waters.* Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment. (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal. will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal: (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site). (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal. (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332. (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment. (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered. (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2)–(14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely

completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided. (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan. (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment. (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs. (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses. (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management. (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. *Safety of Impoundment Structures.* To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality.* Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. *Coastal Zone Management.* In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State

may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. *Regional and Case-By-Case Conditions.* The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. *Use of Multiple Nationwide Permits.* The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. *Transfer of Nationwide Permit Verifications.* If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)_____
(Date) _____

30. *Compliance Certification.* Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include: (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions; (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and (c) The signature of the permittee certifying the completion of the work and mitigation.

31. *Pre-Construction Notification*—(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either: (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify

the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2). (b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information: (1) Name, address and telephone numbers of the prospective permittee; (2) Location of the proposed project; (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans); (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate; (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan. (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act. (c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used. (d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the

district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5. (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

June 14, 2012
CIWQS Reg. Meas. 384949
CIWQS Place ID 765805

Sent via electronic mail: No hard copy to follow

Town of Fairfax
142 Bolinas Road
Fairfax, CA 94930
Attn.: Mr. Michael Rock
Email: mrock@townoffairfax.org

Subject: Conditional Water Quality Certification for the Pastori Storm Drain Outfall Project, Marin County

Dear Mr. Rock:

We hereby issue conditional water quality certification for the proposed construction of the Pastori Storm Drain Outfall Project (Project). The Town of Fairfax (Applicant) has applied to the U.S. Army Corps of Engineers (USACE), Regulatory Branch for a permit to discharge dredge and fill materials to waters of the United States pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) (USACE File No. 2011-00058N). As such, the Applicant has also applied to the San Francisco Bay Regional Water Quality Control Board (Water Board) for a Clean Water Act Section 401 water quality certification (401 Certification) that the Project will not violate State water quality standards.

Project: The Project involves replacement of the failed outfall structure and stabilization of the earthen bank beneath the outfall on the left bank of San Anselmo Creek at Pastori Bridge. Project elements include:

1. Replacing the existing 24-inch storm drain outfall pipe with a 48-inch outfall pipe to match the 48-inch pipe within Pastori Avenue.
2. Removing the remains of existing outfall structure embedded into the concrete wing wall of the bridge with an air-driven jack.
3. Installing an energy dissipation structure at the culvert outfall.

The proposed energy dissipation structure will consist of a triangle-shaped apron lined with rock riprap that will be keyed into the channel bottom. At the base of the riprap, a rootwad with trunk will be installed to enhance summer rearing habitat and transient

refugia habitat for steelhead and salmonids. This large woody debris (LWD) may also provide some high flow refugia for holding during high flows.

Impacts: The Project could indirectly impact waters of the state during and after construction. During construction, ground disturbing activities may impact water quality by increasing erosion and sedimentation. In addition, accidental releases of both hazardous and non-hazardous materials may impact water quality during construction. After construction, the Project could impede fish passage if not implemented in accordance with designs.

The Project will directly impact 0.007 acres and 28 linear feet of creek and riparian habitat by installing an energy dissipation device. The new energy dissipation device; however, will be installed at the location of the existing riprap.

Mitigation: The Applicant will implement appropriate Best Management Practices (BMPs) to avoid and minimize erosion, sedimentation, and pollutant transport to waters of the state during construction as described in the Application. The BMPs shall include, but not limited to, not using hydraulic equipment in the creek, and using tarps to catch all debris.

The Applicant will also mitigate for impacts to 0.007 acres and 28 linear feet of creek by incorporating a rootwad with trunk into the dissipation structure; thereby, enhancing habitat for steelhead and salmonids. Specifically, this LWD would enhance summer rearing habitat and transient refugia habitat, and potentially create high flow refugia for steelhead and salmonids by providing structural complexity and cover within the pool at the base of the dissipation structure.

CEQA: The Town of Fairfax, as lead agency for California Environmental Quality Act (CEQA), certified the Mitigated Negative Declaration (MND) for the Project on June 6, 2012. The Water Board, as a responsible agency under CEQA, has considered the MND and finds that the Project's significant environmental effects that are within the Water Board's purview and jurisdiction have been identified and will be mitigated to less-than-significant levels. Specifically, significant impacts pertaining to wetland and aquatic habitat and water quality will be mitigated to less-than-significant levels.

California Wetlands Portal: The Water Board tracks routine riparian repair and creek maintenance projects in an effort to detect potential systemic instabilities and document project performance in the creeks of the Bay Area. As such, the Applicant is required to submit a Riparian Repair and Maintenance (short) Form describing Project size, type, and performance measures. An electronic copy of the short form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. Project information will be made available at the web link: http://www.californiawetlands.net.

Certification: I hereby issue an order certifying that any discharge from the referenced project will comply with the applicable provisions of Sections 301 (Effluent Limitations),

302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification. The following conditions are associated with this certification:

1. The Project shall be constructed in conformance with the Project description provided in the Application materials received on February 4, 2011. Any changes to information provided in the Application or any supporting documents received with the Application must be submitted to the Water Board's Executive Officer for review and approval before the changes are implemented.

2. This certification does not allow for the take, or incidental take, of any special status species. The Applicants shall utilize the appropriate protocols, as approved by the California Department of Fish and Game, National Marine Fisheries Service and/or U.S. Fish and Wildlife Service, to ensure that Project activities do not adversely impact the Preservation of Rare and Endangered Species Beneficial Use of waters of the U.S. and State.

3. No debris, rubbish, soil, silt, sand, cement, concrete, or washings thereof, or other construction related wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into waters of the State. When construction is completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State.

4. No equipment shall be operated in areas of flowing or standing water. No fueling, cleaning, or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to waters of the State may occur. Construction materials and equipment must be stored outside of the active flow of the creek. When work within waters of the State is necessary, the entire stream flow shall be diverted around the work area and a tarp shall be placed over the creek bed to protect it.

5. Prior to the start of construction, the Applicant shall bypass stream flow around the Project site in accordance the Pastori Drain Outfall Dewatering Plan dated April 4, 2010. In addition, the stream flow shall be bypassed in a manner that maintains natural stream flows upstream and downstream of the Project area. In addition, the bypassed stream flow shall not cause the turbidity of the receiving water to increase by more than 10 percent if ambient turbidity is greater than 50 NTU, or by more than 5 NTU if the ambient turbidity is less than or equal to 50 NTU. All structures and materials used to bypass stream flow shall be removed immediately upon completion of Project activities.

6. Stream flow bypassed around or through the Project site shall be monitored at the following three locations to verify compliance with Condition 5 above:

    a. 50 to 100 feet upstream of the Project site;

    b. The end of the diversion pipe (i.e., the bypass discharge location); and

    c. 50 to 100 feet downstream of the bypass discharge location.

    During the initial startup phase of bypassing water around the Project site, turbidity shall be measured once every 15 minutes. After the turbidity measurements achieve a steady state (i.e., three sequential measurements are within the margin of error of the instrument from each other) and are in compliance with Condition 5 above, turbidity at the three monitoring locations shall be measured daily. If at any time turbidity measurements indicate violation of Condition 5 above, all construction activities shall be ceased and corrective actions implemented. Construction activities shall not recommence until turbidity measurements are in compliance with Condition 5 above. All required monitoring measurements and any necessary corrective actions shall be recorded, along with a daily estimate of the flow rate and volume of water discharged, and submitted to the Water Board within 7 days of the end of any month in which stream flow is bypassed around or through the Project site.

7. The Applicant is required to use the Riparian Repair and Maintenance (short) Form to provide Project information within 14 days from the date of this certification. The completed short form and map showing the Project boundaries shall be submitted electronically to habitatdata@waterboards.ca.gov or shall be submitted as a hard copy to both: 1) The Water Board (see the address on the letterhead), to the attention of California Wetlands Portal; and 2) The San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA, 94804, to the attention of Mike May.

8. Within 60 days of completing construction of the Project, the Applicant shall submit an as-built report of the Project to the Water Board. The as-built report shall include revised Project plans showing the actual areas of temporary disturbance and permanent fill. The as built report shall also describe installation of the rootwad with trunk undertaken to enhance the creek at the Project location. The as-built report shall be submitted either by uploading it to the California Wetlands Portal at http://www.californiawetlands.net or via mail (see the address on the letterhead). If the as-built report is submitted by uploading it to the California Wetlands Portal, the Applicants shall notify the Water Board that files have been uploaded via email to Xavier Fernandez at xafernandez@waterboards.ca.gov.

9. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 and Section 3867of the California Water Code (CWC), Title 23 of the California Code of Regulations (23 C.C.R.).

10. Certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 C.C.R. Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

11. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833) and owed by the Applicants. The fee for the proposed project, $640.00, has been paid in full.

This certification applies to the Project as proposed in the application materials. Please be advised that failure to implement the Project as proposed is a violation of this water quality certification. Violation of water quality certification is a violation of state law and is subject to administrative civil liability pursuant to CWC Section 13350. Failure to meet any condition of a certification may subject you to civil liability imposed by the Water Board to a maximum of $5,000 per day of violation or $10 for each gallon of waste discharged in violation of the certification. Also, any requirement for a report made as a condition to this action (e.g., Condition Nos. 6, 7, and 8) is a formal requirement pursuant to CWC Section 13267, and failure to submit, late or inadequate submittal, or falsification of such technical report(s) is also subject to civil liability pursuant to CWC Section 13268.

Should new information come to our attention that indicates a water quality problem with this Project, the Water Board may issue Waste Discharge Requirements pursuant to 23 CCR Section 3857.

If you have any questions, please contact Xavier Fernandez of my staff at (510) 622-5685 or by e-mail at xafernandez@waterboards.ca.gov.

Sincerely,

Bruce Wolfe
Executive Officer

Cc: SWRCB, DWQ, Stateboard401@waterboards.ca.gov
U.S. EPA, Region IX, WTR-8, 401 Mailbox, R9-WTR8-Mailbox@epa.gov
USACE, SF Regulatory Branch:
Bryan Matsumoto, bryan.t.matsumoto@usace.army.mil
Laurie Monarres, laurie.a.monarres@usace.army.mil
Jane Hicks, jane.m.hicks@usace.army.mil

Bank Stabilization for Pastori Storm Drain Outfall
Fish Collection and Relocation Plan

Prepared for the:

Town of Fairfax
Department of Public Works
142 Bolinas Road
Fairfax, CA 94930

Prepared by:

Alice A. Rich, Ph.D.
A.A. Rich and Associates
Fisheries and Ecological Consultants
150 Woodside Drive
San Anselmo, CA 94960
www.aarichandassociates.com

January 26, 2011

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I. INTRODUCTION

A. Background

The Town of Fairfax (Town), through the Governor's Office of California Emergency management Agency, has requested Federal Emergency management Agency's (FEMA) Public Assistance program funding for the a number of flood-related projects that were a result of the December 31, 2005 flood event. One of these projects is located on the right bank (as one faces upstream) of San Anselmo Creek just below the Pastori Avenue Bridge (see photos in Appendix). The flood caused the suspended terminal section of the 24-inch corregated metal pipe to fail and discharge stormwater onto the bank beneath the failed culvert. To protect the bridge and the adjacent residence from further bank erosion during the disaster event, the Town placed emergency rock rip rap on the eroded bank. However, as there is no vegetation on the eroded bank of the creek channel and the bank continues to erode, the culvert outlet needs to be replaced and the bank stabilized to prevent another bank failure immediately downstream this project (JARPA, 2011). Further details are provided in the JARPA (2011) for this project.

