

Staff Report to the **Zoning** Administrator

Applicant: Pajaro Valley Water Management Agency: Attn. Mary Bannister/Tech. Div. Mg. Owners: various APN's: 046-151-06/16/19/20/26/28/29/30/31/ 32/36/37, 046-201-05/07/09115/16/17/18/19/20/21/25/26/28, 046-371-01/02, 052-081-34/35, 052-181-19, 052-211-22/25/26/27, 052-221-04/19, 052-222-25, 052-311-01/05,06 052-551-01/02/03/04/05/06/07/08, 052-561-01,052-571-01/04, 052-581-07,08,10. Date: September 17,2004

Agenda Item # : Z Time: After 10:00 a.m.

Project Description: Proposal to construct an Integrated Coastal Water Distribution System and Import Pipeline as part of the Pajaro Valley Water Management Agency Basin Management Plan. Requires an Amendment to Coastal Development Permit #99-0335, Riparian Exception, and Preliminary Grading Approval.

Location: Project located approximately 700 feet west of Highway One on the north side of the Pajaro River in Watsonville.

Permits Required: Amendment to Coastal Development Permit 99-0335, Riparian Exception, Preliminary Grading Approval.

Staff Recommendation:

- Approval of Application 04-0258, based on the attached findings and conditions.
- Acknowledgement that the Environmental Impact Report and Addendum and Environmental Impact Statement have been reviewed by the Pajaro Valley Water Management Agency and the documents certified in compliance with the California Environmental Quality **Act** and shall receive a Federal Consistency Statement from the California Coastal Commission.

Exhibits

A.	Project plans	C.	Conditions
B.	Findings	D.	PVWMA EIR 1999, Addendum

County of Santa Cruz Planning Department 701Ocean Street, 4th Floor, Santa Cruz CA 95060

Application # 04-0258

APN: 046-151-06, 046-151-16, 046-151-19, 046-151-26, 046-151-28, 046-151-29, 046-151-30, 046-151-32, 046-151-36, 046-151-37, 046-161-06, 046-201-05, 0462-201-07, 046-201-09, 046-201-15, 046-201-16, 046-201-17, 046-201-18, 046-201-19, 046-201-20, 046-201-21, 04 owner: various

2003, EIS 2004 (CD on file)

- E. Mitigation Measures for EIR & EIS
- F. Location map, AFN maps
- G. Zoning map, General Plan map
- H. Comments & Correspondence
- I. Coastal Zone Permit #99-0335 with Conditions of Approval
- J. Coastal Zone Permit #02-0596 with Conditions of Approval
- K. PVWMA Basin Management

Project, Environmental Science Associates, Submittal 6/02/04

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- L. NOAA Biological Opinion, August 15,2003
- M. US Dept Interior Fish & Wildlife Service Biological & Conference Opinion, March 19,2004.
- N. US Army Corps of Engineers Permit dated May 5,2004 File # 27825S.

Parcel Information

various
Commercial Agriculture
Commercial Agriculture
Beach Road, San Andreas Road
San Andreas
A (Agriculture), Type 3 viable coastal zone ag. land
CA (Commercial Agriculture)
Second (District Supervisor: Pirie)
X Inside Outside
X Yes No

Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	Baywood loamy sand, Elder sandy loam
Fire Hazard:	Not a mapped constraint
Slopes:	2 – 15 percent slopes
Env. Sen. Habitat:	Mapped/Biological Opinion by NOAA & USFWS issued (Ex. L, M)
Grading:	Minimal grading proposed to underground pipelines
Tree Removal:	No trees proposed to be removed
Scenic:	Mapped resource – pipelines will be underground, site restored
Drainage:	Existing drainage adequate
Traffic:	No significant impact
Roads:	Existing roads adequate
Parks:	Existing park facilities adequate
Archeology:	Mapped/Programmatic Agreement USACOE & CA SHPO

Services Information

Inside Urban/Rural Services Line:	Yes X No
Water Supply:	Pajaro Valley Water Management Agency
Sewage Disposal:	N/A
Fire District:	Pajaro Valley Fire Protection District

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Drainage District:

Non-zone

History

The Pajaro Valley Water Management Agency received approval for Coastal Development Permit #99-0335 on March 13,2000 to construct facilities and infrastructureto implement the Pajaro Valley Water Management Agency's Harkins Slough Recharge and Water Redistribution Project. Coastal Zone Permit Amendment #02-0596 was issued on June 20,2003 to construct a new well and retrofit an existing well and install connections for the Integrated Coastal Distribution System (ICDS). This proposal for the installation of the ICDS and Import Pipeline was accepted on June 4, 2004. The PVWMA is concurrently pursuing necessary approvals from other appropriate Federal, State and County agencies for the implementation of the pipeline project in the areas of the Pajaro River under the jurisdiction of the California Coastal Commission (CCC). After review of post-certification maps, the CCC has determined that it retains permitting jurisdiction for a portion of the proposed Import Pipeline in the coastal zone of Santa Cruz County located from the County border in the center of the Pajaro River to the edge of the existing levee.

Project Setting

The Pajaro Valley Water Management Agency (PVWMA) administers standards for the use and regulation of groundwater resources in the Pajaro Valley. Approximately 80,000 acres of irrigated agricultural lands fall under the jurisdiction of the PVWMA. The greatest challenge for the agency is to address the imbalance between water use and maintaining sustainable water supplies.