B. Description of Construction Activities

The existing 24-inch diameter storm drain outfall pipe will be replaced with a 48-inch diameter HDPE pipe. In 2008, the storm drain pipe within Pastori Avenue was replaced with a 48-inch diameter pipe. To replace the the 24-inch diameter piece of pipe, air-driven jack hammers will be used to break the wall for the storm drain pipe, and construction workers will stand on the rock rip-rap while doing the work. There will be no hydraulic equipment. Further details of the bank stabilization are provided in the JARPA (2011) for this project.

II. FISH COLLECTION AND RELOCATION PLAN

A. INTRODUCTION

Per the Endangered Species Act (ESA), any project that can potentially negatively affect threatened and/or endangered species must include measures to minimize those impacts. The South Central California Coast Steelhead (*Oncorhynchus mykiss*) is listed as threatened under the ESA and is known to inhabit San Anselmo Creek in Fairfax. During sampling in 2006 and 1999, juvenile rainbow/steelhead were collected in the large pool immediately below the fish ladder (Rich, 2006, 2000), an area that would be affected by the construction activities for this project. Therefore, because steelhead could be in this pool during the construction activities, all fish in

the pool below the fish ladder will have to be collected and relocated prior to any construction activities that could affect that area of San Anselmo Creek. The Town contracted with A. A. Rich and Associates (***AAR***) to prepare this *Fish Collection and Relocation Plan*.

B. FISH COLLECTION AND RELOCATION PLAN

Following are the steps in chronological order that ***AAR*** will follow to ensure that all fish, particularly any steelhead, have been moved out of the area that could be affected by construction activites. This protocol has been used successfully by ***AAR*** on a number of other projects in Marin and other areas in California (Rich, 2008, 2006a,b, 2005a,b, 2004).

Preparing Site and Initial Fish Collection and Relocation

1. Prior to the commencement of any construction activities (probably a day or two prior), ***AAR*** will prepare the area for the fish collection and relocation. A block net will be placed at the downstream end of the pool from which the fish are to be collected. To prevent small fish from passing through the net, the block net will be constructed of 1/8" mesh (Figure 1).

2. Fish will be collected using a Smith Root Type 12 Electrofisher. Extreme care will be taken not to disrupt the substrate, as this can result in clogging the gills of any fish present. Proceeding upstream, the "shocker" will be accompanied by two "netters", who will scoop up the fish and place them carefully in aerated buckets without physically touching the fish with. After each pass, the fish will be identified, and relocated upstream of the Pastori Avenue bridge to one or more suitable pools. Rainbow/ steelhead will be measured (fork length) before relocating them.

3. Letting the pool "settle" between electrofishing passes so that the turbidity decreases to the point where the water is clear, ***AAR*** will repeat the above procedure until as many fish as possible can be collected from the pool.

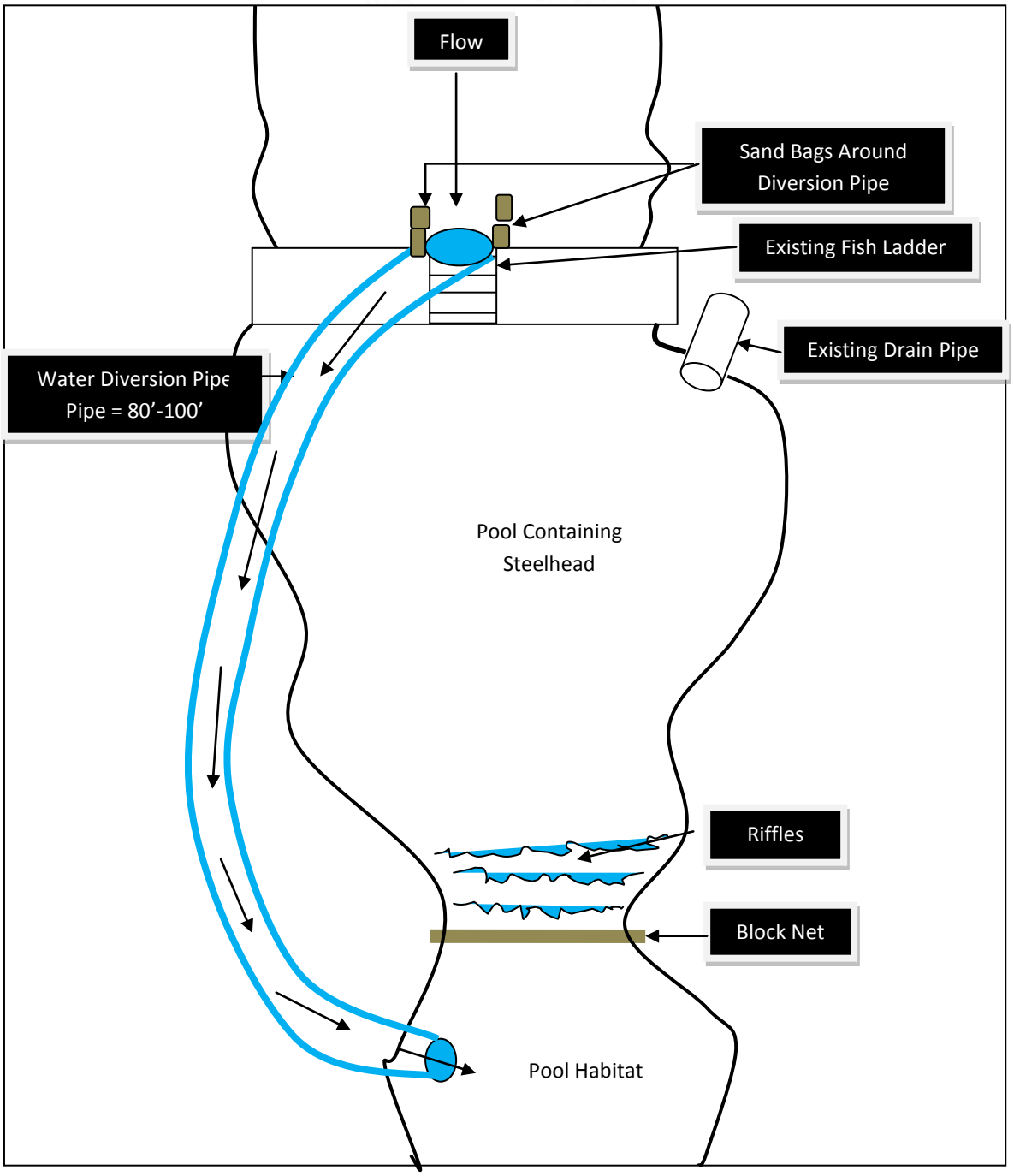

FIGURE 1. DIAGRAM DEPICTING FISH COLLECTION AND RELOCATION ACTIVITIES

Passively Divert Water and Resume Fish Collection and Relocation

1. Capturing fish using electrofishing is not very effectiving if the sampling area is too large (more than 2 feet deep and more than 3 feet wide). Due to the relatively large size of the pool (Rich, 2006a, 2000), it will probably be necessary to remove water from the pool before anymore fish can be collected. At the end of the first day of electrofishing, a water diversion pipe will be installed, beginning either at the upstream or downstream end of the fish ladder, so that water can be diverted around the pool area (Figure 1).

2. The water diversion pipe will be installed to divert water around the pool from which the fish will be collected, and to keep water out of that pool area during construction activities (Figure 1). The downstream end of the pipe will flow into a pool that is located about 80 feet downstream of the Pastori bridge. To prevent fish from entering the fish ladder at the upstream end of the diversion pipe while water is being diverted around the pool, sand bags will be installed on either side of the diversion pipe. As the water recedes, collection and relocation of fish will commence once again. Details of this task will be "fine tuned" during the summer before the project begins, when the stream flows have receded and the size and location of the fish collection pool have been determined.

3. To prevent fish from flowing into the pool area, the upstream block net will remain in place during all construction activities.

C. PROTECTING FISH BY MINIMIZING STRESS DURING HANDLING AND TRANSPORTATION

1. To minimize stress on fish, particularly the sensitive salmonids, it is always critical that fish be "handled" with care and not touched, if at all possible. Thus, to minimize stress on the rainbow/steelhead when they are measured, the following protocol, designed by Dr. Rich, will be used. The trout will be placed in a bucket containing an anaesthetic (MS-222; 50 mg/l; buffered to pH 7.0 with baking soda) and then each trout will be gently scooped onto an underwater measuring board designed by Dr. Alice Rich. This procedure allows fish lengths to be measured without handling the fish. Handling fish removes their mucus, a substance that is critical to a fish's health. Mucus contains both antibodies and enzymes that can kill invading organisms and also acts as a physical barrier that inhibits the entry of disease organisms from the environment into the fish. Finally, mucus lubricates fish, thus assisting the fish's movement through water.

2. Care will be taken at all times to ensure that the fish are minimally stressed and that they are in good health. In addition, when the fish are being relocated, salt will be added to the bucket used to transport and relocate the fish. The salt reduces osmotic stress during transportation (Rich, 1983,1979).

3. A summary report will be prepared and submitted to the Town of Fairfax, U.S. Army Corps of Engineers, NOAA Fisheries, Department of Fish and Game, the Regional Water Quality Control Board, and CSW/Stuber-Stroeh. The report will provide a brief description of the methodology used to collect and relocate the fish, and the results, including photographs of the project area before, during, and after the construction activities.

III. LITERATURE CITED

JARPA, 2011. Prepared by CSW/Stuber-Stroeh. January 2011.

Rich, A. A. 2008. Codornices Creek Restoration Project at Albina Avenue, Berkeley, California-Pre-Construction Relocation of Fishes. Prepared for the U. S. Fish and Wildlife Service, Santa Rosa, California. February 5, 2008. 12 pages.

Rich, A. A. 2006a. Fishery Resources Assessment for the Town of Fairfax. Prepared for the Town of Fairfax, Department of Public Works. December 18, 2006. 77 pages plus Appendices.

Rich, A. A. 2006b. Biological Assessment for the Bank Failure Project at 323/325 Bolinas Road, Fairfax. Prepared for the Wassermans. September 19, 2006. 31 pages.

Rich, A. A. 2005a. Fish Relocation Summary of Results for Town of Ross (Marin County) Annual Dredging. Prepared for NOAA Fisheries, November 8, 2005. 10 pages

Rich, A. A. 2005b. Replacement of Deck at #14 and #16 Creek Lane, Mill Valley. Biological Assessment. Prepared for Cascade Properties, Boulder, Colorado. February 2005. 34 pp + Appendices.

Rich, A. A. 2004. Bank Stabilization at 1 Sylvan Lane, Marin County, Relocation of Fishes. Prepared for the U.S. Corps of Engineers, San Francisco, CA. March 29, 2004. 8 pp + Appendices.

Rich, A. A. 2000. Fishery Resources Conditions of the Corte Madera Creek Watershed, Marin County, California. Prepared for Friends of Corte Madera Creek Watershed, Larkspur, California. November 10, 2000. 120 pp. + Appendices.

Rich, A. A. 1983. Smolting: circulating catecholamine and thyroxine levels in coho salmon (*Oncorhynchus kisutch*). Ph.D. Dissertation, University of Washington, Seattle. 97 pp.

Rich, A. A. 1979. The use of stress to quantitate the survival potential of three strains of trout. M. S. Thesis, University of Washington, Seattle. 65 pp.

Smeltzer, M. and G. Orum. 2006. Geomorphic Assessment of Town of Fairfax Project Sites. Final Report. July 31, 2006. 37 pages + Appendices.

APPENDIX

PHOTOS OF THE PROJECT AREA

Facing upstream showing the fish ladder, pool to be surveyed, and the storm drain outfall pipe prior to December 31, 2005 flood. Photo taken in 2006

Facing storm drain outfall pipe area after emergency rip rap placement after the December 31, 2005 flood. Photo taken December 21, 2010

**Pool that water diversion pipe will flow into.
Approximately 80 feet downstream of
Pastori bridge.
Photo taken January 26, 2011**

RESOLUTION NO. 12-39

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF FAIRFAX APPROVING THE INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION, ADOPTING FINDINGS REGARDING ENVIRONMENTAL EFFECTS AND A MITIGATION MONITORING AND REPORTING PROGRAM, FOR THE PASTORI STORM DRAIN OUTFALL PROJECT

WHEREAS, the Town of Fairfax has prepared an Initial Study and Mitigated Negative Declaration for the Pastori Storm Drain Outfall Project (the "Project"), in compliance with the California Environmental Quality Act ("CEQA") (Pub. Resources Code Section 21000 *et seq.*), the CEQA Guidelines (14 CCR Section 15000 *et seq.*, the "Guidelines"), and the local procedures adopted by the Town pursuant thereto; and

WHEREAS, the Town is required, pursuant to CEQA, to adopt all feasible mitigation measures or feasible project alternatives that can substantially lessen or avoid any significant effects on the environment associated with a project to be approved; and

WHEREAS, the project was designed to incorporate mitigation measures to reduce potential impacts of the project to the greatest extent possible; and

WHEREAS, the Town provided for review of the Initial Study and the Mitigated Negative Declaration by the public and other public agencies as required by the Guidelines by publishing the Draft Initial Study, Mitigated Negative Declaration and Mitigation Monitoring Plan on April 30, 2012, which public review period ended May 30, 2012; and

WHEREAS, the Town Council held a public hearing on the Initial Study, Mitigated negative Declaration and Mitigation Monitoring Plan on June 6, 2012; and

WHEREAS, the Town Council has reviewed and considered the information and analysis contained in the Initial Study and Mitigated Negative Declaration and exercised its independent judgment in evaluating the effects on the environment that would be caused by the Project; and

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF FAIRFAX AS FOLLOWS:

SECTION 1. The Town Council hereby finds and determines, in its independent judgment after considering all relevant evidence in the record of proceedings for the Project, including without limitation the information set forth in the Initial Study, Mitigated Negative Declaration, the Initial Study, the staff report, and the comments submitted and testimony heard at the hearing on June 6, 2012, that there is no substantial evidence supporting a fair argument that the Project may actually produce any significant environmental impacts that cannot be mitigated to a less than significant level through implementation of those mitigation measures identified in the Mitigated Negative Declaration and Mitigation and Monitoring Plan, and therefore, the Town Council finds and determines that the Project will not have a significant environmental effect; and

SECTION 2. The Town Council hereby approves the Initial Study, Mitigated Negative Declaration and Mitigation and Monitoring Plan referenced in Exhibit 1; and

SECTION 3. The Town Council hereby directs the Town Manager to prepare a Notice of Determination, to file that Notice with the County Clerk in accordance with the Guidelines within five (5) days of the adoption of this Resolution; and

SECTION 4. The Town Manager is hereby authorized and directed to do any and all things, and to execute and deliver any and all documents which he may deem necessary or advisable, in order to effectuate the purposes of this Resolution.

The foregoing Resolution was duly passed and adopted at a regular meeting of the Town Council of the Town of Fairfax held in said Town on the 6th day of June, 2012, by the following vote, to wit:

AYES: Bragman, Hartwell-Herrero, O'Neil, Reed, Weinsoff
NOES: None
ABSENT: None

Pam Hartwell-Herrero, Mayor

Attest:

Town Clerk

Town of Fairfax

April 30, 2012

Pastori Storm Drain Outfall

Initial Study, Environmental Checklist, and Mitigated Negative Declaration

Lead Agency:

Town of Fairfax
142 Bolinas Road
Fairfax, CA 94930

Prepared by:

CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Phone (415) 883-9850 / Fax (415) 883-9835

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Attachments

Pastori Storm Drain Outfall
- Sheet EN1 – Cover Sheet
- Sheet EN2 – Dewatering Plan
- Sheet EN3 – Demo and Bank Stabilization Plans – Plan View
- Sheet EN4 – Enlargements & Sections A and B

DRAFT INITIAL STUDY, ENVIRONMENTAL CHECKLIST AND MITIGATED NEGATIVE DECLARATION

1. **Project Title:**

   Pastori Storm Drain Outfall

2. **Lead Agency Name and Address:**

   Town of Fairfax
   142 Bolinas Road
   Fairfax, CA 94930

3. **Contact Person and Phone Number:**

   Michael Rock, Town Manager (415) 458-2345

4. **Project Location:**

   Downstream side of San Anselmo Creek bank at northern end of Pastori Bridge

5. **Project Sponsor's Name and Address:**

   Town of Fairfax
   142 Bolinas Road
   Fairfax, CA 94930

6. **General Plan Designation:** Public domain (roadway). West side of Pastori Avenue is Highway Commercial. East side is Residential 1-6 du/ac

7. **Zoning:** West side of Pastori Avenue is Highway Commercial. East side is RD 5.5-7

8. **Description of Project:**
   The existing 24-inch diameter storm drain outfall pipe will be replaced with a 48-inch diameter HDPE pipe. The storm drain pipe within Pastori Avenue was replaced with a 48-inch diameter pipe in 2008. Air-driven jack hammers will be used to break the wall for the storm drain pipe. There will be no hydraulic equipment. The men will stand on the rock rip-rap while doing the work. Tarps will be put down to protect the creek.

A stable engineered RSP Energy Dissipation Structure with Large Woody Debris Channel Margin will be installed. The triangle-shaped apron area beneath the culvert outfall will be lined with 1- 2-ton mixed rock riprap, up to an elevation to protect the immediately downstream site that is currently covered with lighter weight emergency rock rip rap. The rock rip rap will be keyed into the creek channel bottom. The new outfall pipe will not be extended so flows will discharge onto the stable rock rip rap lining the creek bank below. Large woody debris (one rootwad with trunk) will be installed in the base of the rock rip rap at the margin of the pool to enhance the summer rearing habitat and transient winter refugia habitat. "Perma-jack" type piles (4) will be installed on the face of the existing concrete footing remnant to prevent it from sliding into the creek. The proposed project will not interfere with the future fish ladder reconstruction project. The footprints of the three alternatives are shown on Sheet EN3.

9. Surrounding Land Uses and Environmental Setting:

Across Pastori Bridge, on the opposite side of San Anselmo Creek from the project, is the 23-acre Marin Town and Country Club property. It is zoned Commercial Recreation and currently has 40 rental units.

On the west side of Pastori Avenue between Center Blvd. and San Anselmo Creek, there is a shopping center called Fair-Anselm Plaza. A parking lot exists between the building and Pastori Avenue. Ornamental trees and other landscaping are planted between the parking lot and the curb. There are three bay trees on the slope in a location closest to the creek. There is no sidewalk. The curb is red.

On the east side of Pastori Avenue between Landsdale Avenue and San Anselmo Creek, there are single family residences. Parking is allowed on the street in front of the residences. The distance in-between Landsdale Avenue and Center Blvd. is very short so only a sloped landscape area exists.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financing approval, or participation agreement.):

U.S. Army Corps of Engineers – Section 404 Permit
Regional Water Quality Control Board – Section 401 Water Quality Certification
California Dept. of Fish and Game – Section 1600 Streambed Alteration Agreement
Town of Fairfax – Building/Grading Permit

11. References:

This Initial Study has been prepared pursuant to the California Environmental Quality Act (Public Resources Code, Section 21000 et seq) and the CEQA Guidelines. Additional information incorporated by reference herein includes:

- $ Town of Fairfax, General Plan Land Use Map
- $ Town of Fairfax, Zoning Map
- $ *Geomorphic Assessment of Town of Fairfax Project Sites, Final Report*, dated July 31, 2006, prepared by Fluvial Geomorphology Consultants.
- $ *Town of Fairfax Flood Related Projects, Fishery Resources Technical Report*, dated December 18, 2006, prepared by A.A. Rich & Associates.
- $ *Hydrology and Hydraulic Analysis, Pastori Storm Drain Outfall, Town of Fairfax, California*, dated April 9, 2010, prepared by CSW/Stuber-Stroeh Engineering Group, Inc. (Appendix in Alternatives Analysis)
- $ *Alternatives Analysis for Pastori Storm Drain Outfall, Town of Fairfax, California*, dated May 2010, prepared by CSW/Stuber-Stroeh Engineering Group, Inc.
- $ *Bank Stabilization for Pastori Storm Drain Outfall Draft Fish Collection and Relocation Plan*, dated January 26, 2011, prepared by A.A. Rich & Associates.
- $ *Draft Biological Assessment for NMFS, San Anselmo Creek Bridge, Town of Fairfax, FEMA-1628-DR-CA, PW #2338*, prepared by Nationwide Infrastructure Support Technical Assistance Consultants, A Joint Venture of URS Group, Inc., and Dewberry & Davis LLC for FEMA, dated January 2007
- $ *Draft NLAA letter for USFWS, San Anselmo Creek Bridge Embankment Repair, Town of Fairfax, FEMA-1628-DR-CA, PW #2338*, prepared by Nationwide Infrastructure Support Technical Assistance Consultants, A Joint Venture of URS Group, Inc., and Dewberry & Davis LLC for FEMA, dated January 31, 2007.
- $ *Pastori Outfall Project, Fairfax, CA - Air Quality and Greenhouse Gas CEQA Evaluation*, prepared by Illingworth & Rodkin, Inc., dated April 24, 2012

All reports, documents, drawings and maps are on file at the Town of Fairfax.

The following person/firm assisted the Town of Fairfax in the preparation of this Initial Study:

Georgia McDaniel, Environmental Planner
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
(415) 883-9850

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy and Natural Resources
☐ Geology /Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation/Traffic	☐ Utilities / Service Systems
☐ Mandatory Findings of Significance		

DETERMINATION:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

A Notice of Intent to adopt a Mitigated Negative Declaration will be prepared, distributed and posted for the public comment period of May 1, 2012 through June 1, 2012.