The PVWMA intends to use Central Valley Project (CVP) water to supplement water supplies in the Pajaro Valley Basin and deliver approximately 14,000 acre-feet of water per year for agricultural irrigation. Approximately 7,000 afy of the CVP water will be blended with 3,000 afy of inland groundwater and 4,000 afy of tertiary treated water from the City of Watsonville's wastewater treatment facility. The PVWMA will utilize CVP water to bring its water supply into balance with existing agricultural demand in conjunction with improved water conservation practices to prevent continued overdraft of the groundwater basin, and to prevent continued seawater intrusion into the aquifer. All imported water will be transported through enclosed pipelines either for direct application to agricultural fields or for blending with recycled water prior to application and will not directly enter the Pajaro River or its tributaries.

The Integrated Coastal Distribution System (ICDS) pipeline in Santa Cruz County would begin approximately **700** feet west of State Highway One north of the Pajaro River. It parallels the Pajaro River along the outside of the north levee and proceeds north past the wastewater treatment plant on West Beach Road. Two main laterals branch off the Beach Road Lateral. The Northeast Addition Lateral travels north along a farm road about 1.25 miles. The North Plateau Lateral branches off the Beach Road alignment and follows San Andreas Road to the north about 1.5 miles. Approximately 54,000 LF of pipeline would be constructed in Santa Cruz County. The Import Pipeline will connect the ICDS on the north side of the Pajaro River levee about 1,900 feet west of State Highway One. The pipeline links the Pajaro Valley Basin with the Santa Clara Conduit of San Felipe Unit facilities to allow PVWMA to take delivery of Central Valley Project water and water from other sources.

Zoning & General Plan Consistency

The subject properties are located in the CA (Commercial Agriculture) zone district, a designation that allows agricultural uses. The proposed water import and distribution pipelines for agricultural irrigation are a principal permitted use within the zone district and the project is consistent with the site's (A) Agriculture General Plan designation. The project sites are designated as Type 3 Agricultural Lands, as per General Plan policy 5.13.2, which categorizes viable agricultural land within the Coastal Zone.

Local Coastal Program Consistency

The proposed water import and distribution pipeline is in conformance with the County's certified Local Coastal Program, in that the ICDS is sited and designed to be compatible with the character of the surrounding agricultural lands. The project is consistent with Groundwater Protection policies of Chapter 5.8 **of** the General Plan in that careful water quality monitoring and management of extractions is consistent with long-term sustainable water supply yields. The project is also consistent with Chapter 5.13, Commercial Agricultural Land, of the General Plan in that an adequate water supply is required for sustainable agricultural production. The project site is located between the shoreline and the first public road but is not identified as a priority acquisition site in the County's Local Coastal Program. Consequently, the proposed underground agricultural irrigation pipeline import and distribution system with any required pumping stations will not interfere with public access to the beach, ocean, or other nearby body of water. Public coastal access is available at Sunset and Palm State Beaches in the project vicinity.

Design Review

The proposed water distribution pipeline system complies with the requirements of the County Design Review Ordinance, in that the proposed agricultural irrigation pipelines will be buried underground and the sites will continue to be farmed. There will be minimal visual impact of the proposed development on surrounding land uses and the natural landscape because crops in production will shield irrigation apparatus from view.

Environmental Review

California Environmental Quality Act (CEQA) certification has been completed for the project as follows:

PVWMA Local Water Supply and Distribution EIR 1999. The Board of Directors of the PVWMA on May 19,1999 by Resolution 99-05 certified the Final Environmental Impact Report (State Clearinghouse #97021006).

PVWMA Local Water Supply EIR Addendum – Supplemental Wells and Connecting Pipeline at Harkins Slough, November 2001. The PVWMA Board of Directors on November 7,2001 by Resolution 2001-18. Addendum adopted by PVWMA Board of Directors June 5,2002 by Resolution 2002-13 to address minor changes to the Harkins Slough and Coastal Distribution System. Addendum adopted by the PVWMA Board of Directors on August 20,2003 by

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Resolution 2003-19 to modify the Integrated Coastal Distribution System. PVWMA Revised Basin Management Plan Project EIS 2004. Bureau of Reclamation Record of Decision August, 2004. The revised BMP Projects EIS focuses on the impacts of project construction and operation, including impacts on land use, water resources, geology and soils, threatened and endangered species, cultural resources, air quality, and socioeconomics. The **EIS** fulfills the requirements of Executive Orders 11988 (floodplain management), 11990 (protection of wetlands), and 12898 (Environmental Justice).

The environmental review process generated mitigation measures that will reduce potential impacts from the proposed development that will adequately address these issues.

Conclusion

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

Staff Recommendation

- **APPROVAL** of Application Number **04-0258**, based on the attached findings and conditions.
 - Acknowledgement that the Environmental Impact Report and Addendum and Environmental Impact Statement have been reviewed by the Pajaro Valley Water Management Agency and the documents certified in compliance with the California Environmental Quality Act and shall receive a Federal Consistency Statement fiom the California Coastal Commission.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.co.santa-cruz.ca.us

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 Ownex: various

Coastal Development Permit Findings

1. That the project is a use allowed in one of the basic zone districts, other than the Special Use (**SU**) district, listed in section 13.10.170(d) as consistent with the General Plan and Local Coastal Program LUP designation.

This finding can be made, in that the property is zoned CA (Commercial Agriculture), a designation which allows agricultural uses. The proposed water import and distribution pipeline system is a principal permitted use within the zone district, consistent with the site's (A) Agriculture General Plan designation. The proposed agricultural irrigation system is consistent with Type 3, viable agricultural lands within the coastal zone designation, in that the imported and recycled water, coupled with improved water conservation methods, will provide sufficient water for irrigation to sustain crop production without contributing further depletion of groundwater reserves, consistent with General Plan objective *5.8*.

2. That the project does not conflict with any existing easement or development restrictions such as public access, utility, or open space easements.

This finding can be made, in that the proposal does not conflict with any existing easement or development restriction such as public access, utility, or open space easements in that no such easements or restrictions are known to encumber the project sites. Public coastal access is available at Sunset and Palm State Beaches in the project vicinity.

3. That the project is consistent with the design criteria and special use standards and conditions of this chapter pursuant to section 13.20.130 et seq.

This finding can be made, in that the development is consistent with the surrounding agricultural farmlands in that the pipeline distribution system will be placed underground with minimal above ground equipment whose visibility will be mitigated by growing field crops. The development sites are not on a prominent ridge, beach, or bluff top.

4. That the project conforms with the public access, recreation, and visitor-serving policies, standards and maps of the General Plan and Local Coastal Program land use plan, specifically Chapter 2: figure 2.5 and Chapter 7, and, as to any development between and nearest public road and the sea or the shoreline of any body of water located within the coastal zone, such development is in conformity with the public access and public recreation policies of Chapter 3 of the Coastal Act commencing with section 30200.

This finding can be made, in that part of the project site is located between the shoreline and the first public road, the water distribution pipeline will not interfere with public access to the beach, ocean, or any nearby body of water. Public access to the ocean is available at Palm and Sunset State Beaches in the project vicinity. Further, the project site is not identified as a priority acquisition site in the County Local Coastal Program.

EXHIBIT 🕄

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 OWDET: various
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5. That the proposed development is in conformity with the certified local coastal program.

This finding can be made, in that the proposed Integrated Coastal Distribution System (ICDS) is sited and designed to provide supplemental water supplies imported to the area, mixed with reclaimed wastewater and used with improved water conservation methods, to promote sustainable agriculture and maintain the character of the surrounding agricultural lands. Additionally, agricultural uses are allowed uses in the CA (Commercial Agriculture) zone district of the area, as well as the General Plan and Local Coastal Program land use designation, consistent with General Plan Chapter 5.13. The proposed development is also consistent with General Plan Chapter 5.8, Groundwater Protection, in that implementation of the ICDS will help to inhibit further overdraft conditions that have caused the groundwater levels to drop below sea level causing salt water intrusion into coastal water supplies. **The** project is located within the Appeal Jurisdiction of the California Coastal Commission and remains subject to CCC consistency review.

EXHIBIT 8

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Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding *can* be made, in that the project is located in an area designated for agricultural uses and is not encumbered by physical constraints to development. Construction will comply with prevailing building technology, to insure the optimum in safety and the conservation of energy and resources. The proposed water distribution pipeline will be substantially located underground with the exception of any required pumping stations, and will not deprive adjacent properties or the neighborhood of light, air, or open space, in that the structure meets all current setbacks that ensure access to light, air, and open space in the neighborhood.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that the proposed location of the water import and distribution pipeline system and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the CA (Commercial Agriculture) zone district in that the primary use of the property remains commercial agricultural production and the proposed water distribution pipeline, when coupled with improved water conservation and recycling methods, will promote sustainable agriculture in the Pajaro Valley.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed pipeline distribution system for agricultural use is consistent with the use and density requirements specified for the Agriculture (A) land use designation in the County General Plan.

The proposed water import and distribution pipeline system will not adversely impact the light, solar opportunities, air, and/or open space available to other structures or properties, and meets all current site and development standards for the zone district in that the water distribution system will not adversely shade adjacent properties, and will meet current setbacks for the zone district that ensure access to light, air, and open space in the neighborhood.

The proposed water import and distribution pipeline will not be improperly proportioned to the parcel size or the character of the neighborhood **as** specified in General Plan Policy 8.6.1 (Maintaining a Relationship Between Structure and Parcel Sizes), in that the proposed water distribution pipeline will comply with the site standards for the CA zone district (including setbacks) and will be primarily located underground.

EXHIBIT **e**

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A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding *can* be made, in that the proposed water distribution pipeline is to be constructed on existing parcels utilized for agricultural production. The expected level of traffic generated by the proposed project is anticipated to remain the same as the existing level and will not adversely impact existing roads and intersections in the surrounding areas of Beach Road and San Andreas Road. Public Works Encroachment Permits are required for any work within the County road right-of-way.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects. land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed water distribution system is primarily located underground, beneath the agricultural fields that it will serve. Growing field crops should mitigate any visual impact of those portions of the system which are above ground.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed water import and distribution pipeline will be of **an** appropriate scale and type of design that will enhance the aesthetic qualities **of** the surrounding properties and will not reduce or visually impact available open space in the surrounding area in that the pipes will primarily be located underground and any above ground apparatus will be visually mitigated by crops in production.