Georgia McDaniel 4/27/12

Signature Date

Georgia McDaniel, Preparer of the Initial Study

EVALUATION OF ENVIRONMENTAL IMPACTS:

1 A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance

ENVIRONMENTAL CHECKLIST:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	X

Explanation of Checklist Judgments:

I.a) Heavy rains in California during the winter of 2005/2006 resulted in a Federal Disaster declaration. During the disaster event, street runoff from the December 31, 2005 flood caused the suspended terminal section of an 24-inch CMP to fail and discharge stormwater directly onto the bank beneath the failed culvert, on the left bank of San Anselmo Creek (looking downstream) immediately downstream from Pastori Avenue Bridge. During the disaster event, the Town placed emergency rock rip rap on the eroded bank to prevent the bank from eroding further to protect the bridge and the adjacent residence. There is no vegetation on the eroded bank of the creek channel.

The existing damaged 24-inch diameter storm drain outfall pipe will be replaced with a 48-inch diameter HDPE pipe. The triangle-shaped apron area beneath the culvert outfall will be lined with 1-2-ton mixed rock riprap, up to an elevation to protect the immediately downstream site that is currently covered with lighter weight emergency rock rip rap. The rock rip rap will be keyed into the creek channel bottom. The new outfall pipe will not be extended so flows will discharge onto the stable rock rip rap lining the creek bank below. Large woody debris (one rootwad with trunk) will be installed in the base of the rock rip rap at the margin of the pool to enhance the summer rearing habitat and transient winter refugia habitat.

The project will repair the damage and improve the visual quality of the site.

I.b) See explanation for I.a) above.

I.c) See explanation for I.a) above.

I.d) See explanation for I.a) above.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	X
d) Result in the loss of forest land or conversion of forest land to non-forest land?	☐	☐	☐	X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	X

Explanation of Checklist Judgments:

II.a) No properties in the vicinity are used or zoned for agricultural operations.

II.b) The project area is not zoned or used for agricultural purposes and, therefore, is not under a Williamson Act contract.

II.c) No properties in the vicinity are zoned for forest land, timberland nor timberland production.

II.d) The project would not result in the loss nor the conversion of forest land to non-forest land.

II.e) The project would not result in the conversion of Farmland nor forest land since none exists in the project area.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	X	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	X	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	X	☐	X
e) Create objectionable odors affecting a substantial number of people?	☐	☐	X	☐

Explanation of Checklist Judgments:

III.a) The project would create short-term impacts to air quality as a result of emissions from excavation and construction equipment associated with construction activities. These short-term impacts would not obstruct the implementation of any applicable air quality plan. The proposed project would not conflict or obstruct implementation of the applicable air quality plan (e.g., the Bay Area 2010 Clean Air Plan), therefore there is no impact.

III.b) The Bay Area is considered a non-attainment area for ground-level ozone and fine particulate matter ($PM_{2.5}$) under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM_{10}) under the California Clean Air Act, but not the Federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NOx), PM_{10} and $PM_{2.5}$ and apply to both construction period and operational period impacts.

The effects on air quality would be limited to temporary construction impacts. Air pollutants would be generated from construction equipment operations and fugitive dust caused by ground disturbance during project construction. After construction of the project, there would be no air pollutant emission associated with the project.

The Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines include significance thresholds for construction period emissions and recommend that the URBEMIS2007 model be used to predict average daily emissions of air pollutants. A list of construction equipment and truck trips along with the schedule were input to the URBEMIS2007 model. The model produced daily and total emissions for the entire 3-month construction project. Modeled average daily emissions and significance thresholds developed by BAAQMD are as follows:

Scenario	Total and (Average Daily Emissions in pounds)				
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2
Construction	0.4	2.9	0.2	0.1	507
BAAQMD Significance Thresholds	54	54	82	54	--
Significant?	No	No	No	No	--

III.c) As discussed under Impact III.b, the project would only have emissions during construction, which would be less than significant thresholds included in the BAAQMD CEQA Air Quality Guidelines for evaluating impacts to ozone and particulate matter. Therefore, the project would not result in a cumulatively considerable net increase of emissions of any criteria pollutant for which the project region is non-attainment. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. However, the project would generate very little traffic during construction, which would not affect carbon monoxide concentrations. Auto-related emissions would be expected to remain the same.

III.d) During construction activities, fugitive dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions and meteorological conditions. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known Toxic Air Contaminant. As indicated under Impacts 2 and 3, these emissions would not be considered to contribute substantially to existing or projected air quality violations. Diesel exhaust from construction equipment operating at construction sites pose both a health and nuisance impact to nearby sensitive receptors. Construction activities are expected to occur during a relatively short time (about three months), and therefore, the impacts are considered to be less than significant if reasonable available control measures are applied. Although construction activities would be temporary, they would have the potential to cause both nuisance and health air quality impacts. PM_{10} is the pollutant of greatest concern associated with dust. If uncontrolled, dust generated by construction activities represents a potentially significant impact.

Mitigation Measure III.d: Include measures to control dust and exhaust emissions during construction.

Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant. The contractor shall implement the following Best Management Practices that are required of all projects:

1. All exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) shall be controlled to minimize dust (e.g., watering).

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]).

5. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

III.e) Construction would generate localized emissions of diesel exhaust during equipment operation and truck activity. The odor from these emissions may be noticeable from time to time by adjacent receptors. However, they would be localized, temporary and are not likely to adversely affect people off site in that they would result in confirmed odor complaints. This would be a *less-than-significant* impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	X	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and	☐	X	☐	☐

Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	X	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	X

Explanation of Checklist Judgments:

IV.a) The following measures will be implemented to avoid and minimize potential adverse effects to steelhead and the unlikely event that California red-legged frogs occur in the action area:

Mitigation Measure IV.a.1 – All construction and activities in or adjacent to San Anselmo Creek will be performed only between June 15th and October 15th.

Mitigation Measure IV.a.2 - Disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. When possible, existing ingress or egress points will be used and/or work performed from the top of the creek banks.

Mitigation Measure IV.a.3 – Steps in the Bank Stabilization for Pastori Storm Drain Outfall Fish Collection and Relocation Plan, prepared by A.A. Rich and Associates, will be implemented.

Mitigation Measure IV.a.4 – If steelhead are found dead or injured during the construction period, the Town of Fairfax will contact the National Marine Fisheries Service (NMFS) so the NMFS can review the project activities to determine if additional protective measures are needed.

Mitigation Measure IV.a.5 – All standardized Best Management Practices (e.g., per Regional Water Quality Control Boards, the California Stormwater Best Management Practice Handbooks) will be implemented.

Mitigation Measure IV.a.6 – All construction material, wastes, debris, sediment, rubbish, vegetation, trash, fencing, will be removed from the site once the project is completed and transported to an authorized disposal area, as appropriate, and per all federal, state and local laws and regulations.

Mitigation Measure IV.a.7 – No petroleum-based products such as asphalt will be used as a stabilizing material (i.e. riprap).

Mitigation Measure IV.a.8 – Every reasonable precaution will be exercised to protect federally-listed species and their habitats from pollution due to fuels, oils, lubricants, and other harmful material. Vehicles and equipment that are used during the course of the project will be fueled and serviced in a "safe" area (i.e., outside of sensitive habitats) in a manner that will not affect federally-listed species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects to listed species and their habitats. A plan for the emergency clean up of any spills of fuel or other material will be available.

Mitigation Measure IV.a.9 – All construction-related holes will be covered to prevent entrapment of individuals.

Mitigation Measure IV.a.10 – Plastic mono-filament netting (erosion control matting) or similar material containing netting will not be used at the project site because the California red-legged frog and other listed species may become entangled or trapped in it. Acceptable substitutes include coconut coil matting or tackified hydrodseeding compounds.

IV.b) The proposed action is located within designated critical habitat for the south central California coast steelhead ESU. The measures listed in IV.a will be implemented to avoid and minimize potential adverse effects to any riparian and designated critical habitat. In addition, the following measure will be implemented to mitigate the installation of rock rip rap along a section of the San Anselmo Creek bank:

Mitigation Measure IV.b - Large woody debris (one rootwad with trunk) will be installed in the base of the rock rip rap at the margin of the pool to enhance the summer rearing habitat and transient winter refugia habitat.

IV.c) The implementation of measures listed in IV.a and IV.b will reduce any potential adverse

effects on federally protected wetlands as defined by Section 404 of the Clean Water Act to less than significant.

IV.d) The project will not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The proposed project will not interfere with the existing fish ladder nor any future fish ladder reconstruction project.

IV.e) The project will not conflict with any local policies nor ordinances protecting biological resources such as a tree preservation policy or ordinance.

IV.f) No impact would occur since no portion of the project lies within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	☐	☐	X	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	☐	☐	X	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	X	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	X	☐

Explanation of Checklist Judgments:

V.a) There are known instances of unique paleontological resources occurring throughout the Town of Fairfax. Several mapped sites are located around the two watercourses running through downtown. In the event that previously unknown historic or archaeological remains should be discovered during construction, the project manager shall consult the

Town of Fairfax General Plan 2010-30, Conservation Element, Goal CON-8.1: Historical and cultural preservation, as well as the Town of Fairfax General Plan 2010-30 Initial Study Checklist Section V.a for implementation of possible mitigation measures to ensure that the project does not significantly impact a historic or archaeological resource. If any previously unknown historic or archaeological remains should be discovered during construction, the Corps of Engineers will be notified so the Corps can initiate the Federal and State coordination required to determine if the remains warrant a recovery effort.

V.b) See explanation for V.a).

V.c) Neither a unique paleontological resource or site nor a unique geological feature have been documented in the project area. In the event that previously unknown historic or paleontological or human remains should be discovered during construction, the project manager shall consult the Town of Fairfax General Plan 2010-30, Conservation Element, Goal CON-8.1: Historical and cultural preservation, as well as the Town of Fairfax General Plan 2010-30 Initial Study Checklist Section V.a for implementation of possible mitigation measures to ensure that the project does not disturb or significantly impact paleontological or human remains. Therefore, the proposed project would have a less than significant impact.

V.d) See explanation for V.a).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. ENERGY AND NATURAL RESOURCES - Would the project result in:				
a) Substantial increase in demand for existing energy sources, or conflict with adopted policies or standards for energy use?	☐	☐	☐	X
b) Use of non-renewable resources in a wasteful and inefficient manner?	☐	☐	☐	X
c) Loss of significant mineral resources sites designated in the General Plan from premature development or other land uses which are incompatible with mineral extraction?	☐	☐	☐	X

Explanation of Checklist Judgments:

VI.a) The proposed project would not result in a substantial increase in demand for existing energy sources, nor conflict with adopted policies or standards for energy use.

VI.b) The proposed project would not result in the use of non-renewable resources in a wasteful and inefficient manner.