EXHIBIT e

REQUIRE FINDINGS FOR 1 ON AGRICULTURAL DEVELOPMENT ON OR ADJACEN FO COMMINICIAL GRICULTURAL LAND COUNTY CODE SECTION 16. 095(e

ANY NON-AGRICULTURAL DEVELOPMENT PROPOSED TO BE LOCATED ON OR ADJACENT TO TYPE 1, TYPE 2 OR TYPE 3 AGRICULTURAL LAND SHALL BE SITED SO AS TO MINIMIZE POSSIBLE CONFLICTS BETWEEN AGRICULTUREIN THE AREA AND NON-AGRICULTURAL USES, AND WHERE STRUCTURES ARE TO BE LOCATED ON ______ PARCELS, SUCH :U 'TU RES SHALL BE LOCATED SO AS TO REMO E AS LITTLE LAND AS P 'S 3LE FROM PRODUCTION OR POTENTIAL PRODUCTION.

The subject parcels are designated as Type **3**, Coastal Zone Prime Agricultural Land as defined in County Code Section 16.50.040.c. The subject parcels are zoned Commercial Agriculture and are used for agricultural production. The water distribution pipeline system would not affect potential agricultural production on any of the parcels **as** the pipes are to be located underground, removing as little land as possible fiom production. The import irrigation pipelines are necessary to support commercial agricultural production as existing wells are gradually depleting the aquifer and contributing to salt water intrusion.

REQUIRED SPECIAL FINDINGS FOR 'CA' AND 'AP' USES

(County Code Section 13.10.314)

a) All Uses

1. THAT THE ESTABLISHMENT OR MAINTENANCE OF THIS USE WILL ENHANCE OR SUPPORT THE CONTINUED OPERATION OF COMMERCIAL AGRICULTURE ON THE PARCEL AND WILL NOT REDUCE, RESTRICT OR ADVERSELY AFFECT AGRICULTURAL RESOURCES, OR THE ECONOMIC VIABILITY OF COMMERCIAL AGRICUL'IZTRAL OPERATIONS OF THE AREA.

The establishment of the imgation distribution system will enhance and support the continued operation of commercial agriculture on the subject parcels and will not reduce, restrict **or** adversely affect agricultural resources, or the economic viability of commercial agricultural operations of the area as the imported water will supplement existing supplies to enhance sustainable agricultural production in the Pajaro Valley. Pipelines are located to minimize any impacts on adjacent agricultural production land.

9-A

2. THAT THE USE OR STRUCTURE IS ANCILLARY, INCIDENTAL OR ACCESSORY TO THE PRINCIPAL AGRICUL'IZTRALUSE OF THE PARCEL OR THAT NO AGRICULTURAL USE IS FEASIBLE FOR THE



PARCEL; OR

The proposed irrigation pipeline use is ancillary to agricultural uses in the vicinity. The imported water will supplement existing well production to provide water necessary to sustain commercial crop production.

- 3. THAT THE USE CONSISTS OF AN INTERIM PUBLIC USE WHICH DOES NOT IMPAIR LONG-TERM AGRICULTURAL VIABILITY; AND
- 4. THAT SINGLE-FAMILY RESIDENTIAL USES WILL BE SITED TO MINIMIZE CONFLICTS, AND THAT ALL OTHER USES WILL NOT CONFLICT WITH COMMERCIAL AGRICULTURAL ACTIVITIES ON SITE, WHERE APPLICABLE, OR IN THE AREA.
- 5. THAT THE USE WILL BE SITED TO REMOVE NO LAND FROM PRODUCTION (OR POTENTIAL PRODUCTION) IF ANY NONFARMABLE POTENTIAL BUILDING SITE IS AVAILABLE, OR IF THIS IS NOT POSSIBLE, TO REMOVE AS LITTLE LAND AS POSSIBLE FROM PRODUCTION.

The pipelines will be placed underground, thereby negligibly reducing the amount **of** farmland available fiom production.

Owner: LMC Properties Application # 04-0258 APN: 052-211-26

RIPARIAN EXCEPTION FINDINGS

1. THAT THERE ARE SPECIAL CIRCUMSTANCES OR CONDITIONS AFFECTING THE PROPERTY.

Thisfinding can be made, in that Coastal Zone Permit Amendment #02-0596 was issued on June 20,2003 to install connections for the Integrated Coastal Distribution System (ICDS).

2. THAT THE EXCEPTION IS NECESSARY FOR THE PROPER DESIGN AND FUNCTION OF SOMEPERMITTED OR EXISTING ACTIVITY ON THE PROPERTY.

Thisfinding can be made, in that the Integrated Coastal Distribution System (ICDS) is one component of a larger water delivery system. The Pajaro Valley Water Management Agency (PVWMA) has received approval for Coastal Development Permit #99-0335 on March 13,2000 to construct facilities and infrastructure to implement the PVWMA Harkins Slough Recharge & Water Redistribution Project. And, 'CoastalZone Permit Amendment# 02-0596 was issued on June20, 2003 to construct a new well, retrofit an existing well and install connections for the ICDS.

3. THAT THE **GRANTING** OF THE EXCEPTION WILL NOT BE DETRIMENTAL TO THE PUBLIC WELFARE OR INJURIOUS TO OTHER PROPERTY DOWNSTREAM OR IN THE AREA IN WHICH THE PROJECT IS LOCATED.

This finding can be made, in that this project only **involves** the installation \mathbf{c} one underground water line to an existing agricultural parcel (81 acres).

4. THAT THE GRANTING OF THE EXCEPTION, IN THE COASTAL ZONE, WILL NOT REDUCE OR ADVERSELY IMPACT THE RIPARIAN CORRIDOR, AND THERE IS NO FEASIBLE LESS ENVIRONMENTALLY DAMAGING ALTERNATIVE.

This finding can be made, in that the existing biotic condition of Watsonville Slough through this agricultural parcel is extremelypoor. Although there will be some soil disturbance during the trenching activity for pipe placement, there will be no appreciable difference to the slough once the pipeline is installed and agricultural practices resume.

9-C

FXHIRIT

5. THAT THE GRANTING OF THE EXCEPTION IS IN ACCORDANCE WITH THE PURPOSE OF THIS CHAPTER, AND WITH THE OBJECTIVES OF THE GENERAL PLAN AND ELEMENTS THEREOF, AND THE LOCAL COASTAL PROGRAM LAND USE PLAN.

This finding can be made, in that the Integrated Coastal Distribution System (ICDS) pipeline is sited and designed to be compatible with the character of the surrounding agricultural lands. The project is consistent with Groundwater Protection policies of Chapter 5.8 of the General Plan in that careful water quality monitoring and management of extractions is consistent with long-term sustainable water supply yields. The project is also consistent with Chapter 5.13 {Commercial Agricultural Land} of the General Plan in that an adequate water supply is required for sustainable agricultural production.

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Conditions of Approval

Exhibit A: Key Plan Coastal Distribution System, Figures 1-19, CH2MHILL dated June 11, 2004.
 Pajaro Valley Water Management Agency (PVWMA) Coastal Distribution System, CH2MHILL Vol 2, 30% Design Drawings July 5,2004 pp 1-27, PP-36.
 Preliminary Alignments and Turnout Locations – Draft Working Map 8/16/04

- I. This permit amends Coastal Permits 99-0335 and 02-0596 and authorizes the construction of a water import and distribution pipeline according to Exhibit A, with the understanding that the terminus of the covered section of pipeline at the crossing of the Pajaro River may be located either at station 25 + 00 as shown on Exhibit A or as far south as the base of the northern levee, station 27 + 00. This permit also authorizes the applicant to exercise a Minor Riparian Exception. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:
 - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance **and** agreement with the conditions thereof.
 - B. Obtain any required Grading Permit from the Santa Cruz County Building Official if required. Prior to exercising this permit submit a final grading volume estimate and information detailing the disposition of any fill. If fill will be placed in Santa Cmz County which exceeds 100 cubic yards (overall total) or is placed greater than two feet in depth, obtain a grading permit prior to exercising this permit.
 - C. Obtain an Encroachment Permit from the Department of Public Works for all offsite work performed in the County road right-of-way. Engineered plans shall be required.
 - D. Environmental Planning staff shall review and approve final plans in writing prior to exercise of the permit.
 - E. All conditions of approval from prior project permits associated with the water redistribution project (Coastal Development Permits #99-0335 and #02-0596, Exhibits I & J) remain in effect.
 - **F.** Comply with all project associated required Mitigation Measures of the EIR and EIS (Exhibit E).
 - *G*. Submit Final Architectural Plans **for** review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "A" on file with the Planning Department. The final plans shall

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include the following additional information:

- 1. Grading, drainage, and erosion control plans. PVWMA shall identify the responsible party for inspections of the installation. The erosion control plan should specifically address areas shown on Sheets PP-23, PP-25 & PP-26.
- 2. A detailed erosion control plan, including spoils management, location of staging areas, diversion of flows as necessary, timing of the construction activities, details of sediment control structures, designated site to receive spoils (note that no fill shall be placed in any area designated as flood plain/floodway as mapped by FEMA), and all other elements required by the applicable Mitigation Measures and Biological and Conference Opinion must be reviewed and approved in writing by Environmental Planning staff prior to exercise of the permit. Work shall occur between August 1 and October **15.** Staging areas shall be located at least **50** feet from waterways and shall be revised to show detail of the boring entry and exit pits adequate to verify that the design is consistent with standards called for in the Biological Opinion.
- 3. Final plans shall indicate areas of Freshwater Emergent Wetland or Valley Foothill Riparian (as designated in the EIR). No construction shall occur between March 1 and July 30 within 500 feet of these areas unless work is preceded by surveys, carried out as described in the EIR and BO, that show an absence of protected bird species. Completed survey results shall be submitted to Santa Cruz County Environmental Planning staff prior to disturbance in these areas.
- 4. Submit an approved storm water pollution prevention plan that specifically addresses areas shown on Sheets PP-23, PP-25 & PP-26.
- 5. Revise plans to show fencing at the 25-foot riparian corridor setback where work will occur within 30 feet of the corridor.
- 6. If any wetland or riparian vegetation is disturbed, a detailed re-vegetation plan including replacement with locally collected plants at a **3**: 1 ratio, success goals, three year maintenance and monitoring plan, weed control, and all other elements required by the applicable Mitigation Measures must be reviewed and approved in writing by Environmental Planning prior to the exercise of the permit.
- H. Obtain an Environmental Health Clearance for this project from the County Department of Environmental Health Services. Provide required documentation that well abandonment requirements have been completed to the satisfaction of

Application #: 04-0258 Page 12 APN: 046-151-06, 046-151-16, 046-151-19, 046-151-26, 046-151-28, 046-151-29, 046-151-30, 046-151-32, 046-151-36, 046-151-37, 046-161-06, 046-201-05, 0462-201-07, 046-201-09, 046-201-15, 046-201-16, 046-201-17, 046-201-18, 046-201-19, 046-201-20, 046-201-21, 04 Owner: various

the Environmental Health Service.