VI.c) The project site is not located on or near an area that contains significant mineral resources. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	X
ii) Strong seismic ground shaking?	☐	☐	☐	X
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	X
iv) Landslides?	☐	☐	☐	X
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	X

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	X

Explanation of Checklist Judgments:

VII.a) All work would be performed within the San Anselmo Creek channel directly downstream of the Pastori Avenue Bridge and includes the stabilization of the creek bank.

VII.b) See explanation for VII.a).

VII.c) See explanation for VII.a).

VII.d) See explanation for VII.a).

VII.e) Septic tanks nor alternative wastewater disposal systems are not proposed in this project. Therefore, there would be no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS - Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	X	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	X

Explanation of Checklist Judgments:

VIII.a) During construction of the proposed project, greenhouse gas emissions would be generated from off-road equipment, on-road trucks, and construction employee vehicle trips. Construction would be conducted over a short period of time (approximately three months) after which all construction-related GHG emissions would cease, and the project would not be a source of continuous emissions.

As described in the Illingworth & Rodkin Pastori Outfall Project, Fairfax, CA - Air Quality and Greenhouse Gas CEQA Evaluation, the URBEMIS2007 model was used to compute average daily construction period emissions. During construction, the project is predicted to emit 507 pounds of carbon dioxide per day from construction equipment, truck and worker traffic exhaust. Assuming these emissions occurred every day for 60 days, the project would emit a total of 13.8 metric tons of CO_2.

Neither the Town of Fairfax nor the BAAQMD have quantified thresholds for construction activities. BAAQMD did establish a significance threshold of 1,100 metric tons of equivalent CO_2 for long-term operational impacts. The emissions from this project would be well below the lowest threshold adopted by BAAQMD. These emissions would not be cumulatively considerable, and therefore would not substantially contribute to the cumulative impact of climate change.

VIII.b) The project does not conflict with applicable policies adopted for the purposes of reducing greenhouse emissions. Therefore, there is no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS B Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	X
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	X	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a	☐	☐	☐	X

result, would it create a significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	X

Explanation of Checklist Judgments:

IX.a) The proposed project does not involve the transport, use, or disposal of hazardous materials.

IX.b) During construction of the project, the only hazardous substances anticipated would be fuel and lubricating oil used by construction equipment. Normal use of these substances would be a less than significant impact.

IX.c) There are no significant hazardous material sites within the project area or its immediate surroundings.

IX.d) See explanation for IX.c).

IX.e) The proposed project is not located within an airport land use plan nor within two miles of a public airport or public use airport.

IX.f) The proposed project is not located within the vicinity of a private airstrip.

IX.g) The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

IX.h) The proposed project is not located adjacent to wildlands and therefore does not expose people and structures to the risk of wildland fires.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	X	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	X
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	X
f) Otherwise substantially degrade water quality?	☐	X	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	X

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	X
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	X

Explanation of Checklist Judgments:

X.a) The proposed project would not violate any water quality standards or waste discharge requirements due to the implementation of the measures listed below. In addition, the stabilization of the bank should reduce future erosion and sedimentation.

Mitigation Measure X.a.1 - All construction activities shall be performed in a manner that minimizes the sediments and/or pollutants entering directly or indirectly into the storm drain system, groundwater, or the creek.

1. All construction staging areas and areas for the storage of any hazardous material (i.e., motor oil, fuels, paints) to be used during construction will be located away from any drainage areas to prevent runoff from construction areas from entering the creek. A plan for the emergency clean up of any spills of fuel or other material will be available.
2. No debris, soil, silt, sand, cement, concrete, or washing thereof, or other construction related materials or wastes, soil or petroleum products or other organic or earthen material shall be allowed to enter the creek. All discarded material including washings and any accidental spills shall be removed and disposed of at an approved disposal site.

Mitigation Measure X.a.2 – No petroleum products such as asphalt will be used.

Mitigation Measure X.a.3 – Rock rip rap will be free of trash or reinforcement steel.

Mitigation Measure X.a.4 – Equipment will be refueled and serviced at designated construction staging areas. All construction material and fill will be stored and contained in a designated area that is located away from channel areas to prevent transport of materials into San Anselmo Creek.

Mitigation Measure X.a.5 – Erosion control measures will be implemented prior to construction and will be kept in place until completion of construction. These measures will be inspected periodically to ensure they are functioning properly. If the erosion

control measures are found to be damaged or are not functioning properly, construction will cease and remain ceased until the erosion control measures are repaired.

X.b) Excavation for the proposed project would not be at a depth that would affect groundwater or groundwater recharge.

X.c) The proposed project would not alter the course of the creek.

X.d) The proposed project would not substantially alter the existing drainage pattern of the site or area that would result in less flooding on- and off-site.

X.e) The proposed project would improve the capacity of the storm water drain system.by extending the 48" pipe in Pastori Avenue to the outfall. Per the *Hydrology and Hydraulic Analysis, Pastori Storm Drain Outfall, Town of Fairfax, California*, dated April 9, 2010, a reduction in velocities and small reduction in flow rates would be due to changes in the storm drain system which would cause the system to go from pressure flow to gravity flow. The current pressure flow is likely the result of an under capacity outfall pipe and water ponding/ flooding upstream of the system, creating hydraulic head which forces the storm water into the storm drain system and to exit the outfall at a high velocity. With a 48-inch outfall pipe, under gravity flow, storm water would be more efficiently conveyed through the storm drain system. As such the pipe velocity through Pastori Avenue to the outfall would be slower. This change in flow rate or discharge at the Pastori Avenue outfall is statistically negligible. The same volume of storm water would enter San Anselmo Creek.

X.f) The proposed project would not substantially degrade water quality. The expected disturbance of riparian habitat from the proposed project will be temporary and should result in bank stabilization and reduction of erosion within the action area.

Mitigation Measure X.f – Standard Best Management Practices (BMPs) and Town Performance Standards shall be followed in order to minimize possible discharge of sediment into aquatic habitats and ensure that construction activities do not affect water quality.

X.g) The project does not propose the construction of housing.

X.h) The proposed project does not include structures that would impede or redirect flood flows.

X.i) The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

X.j) The project site's distance from a large body of water precludes the risk of damage from seismically-induced waves (tsunamis or seiches).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	☐	☐	☐	X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	X

Explanation of Checklist Judgments:

XI.a) The proposed project would replace an existing storm drain within an existing roadway plus repair and stabilize the creek bank damaged by a major storm event.

XI.b) The proposed project does not conflict with any applicable Town of Fairfax land use plan, policy or regulation.

XI.c) The proposed project does not conflict with any habitat conservation plan or natural community conservation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	X

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	X

Explanation of Checklist Judgments:

XII.a.) There are no known mineral resources at the project site. Therefore, the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

XII.b) There are no locally-important mineral resource recovery sites in the vicinity of the proposed project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII. NOISE Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	X	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	X	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X

Explanation of Checklist Judgments:

XIII.a) Project construction activities would cause temporary increases in local noise levels.

Mitigation Measure XIII.a - All construction activities shall comply with applicable Performance Standards in the Town of Fairfax Zoning Ordinance and Municipal Code.

1. All construction equipment powered by internal combustion equipment shall be properly muffled and maintained to minimize noise. Equipment shall be turned off when not in use.

XIII.b) There would be no permanent increase in vibration levels.

XIII.c) There would be no permanent increase in ambient noise levels.

XIII.d) See explanation for XIII.a) above.

XIII.e) The proposed project is not located within an airport land use plan nor within two miles of a public airport or public use airport.

XIII.f) The proposed project is not located within the vicinity of a private airstrip.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X

Explanation of Checklist Judgments:

XIV.a) There is no residential component to the proposed project. The project proposes the completion of the replacement of an existing storm drain in an existing roadway. The land adjacent to Pastori Avenue is already developed with businesses and residences.

XIV.b) The proposed project does not involve the displacement of any housing.

XIV.c) The proposed project does not involve the displacement of any people.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	X
Police protection?	☐	☐	☐	X
Schools?	☐	☐	☐	X
Parks?	☐	☐	☐	X
Other public facilities?	☐	☐	☐	X

Explanation of Checklist Judgments:

XV.a) Construction of the proposed project is not expected to have an impact on fire protection services.

XV.b) Construction of the proposed project is not expected to have an impact on police protection services.

XV.c) Construction of the proposed project is not expected to have an impact on schools.

XV.d) Construction of the proposed project is not expected to have an impact on parks.

XV.e) Construction of the proposed project is expected to have a positive impact on storm water management.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	X

Explanation of Checklist Judgments:

XVI.a) Construction of the proposed project is not expected to have an impact on recreational facilities.

XVI.b) See explanation for XVI.a).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system,	☐	X	☐	☐

including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the town for designated roads or highways?	☐	☐	☐	X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	X
e) Result in inadequate emergency access?	☐	☐	☐	X
f) Result in inadequate parking capacity?	☐	☐	☐	X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	X

Explanation of Checklist Judgments:

XVII.a) There would be a temporary increase in construction vehicle trips during construction of the project. Although the number of construction vehicles would be limited, mitigation measures would reduce the impacts to less than significant.

Mitigation Measure XVII.a.1 - The number of construction vehicles entering and leaving the construction area shall be limited at any given time to a small number.

Mitigation Measure XVII.a.2 - The Town shall review and approve a route plan for trucks and construction equipment prior to the commencement of construction activities.

XVII.b) The proposed project would not conflict with any applicable congestion management program nor have an impact on the levels of service on the Town streets.

XVII.c) The proposed project would not have an impact on air traffic patterns since there are no airports in the vicinity of the project.

XVII.d) The proposed project would not result in any permanent traffic hazards.

XVII.e) The proposed project would not permanently impact emergency access on local roadways.

XVII.f) The proposed project would not impact permanent parking capacity.

XVII.g) The proposed project would not conflict with policies, plans nor programs supporting alternative transportation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVIII. UTILITIES AND SERVICE SYSTEMS B Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	X	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	X
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project=s projected demand in addition to the provider=s existing commitments?	☐	☐	☐	X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project=s solid waste disposal needs?	☐	☐	☐	X
g) Comply with federal, state, and local statutes				

and regulations related to solid waste?	☐	☐	☐	X

Explanation of Checklist Judgments:

XVIII.a) The proposed project would not result in the need for new wastewater treatment.

XVIII.b) The proposed project would not result in the need for new water nor wastewater treatment facilities or expansion of existing facilities.

XVIII.c) The proposed project would result in the increase in size of the storm water outfall pipe from 24" to 48," however, the environmental effect would be less than significant.

XVIII.d) The proposed project would not result in the need for water supplies. No new or expanded entitlements would be needed.

XVIII.e) The proposed project would not result in the need for new wastewater treatment.

XVIII.f) The proposed project would not significantly increase demands on municipal solid waste collection and disposal services nor the capacity of local landfills.

XVIII.g) See explanation for XVIII.f).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	X	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in	☐	☐	X	☐

connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	X	☐

Explanation of Checklist Judgments:

XIX.a) The potential exists for various impacts related to construction activities to degrade the quality of the environment. These temporary impacts include air pollutant emissions, water quality degradation, and noise. The implementation of mitigation measures and best management practices can reduce the potential impacts to less than significant. The proposed project would not reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, nor eliminate important examples of the major periods of California history or prehistory.