- I. Submit 3 copies of a soils report prepared and stamped by a licensed Geotechnical Engineer. *Areas* of liquefaction and weak soils shall be identified.
- J. A biological monitor shall conduct surveys for special status species covering the slough crossing and the staging areas within two weeks of beginning that portion of the work, as called for in the Biological Opinion (Exhibit M). Results of the surveys shall be submitted to Environmental Planning staff. A biological monitor shall be on site during all drilling and construction **of** the crossing. Final plans shall show the location of exclusionary fencing. Recommendations of the Biological opinion, including follow up monitoring of relocated individuals, shall be followed.
- II. All construction shall be performed according to the approved plans. The applicant/owner must meet the following conditions:
 - A. All site improvements shown on the final approved plans shall be installed.
 - B. All inspections required by this permit shall be completed to the satisfaction of the County Building Official and Santa Cruz County Environmental Planning.
 - C. A site inspection is required prior to final Planning Department approval of the proposed work; notify Environmental Planning (Bob Loveland 454-3163) upon project completion for final inspection and clearance.
 - D. The project must comply with all recommendations of the approved technical reports.
 - E. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible **persons** shall immediately cease and desist from all further site excavation and notify the Sheriff-Coronerif the discovery contains human remains, or the Planning Director if the discovery contains no **human** remains. The procedures established in Sections 16.40.040 and 16.42.100. shall be observed.
- III. Operational Conditions
 - A. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, **up** to and including permit revocation.

Application #: 04-0258 Page 13 AF'N 046-151-06, 046-151-16, 046-151-19, 046-151-26, 046-151-28, 046-151-29, 046-151-30, 046-151-32, 046-151-36, 046-151-37, 046-161-06, 046-201-05, 046-201-07, 046-201-09, 046-201-15, 046-201-16, 046-201-17, 046-201-18, 046-201-19, 046-201-20, 046-201-21, 04 OWNEF: various

- B. Roads damaged by construction shall be repaired to a condition equal to or better than, that which existed prior to construction activity.
- C. Maintain all required setbacks from riparian corridors as per County Code Section 16.30.040. A reduction in the riparian setback has only been authorized for the following parcel: APN 052-211-26.
- D. Should any wetland or riparian vegetation be disturbed, a detailed revegetation plan shall be submitted to Environmental Planning for Review and approval. The plan shall show but not be limited to the following items: show replacement with locally collected plants at a 3:1 ratio, provide success goals, provide a three year maintenance and monitoring plan, and include all other elements required by the applicable Mitigation Measures.
- IV. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.
 - A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
 - B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith.
 - C. <u>Settlement</u>. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifymg or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

EXHIBIT C

Page 14 **APN:** 046-151-06, 046-151-16, 046-151-19, 046-151-26, 046-151-28, 046-151-29, 046-151-30, 046-151-32, 046-151-36, 046-151-37, 046-161-06, 046-201-05, 0462-201-07, 046-201-09, 046-201-15, 046-201-16, 046-201-17, 046-201-18, 046-201-19, 046-201-20, 046-201-21, 04 **CWIET:** various

D. <u>Successors Bound</u>. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or **staff** in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires two years from the effective date unless you obtain the required permits and commence construction.

Approval Date:	<u> </u>	
Effective Date:	10/01/04	
Expiration Date:	10/01/06	
Don Russ		Ioan Van der Hoeven
Doll Buss	sey	JUAN VALI DEL HUEVEN
Deputy Zoning Adn	ninistrator	Project Planner

Appeals: Any property owner, or other person aggrieved or any other person whose interests **are** adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.

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APPENDIX D PVWMA MITIGATION COMMITMENTS

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Revised BMP Draft EIS



Environmental commitments **are** written statements of intent made by Reclamation to monitor and mitigate **for** potential adverse environmental impacts associated with any phase of planning, construction, and operation and maintenance (O&M) activities. Environmental commitments are actions that:

- Restore or enhance environmental quality
- Are directly controlled by Reclamation
- Are indirectly controlled via a written agreement with another party to carry out the action in this case, PVWMA and/or the City of Watsonville.

NEPA guidelines state that environmental commitments may be required by Reclamation and/or the project sponsor if the project is implemented. With respect to the Revised **BMF** Projects, PVWMA has already adopted mitigation commitments through certification of the Environmental Impact Report and adoption of Mitigation Monitoring and Report Programs (MMRP) pursuant to the CaliforniaEnvironmental Quality Act. The mitigation commitments for the proposed project are from the MMRPs. MMRPs for the Import Water Project, Recycled Water Project and supplemental wells were adopted as conditions of project approval for the Revised Basin ManagementPlan EIR on February 6,2002 (see Tables D.I, D.2, and D.5). The MMRP for the Integrated Coastal Distribution System was adopted a condition of project approval for the Local Projects EIR on May 19,1999 (see Table D.3). Mitigation measures for biological resources for all of the Revised BMP projects are grouped in a separate table (Table D.4) and will be superseded and updated as the **U.S.** Fish and Wildlife Service, National Oceanic Atmospheric Administration Fisheries, U.S. Army Corps of Engineers, and California Department of Fish and Game establish permit conditions for the proposed action.

The mitigation commitments are organized in a table format, keyed to each significant impact and each adopted EIR mitigation measure. The mitigation measures are presented in the tables and are coded by number to the appropriate EIR (not EIS) section. The column headings in the tables are defined as follows:

- Mitigation Measure: This column contains mitigation measures to be implemented.
- <u>Monitoring and Reporting Actions</u>: This column contains **an** outline of the appropriate steps to verify compliance with the mitigation measure.
- Monitoring/Reporting Responsibility: This column contains an assignment of responsibility for the monitoring and reporting tasks.
- <u>Monitoring/Reporting Schedule</u>: The general schedule for conducting each monitoring **and** reporting task, identifying where appropriate both the timing and the frequency of the action.

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ATION COMMITMENTS	1 Millenninus			Prior to project construction	Prior to project construction	During and immediately following project construction	Prior to project construction	During and immediately following project construction	
PVWMA MITIC		H		PVWMA	PVWMA	PVWMA's consulting engineering geologist	PVWMA	PVWMA's consulting engineering geologist	
				Send notices to all property owners, residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place targe signs along roads in the project vicinity at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	Review construction specifications to ensure that design recommendations for pipeline installation were included.	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	Review construction specifications to ensure that design recommendations for pipeline installation were included.	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	
					Ē	5	a	3)	
			Land Use and Planning	 Measure 4.B.1-1 (Recommended): Implement Measure 4.A.1-1. Measure 4.A.1-1 (Recommended): Advance notification of construction activities should be provided to all property owners, residents, and businesses in the vicinity of construction areas. See also mitigation measures in Sections 4.A.6, Traffic and Circulation, 4.A.7, Air Quality, and 4.A.8, Noise, of this EIR. 	Geology and Soils Measure 4.B.2-1a: For pipeline segments that traverse the Sargent Hills in the foothills of the Santa Cruz Mountains or portions of the Cayetano Hills, a design-level geotechnical report that includes a slope stability evaluation	shall be completed prior to construction. Pipeline installation specifications should incorporate all slope stability recommendations contained in the geotechnical evaluation. Slope stabilization measures may include drainage, slope benching, buttresses, and vegetation restoration.	Measure 4.B.2-1b: For pipeline segments at stream crossings, a detailed hydraulic and scour analysis shall be conducted to ensure that pipelines and tunnels are installed at an adequate depth to prevent scour during flood	flows. Bank erosion and channel stability should also be evaluated in the vicinity of Station 590+00 (Pajaro River and UPRR crossing). Recommendations of the hydraulic and scour analysis shall be incorporated into the project design and specifications.	

	MITIGATION MONITORING AND R	TAI	BLE D.1 (Continued) RTING PROGRAM FOR THE IMPORT	WATER PROJECT	
	MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Me Sar Con	asure 4.B.2-2: For pipeline segments that cross the San Andreas and gent faults, incorporate the following elements into the design and struction of the proposed pipeline:	Ē	Review construction specifications to ensure that design recommendations listed in Measure 4.B.2-2 are included.	PVWMA	Prior to project construction
	Use ductile-grade steel pipe in conjunction with increased pipe wall thickness throughout the fault zones as depicted in Maps A1 , A2 , and A3 in the Map Appendix. These materials are more flexible and can tolerate some deformation caused by ground failure.	(3)	Monitor project construction activities to verify compliance with construction specifications. If non- compliance is noted, notify the construction contractor of required actions and the deadline for	PVWMA or PVWMA's consulting engineer	During and immediately following project construction
	Install welded joints at the joints through the fault zones.		computance.		
	Where possible, install pipelines across faults in a perpendicular direction.				
-	Install water-pressure-sensitive or pipe-movement-sensitive instruments linked to the isolation valves to shut down the system in the event of failure. The isolation valves could be automatically closed during a large earthquake.				
	Construct a contingency route for pipe flow drainage in case of failure. Drainage of pipe flows to a culvert under the railroad track to the river or a detention basin should be considered.				

Pajaro Valley Water Management Agency

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Design the water conveyance system to facilitate rapid or emergency repair.