Mitigation Measure XIX.a.1 - The applicant shall designate a project manager with authority to implement all mitigation measures and conditions of approval and provide name, address, and phone numbers to the Town prior to issuance of any permits.

Mitigation Measure XIX.a.2 - Mitigation measures required during construction shall be listed as conditions on permits and signed by the contractor responsible for construction.

Mitigation Measure XIX.a.3 - Town inspectors shall insure that construction activities occur with the approved plans and conditions of approval.

XIX.b)Most of the potential impacts related to the proposed project would be a result of construction activities. These temporary impacts would cease when construction is complete. The implementation of the mitigation measures for potential temporary and long-term impacts would remove the potential for the individual effects of the project to have a cumulatively significant impact.

XIX.c)Most of the potential impacts related to the proposed project would be a result of construction activities. These temporary impacts would cease when construction is complete. The implementation of the mitigation measures for potential temporary and long-term impacts would reduce any potential adverse environmental effect on human beings, either directly or indirectly, to a less than significant impact.

Linda Neal, Senior Planner for

I, Town of Fairfax, the project applicant, have reviewed this Initial Study and hereby agree to incorporate the mitigation measures and monitoring programs identified herein into the project.

Linda Neal

Signature of Applicant

Date 4/30/12

MITIGATION MONITORING PROGRAM

A Mitigation Monitoring Program has been developed pursuant to the California Environmental Quality Act, Public Resource Code Section 21.081.6 to ensure proper and adequate monitoring or reporting in conjunction with project(s) approval that relies upon a Mitigated Negative Declaration or an Environmental Impact Report. The table on the following page indicates the 1) the review department, 2) who requested the review or the due date, 3) the date finished, and 4) the initials of the department staff. Twenty-four mitigation measures are required to reduce potential impacts to less than significant.

REPORTING/MONITORING RECORD – MITIGATION MEASURES

Review Department		Requested By or Due Date	
PD	Planning Division	FM	Final Map
FM	Fire Marshal	BP	Building Permit
ENG	Engineering	CO	Certificate of Occupancy
BD	Building Division	LTM	Long-Term Monitoring

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
Mitigation Measure III.d: Include measures to control dust and exhaust emissions during construction. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant. The contractor shall implement the following Best Management Practices that are required of all projects: 1. All exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) shall be controlled to minimize dust (e.g., watering). 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. Idling times shall be minimized either by shutting equipment off when not in use or				

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). 5. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.				
Mitigation Measure IV.a.1 – All construction and activities in or adjacent to San Anselmo Creek will be performed only between June 15th and October 15th.				
Mitigation Measure IV.a.2 - Disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. When possible, existing ingress or egress points will be used and/or work performed from the top of the creek banks.				
Mitigation Measure IV.a.3 – Steps in the Bank Stabilization for Pastori Storm Drain Outfall Fish Collection and Relocation Plan, prepared by A.A. Rich and Associates, will be implemented.				
Mitigation Measure IV.a.4 – If steelhead are found dead or injured during the construction period, the Town of Fairfax will contact the National Marine Fisheries Service (NMFS) so the NMFS can review the project activities to determine if additional protective measures are needed.				

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
Mitigation Measure IV.a.5 – All standardized Best Management Practices (e.g., per Regional Water Quality control Boards, the California Stormwater Best Management Practice Handbooks, etc.) will be implemented.				
Mitigation Measure IV.a.6 – All construction material, wastes, debris, sediment, rubbish, vegetation, trash, fencing, etc. will be removed from the site once the project is completed and transported to an authorized disposal area, as appropriate, and per all federal, state and local laws and regulations.				
Mitigation Measure IV.a.7 – No petroleum-based products such as asphalt will be used as a stabilizing material (i.e. riprap).				
Mitigation Measure IV.a.8 – Every reasonable precaution will be exercised to protect federally-listed species and their habitats from pollution due to fuels, oils, lubricants, and other harmful material. Vehicles and equipment that are used during the course of the project will be fueled and serviced in a "safe" area (i.e., outside of sensitive habitats) in a manner that will not affect federally-listed species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects to listed species and their habitats. A plan for the emergency clean up of any spills of fuel or other material will be available.				
Mitigation Measure IV.a.9 – All construction-related holes will be covered to prevent entrapment of individuals.				
Mitigation Measure IV.a.10 – Plastic mono-				

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
filament netting (erosion control matting) or similar material containing netting will not be used at the project site because the California red-legged frog and other listed species may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydrodseeding compounds.				
Mitigation Measure IV.b - Large woody debris (one rootwad with trunk) will be installed in the base of the rock rip rap at the margin of the pool to enhance the summer rearing habitat and transient winter refugia habitat.				
Mitigation Measure X.a.1 - All construction activities shall be performed in a manner that minimizes the sediments and/or pollutants entering directly or indirectly into the storm drain system, groundwater, or the creek. 1.The applicant shall designate on the improvement plans construction staging areas and areas for the storage of any hazardous material (i.e., motor oil, fuels, paints, etc.) to be used during construction. All construction staging areas shall be located away from any drainage areas to prevent runoff from construction areas from entering the creek. 2. No debris, soil, silt, sand, cement, concrete, or washing thereof, or other construction related materials or wastes, soil or petroleum products or other organic or earthen material shall be allowed to enter the creek. All discarded material including washings and any accidental spills shall be removed and disposed of at an approved disposal site.				

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
Mitigation Measure X.a.2 – No petroleum products such as asphalt will be used.				
Mitigation Measure X.a.3 – Rock rip rap will be free of trash or reinforcement steel.				
Mitigation Measure X.a.4 – Equipment will be refueled and serviced at designated construction staging areas. All construction material and fill will be stored and contained in a designated area that is located awasy from channel areas to prevent transport of materials into San Anselmo Creek.				
Mitigation Measure X.a.5 – Erosion control measures will be implemented prior to construction and will be kept in place until completion of construction. These measures will be inspected periodically to ensure they are functioning properly. If the erosion control measures are found to be damaged or are not functioning properly, construction will cease and remain ceased until the erosion control measures are repaired.				
Mitigation Measure X.f - Standard Best Management Practices (BMPs) and Town Performance Standards shall be followed in order to minimize possible discharge of sediment into aquatic habitats and ensure that construction activities do not affect water quality.				
Mitigation Measure XIII.a - All construction activities shall comply with applicable Performance Standards in the Town of Fairfax Zoning Ordinance and Municipal Code.				

Mitigation Measures	Review Department	Requested By or Due Date	Date Finished	Department Staff Initials
1. All construction equipment powered by internal combustion equipment shall be properly muffled and maintained to minimize noise. Equipment shall be turned off when not in use.				
Mitigation Measure XVII.a.1 - The number of construction vehicles entering and leaving the construction area shall be limited at any given time to a small number.				
Mitigation Measure XVII.a.2 - The Town shall review and approve a route plan for trucks and construction equipment prior to the commencement of construction activities.				
Mitigation Measure XIX.a.1 - The applicant shall designate a project manager with authority to implement all mitigation measures and conditions of approval and provide name, address, and phone numbers to the City prior to issuance of any permits.				
Mitigation Measure XIX.a.2 - Mitigation measures required during construction shall be listed as conditions on permits and signed by the contractor responsible for construction.				
Mitigation Measure XIX.a.3 - Town inspectors shall insure that construction activities occur with the approved plans and conditions of approval.				

BANK STABILIZATION
FOR
PASTORI STORM DRAIN OUTFALL

BASIS OF TOPOGRAPHY

THE TOPOGRAPHY SHOWN IS BASED UPON A SURVEY PERFORMED BY R.W. DAVIS & ASSOCIATES IN MARCH OF 2008 SUPPLEMENTED BY AN ADDITIONAL SURVEY WITHIN THE CREEK AREA PERFORMED BY R.W. DAVIS & ASSOCIATES IN MARCH OF 2009. TOPOGRAPHY INDICATED WITHIN CREEK MAY CHANGE OVER TIME DEPENDING UPON CREEK FLOWS, SILTING, OR DEBRIS BLOWS.

BENCHMARK

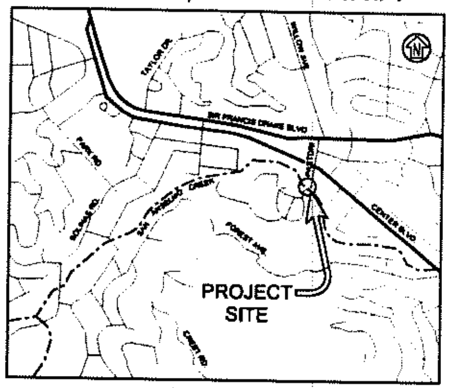
VERTICAL CONTROL FOR THIS SURVEY IS BASED ON THE COUNTY OF MARIN CONTROL FOR SIR FRANCES DRAKE TOPOGRAPHIC SURVEY FOR THE TOWN OF FAIRFAX. ELEVATIONS ARE NGVD 1929.

LEGEND

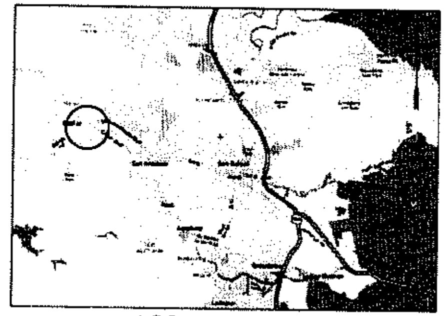
EXISTING / PROPOSED

CONTOUR MAJOR
CONTOUR MINOR
EMERGENCY RIPRAP
FENCE
FLOW DIRECTION
BRIDGE
LIMITS OF GRADING
LIMITS OF KEYWAY
LOW FLOW CHANNEL
RETAINING WALL
STORM DRAIN
TOP OF BANK
TOE OF BANK

FAIRFAX, CALIFORNIA



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

SHEET INDEX

EN 1 COVER SHEET
EN 2 DEWATERING PLAN
EN 3 DEMO & BANK STABILIZATION PLANS - PLAN VIEW
EN 4 ENLARGEMENT & SECTIONS A & B

OBSERVATION NOTES

THE CONTRACTOR SHALL NOTIFY THE ENVIRONMENTAL PLANNER AT CSW|ST2 WHEN THE FOLLOWING ACTIVITIES HAVE BEEN COMPLETED SO THE ENVIRONMENTAL PLANNER AND/OR STRUCTURAL ENGINEER CAN VISIT THE SITE TO OBSERVE THE COMPLETION OF EACH ACTIVITY BEFORE FUTURE WORK PROCEEDS:

- AFTER DEWATERING PLAN AND BMPS TO PROTECT CREEK ARE IN PLACE;
- AFTER REMOVAL OF EXISTING 24" PIPE AND BEFORE INSTALLATION OF 48" PIPE;
- AFTER INSTALLATION OF 48" PIPE;
- AFTER REMOVAL OF EMERGENCY ROCK RIP RAP AND CONCRETE FOOTING REMNANT;
- AFTER PLACEMENT OF ROCK IN KEY AND IN FRONT OF CONCRETE FOOTING;
- AFTER INSTALLATION OF LARGE WOODY DEBRIS (ROOTWAD WITH TRUNK) AND BEFORE COVERING WITH ROCK;
- DURING PLACEMENT OF SMALLER STOCKPILED ROCK UNDER TREE ROOTS AT EDGE OF ROCK RIP RAP; AND
- AFTER ALL ROCK HAS BEEN PLACED.

Rev	Date	Description	Designed	Drawn	Checked
•	03/09/11	JARPA SUBMITTAL	GHM	SAS	GHM

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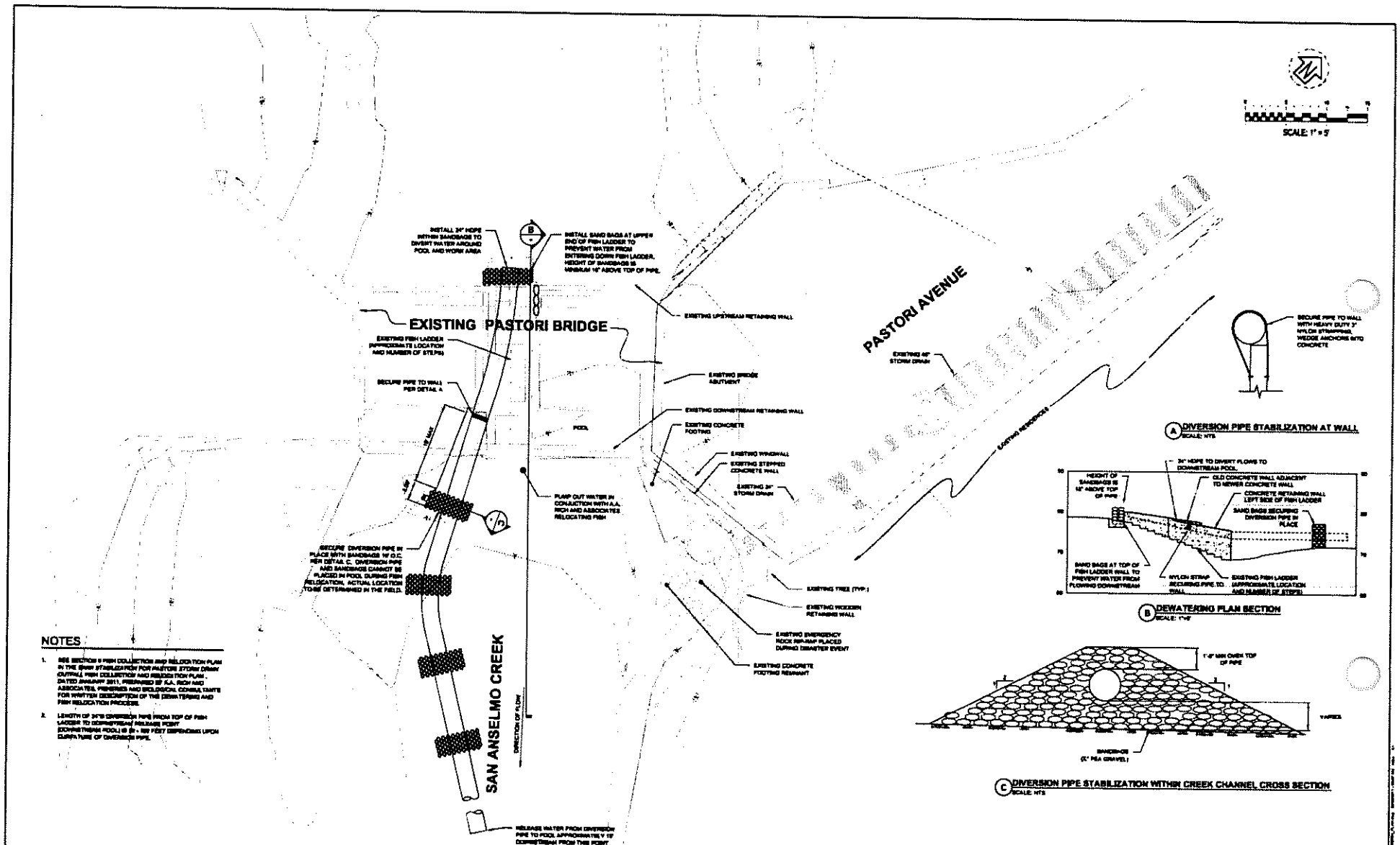
PASTORI STORM DRAIN OUTFALL
COVER SHEET
TOWN OF FAIRFAX

Sheet
EN1



NOTES

1. SEE SECTION II FISH COLLECTION AND RELOCATION PLAN IN THE BMP STABILIZATION FOR PASTORI STORM DRAIN OUTFALL FISH COLLECTION AND RELOCATION PLAN - DATED JANUARY 2011, PREPARED BY A.A. RICH AND ASSOCIATES, PRINTRUS AND BIOLOGICAL CONSULTANTS FOR WRITTEN DESCRIPTION OF THE DEWATERING AND FISH RELOCATION PROCESS.
2. LENGTH OF 24"Ø DIVERSION PIPE FROM TOP OF FISH LADDER TO DOWNSTREAM RELEASE POINT (DOWNSTREAM POOL) IS 20 + 50 FEET DEPENDING UPON CURVATURE OF DIVERSION PIPE.

Rev	Date	Description	Designed	Drawn	Checked
-	02/04/11	JARPA SUBMITTAL	SBG	JKB	DKM

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PASTORI STORM DRAIN OUTFALL

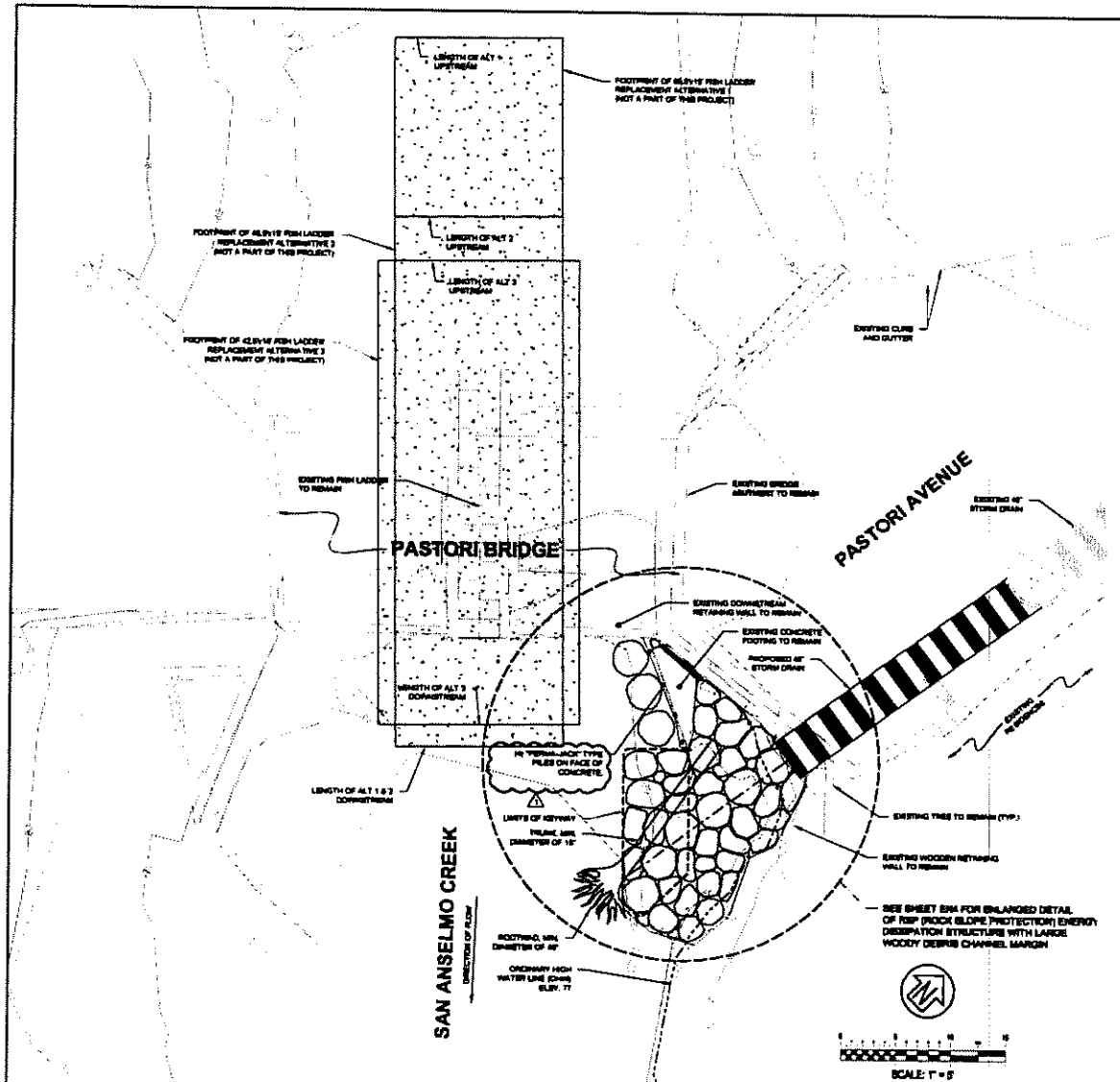
DEWATERING PLAN

TOWN OF FAIRFAX

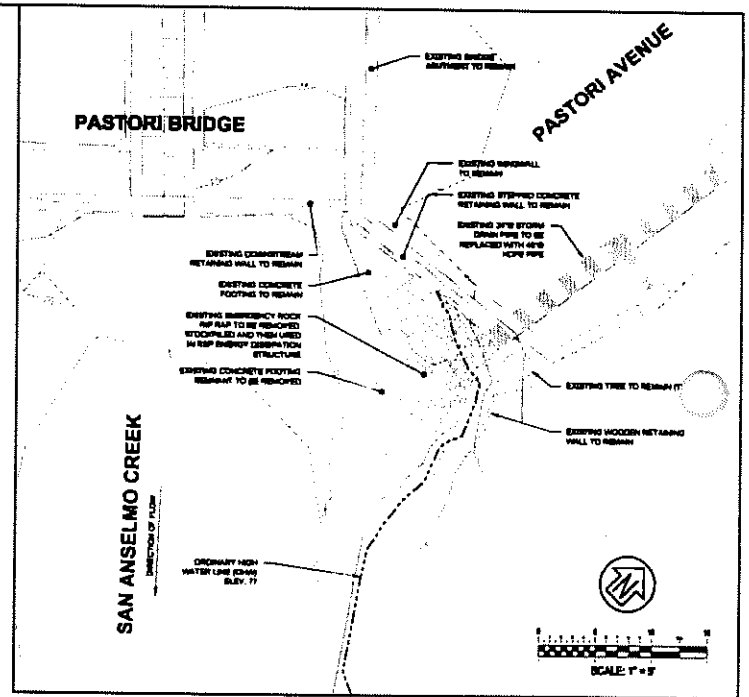
Prepared Under the Direction of:

Sheet: EN2

Scale: AS NOTED
Date: 04/14/10
Project Number: 4.1006.04
Plan File: D-4006-02



BANK STABILIZATION PLAN



DEMO PLAN

NOTES

1. FISH LADDER REPLACEMENT ALTERNATIVES ARE FROM MICHAEL LOWE & ASSOCIATES, SAN ANSELMO CREEK AT PASTORI AVENUE FISH PASSAGE PROJECT, PREPARED FOR FRIENDS OF CORTE MADERA CREEK WATERSHED. NOT A PART OF THIS PROJECT.
2. PASTORI STORM DRAIN OUTFALL PROJECT WILL NOT INTERFERE WITH ANY OF THE MICHAEL LOWE AND ASSOCIATES FISH LADDER REPLACEMENT ALTERNATIVES.
3. EXISTING EMERGENCY ROCK RIP RAP TO BE REMOVED, STOCKPILED AND THEN USED IN NEW RSP ENERGY DISSIPATION STRUCTURE WITH LARGE WOODY DEBRIS CHANNEL MARGIN.
4. REFER TO WEIGHT OF ROCK SPECIFIED IN THESE PLANS WHEN ORDERING ROCK RIP RAP. STONE SIZE SHOULD BE AN AVERAGE OF 33.0"Ø FOR 1 TON ROCK, AN AVERAGE 39.3"Ø FOR 1-1/2 TON ROCK, AND AN AVERAGE OF 42.7"Ø FOR 2 TON ROCK.
5. ROCK RIP RAP TO BE PLACED ACCORDING TO CALTRANS STANDARD SPECIFICATIONS (METHOD A PLACEMENT)
6. ROCKS SHALL BE SO PLACED AS TO PROVIDE A MINIMUM OF VOIDS AND THE LARGER ROCKS SHALL BE PLACED IN THE TOE COURSE. SMALLER PIECES OF RIP RAP SHALL BE USED TO FILL THE VOIDS
7. RIP RAP PLACED ON A SLOPE SHALL COMMENCE AT THE TOE OF THE SLOPE AND PROGRESS UP THE SLOPE. THE LARGER PIECES OF RIP RAP SHALL BE PLACED IN THE BOTTOM COURSES AND ALONG THE FLOWLINE OF WATER FROM THE PASTORI OUTFALL.
8. RIP RAP PLACED ON GEOTEXTILE SHALL BE UNDERTAKEN SO THAT THERE IS NO TEARING OR DAMAGE TO THE GEOTEXTILE.
9. THE GEOTEXTILE SHALL BE JOINED SO THAT THE MATERIAL LAPS IN DOWNSTREAM DIRECTION AND SHALL BE PINNED TOGETHER. ON SLOPES, THE UPPER PORTION OF THE GEOTEXTILE SHALL BE PINNED TO PREVENT SLIDING DURING INSTALLATION.
10. THE PLACEMENT OPERATION SHALL BE SUCH THAT THE GEOTEXTILE FABRIC IS NOT EXPOSED TO DAYLIGHT FOR MORE THAN 3 DAYS.
11. LARGE BOULDERS SHOULD BE USED TO SECURE THE ROOTWAD, ESPECIALLY CLOSE TO THE PAN.
12. THE ROOTWAD PAN (MINIMUM DIAMETER OF 48") SHOULD SPAN FROM THE MAXIMUM SCOUR DEPTH TO BANKFULL ELEVATION (BOOTRACK). ARE PLACED AT AN ELEVATION SUCH THAT ONE-THIRD OF THE PAN REMAINS BELOW BASE FLOW WATER SURFACE ELEVATION, AND ONE THIRD ABOVE OHW (BANKFULL) WATER SURFACE ELEVATION.

    A MINIMUM OF 50% OF THE ROOTWAD MASS SHOULD BE BELOW THE CHANNEL BED ELEVATION AT THE DOWNSTREAM RIFFLE CONTROLLING THE WATER SURFACE ELEVATION IN THE POOL DURING LOW FLOW. IN OTHER WORDS, THE ROOTWAD SHOULD TOUCH THE BOTTOM OF THE CHANNEL SO ONLY ONE-HALF OF THE ROOTWAD IS SHOWING DURING THE SUMMER.
13. THREE QUARTERS OF THE LENGTH OF THE ROOTWAD TRUNK SHOULD BE PINNED INTO THE RIPRAP STRUCTURE.
14. SEE LISTING OF TREES WHEN OBSERVATION BY ENVIRONMENTAL PLANNER IS REQUIRED ON SHEET EN4.
15. CREEK BANK DISTURBED BY CONSTRUCTION SHALL BE COVERED WITH BIODEGRADABLE COCONUT FIBER BLANKET (NORTH AMERICAN GREEN 150 BN OR EQUIVALENT.) BLANKET SHALL BE LAPPED IN DOWNSTREAM DIRECTION.

Mark	Date	Description	Designed	Drawn	Checked
1	11/21/2011	ADDED 6 PERMA-JACK TYPE PILES	GBG	JKB	DKM
-	03/04/11	JARPA SUBMITTAL	GBG / DKM	SAS	DKM

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PASTORI STORM DRAIN OUTFALL

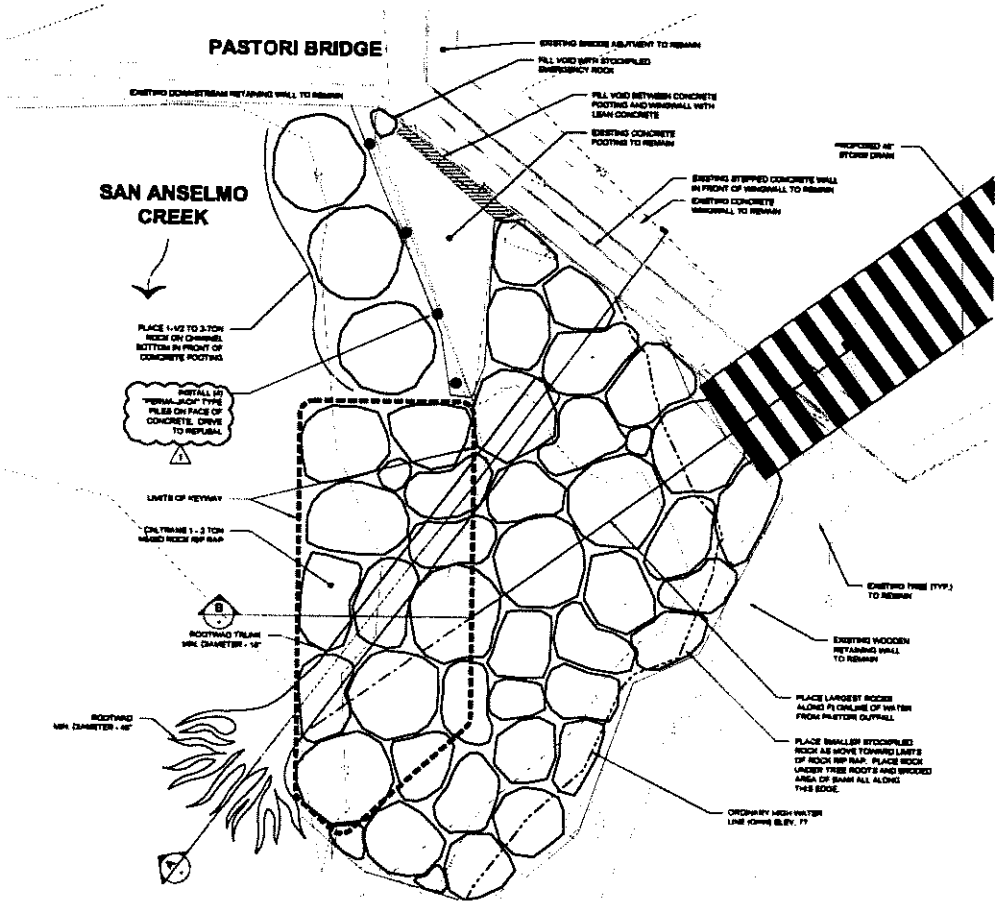
DEMO & BANK STABILIZATION PLANS

TOWN OF FAIRFAX

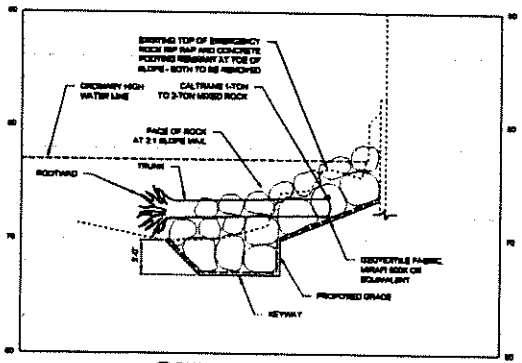
Prepared Under the Direction of

Sheet
EN3

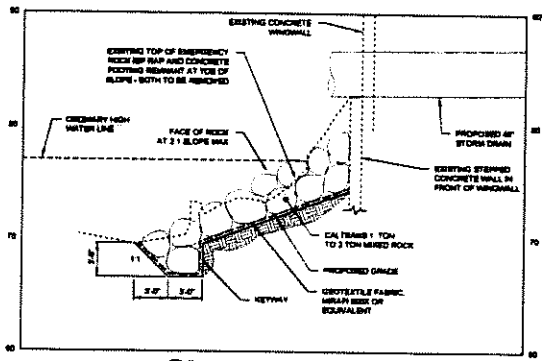
Scale	1" = 5' NOTED
Date	04/11/2012
Project Number	4.1005.14
Plan File	D-4005.03



1 GRADING & BANK STABILIZATION ENLARGEMENT
SCALE 1/2"=1'



A BANK STABILIZATION SECTION
SCALE 1"=5'



B BANK STABILIZATION SECTION
SCALE 1"=5'

NOTES

1. EXISTING EMERGENCY ROCK RIP RAP TO BE REMOVED, STOCKPILED AND THEN USED IN RIP ENERGY DISSIPATION STRUCTURE WITH LARGE WOODY DEBRIS CHANNEL MARGIN.
2. FILL VOIDS IN 1 - 3 TON ROCKS WITH SMALLER STOCKPILED EMERGENCY ROCKS
3. USE SMALLER EMERGENCY STOCKPILED ROCKS TO FILL IN ERODED BANK UNDER TREE ROOTS IN ADDITION TO NEW LARGER ROCKS. DO NOT LEAVE GAPS BETWEEN ROCK RIP RAP AND NATURAL CREEK BANK.
4. SEE NOTES 4 - 14 ON SHEET EN3.

Rev	Date	Description	Designed	Drawn	Checked
1	11/21/2011	ADDED 4 PERMA-JACK TYPE PILES	DBG	JCB	DHM
-	03/04/11	JURIS. SUBMITTAL	DBG / GHM	SKS	DHM

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PASTORI STORM DRAIN OUTFALL
ENLARGEMENT & SECTIONS 'A' AND 'B'
TOWN OF FAIRFAX

Prepared under the Direction of

Sheet EN4
Scale: AS NOTED
Date: 04/01/010
Project Number: 4.1026.14
Plan File: D-4026-04