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APPENDIX D PVWMA MITIGATION COMMITMENTS

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Revised BMP Draft EIS

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-3: For pipeline segments located in low-lying areas Stations 0+00 to about 450+00 and Stations 650+00 to 1127+00) a design- evel reotechnical investization, including collection of suburface data	a	Review construction specifications to ensure that design recommendations for pipeline installation are included.	PVWMA	Prior to project construction
shall be completed prior to construction of facilities. The geotechnical vvaluation should include identification of density profiles, determination of maximum shallow groundwater levels, and characterization of the vertical and lateral extent of saturated sand/silt layers that could undergo squefaction during strong ground shaking. When facility-specific testing ndicates that conditions are present that could result in liquefaction and lamage to project facilities, appropriate, feasible measures should be not the site-specific soil analysis and incorporated into the project notioned in the site-specific soil analysis and incorporated into the project	3)	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
olis analysis dictates otherwise: Densification or dewatering of surface or subsurface soils.				
Construction of concrete foundations to support pipelines or pile foundations to support buildings.		·		÷.,
Removal of material that could undergo liquefaction in the event of an earthquake and replacement with stable material.	ŗ			
Aessure 4.B.2-4: PVWMA shall develop and implement an earthquake reparedness and emergency response program. The program should be etailed and should include, at a minimum, the following elements:	(1	Prepare contract specifications for the construction contractor that require implementation of an earthquake preparedness and emergency response	PVWMA	Frior to project construction
Identify specific pipeline locations, through site-specific geologic studies, that would be vulnerable to damage in an carthquake and define priorities for system repairs.	3)	program. Monitor project construction activities to verify earthquake preparedness and emergency response	PVWMA or PVWMA's consulting engineer	During project construction
Provide appropriate PVWMA facilities staff, sheriff and fire departments with emergency response training.		program implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	• • •	
Conduct practice drills, using simulated earthquake scenarios, of emergency response procedures annually.				

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TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

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PVWMA MITIGATION COMMITMENTS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING BESPONSIPH	MONITORIN
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geotechnical engineer to determine the presence and characteristic of potentially compressible and/or expansive soils, the depth and thickness of soil layers, and the depth to groundwater. Soils shall be sampled and	 Review construction specifications to ensure that the geotechnical engineer's design recommendations for pipeline installation are included. 	PVWMA	Prior to project construction
investigation shall include mitigation measures that would reduce settlement to a less-than-significant level. Feasible mitigation measures could include removal and replacement of soil or deep mixing of compressible soils with stabilizing agents, as identified below:	2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deathing for the contractor of required	PVWMA's consulting engineering geologist	During project construction
 Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation should be specified by a registered civil engineer based on actual soil conditions. 	the compliance.		
Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive.			
Aessure 4.B.2-5b: Any native or imported backfill shall be selected, laced, compacted, and inspected in accordance with plans and pecifications prepared by a licensed civil engineer.	 Monitor project construction activities to verify compliance with the construction specifications. If non-compliance is noted, notify the construction contractor of remined and activity. 	PVWMA's consulting engineering geologist	During project construction
leasure 4.B.2-6a: A site-snecific soil according to the second seco	compliance, beyween actions and the deadline for		
r an engineer certified to evaluate soils conditions along the pipeline. The vestigation shall define the need for, and the location of, insulating uplings, electrolysis test stations, and hot spot areas where there should be the real world be along the pipeline.	 Review construction specifications to ensure that design recommendations for pipeline installation were included. 	PVWMA's consulting engineering geologist	Prior to construction
gli degree of corrosion suppression to cement and uncoated steel or ductife in pipes. All buried structures should be designed and constructed to instand corrosive subsurface conditions.	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction

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Pajaro Valley Water Management Agency

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Revised BMP Draft EIS

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TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	2	IONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-6b: To maintain and extend the life of the pipeline, bonding jumpers shall be provided at all joints to facilitate periodic corrosion testing.	â	Monitor project construction activities to verify compliance with the recommendations of the soils report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction
Measure 4.B.2-7: The PVWMA shall design and implement a Temporary Erosion and Sediment Control Plan for the excavation and construction phase of the project that would, at a minimum, neet the following	.	Prepare contract specifications for the construction contractor that require implementation of a Temporary Erosion and Sediment Control Plan.	PVWMA	Prior to construction
objectives, consistent with the Final Frogram Elk for the Fajaro Vatiey Water Basin Management Plan (PVWMA, 1993):	2)	Monitor project construction activities to venify Temmorary Erosion and Sediment Control Plan	PVWMA's consulting envineering peologist	Periodically during project construction
 The Temporary Erosion and Sediment Control Plan would be prepared by a registered civil engineer or a certified erosion and sediment control specialist using the concepts such as those developed by the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control Measures (1995). 		implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.		, ,
The Plan would be based on the specific erosion and sediment transport control needs of each pipeline segment.				
The Plan would specify the means to reduce the velocity of water leaving the pipeline alignment.				
The elements of the Plan would be maintained in working condition during the excavation, grading, and construction phases.				
The Plan would be required, submitted, reviewed, implemented, and inspected as part of a general grading plan for the project.			••	

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TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

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Other erosion and sediment control measures include:

- Confine grading and excavation to the dry season (April 15 through October 15), whenever possible. If grading is scheduled for the wet season, ensure that erosion and sediment control structures are in place prior to the onset of the first major storm of the season.
- Keep disturbed areas (from grading and related activities) to the minimum necessary for demolition or construction.
- Direct runoff away from disturbed areas during grading and related activities.
- Locate staging areas and spoil sites outside major stream and drainage ways and such that they do not drain directly into the waterways. If a spoil site drains into the creek, temporary catch basins will be constructed to intercept sediment before it reaches the channels. Spoil sites will be graded to reduce the potential for erosion.
- Place sediment curtains upstream and downstream of the construction zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.
- Prevent runoff from flowing over unprotected slopes. Place sediment traps on downhill slopes whenever construction activities such as trenching, grading, etc. occur on slopes along rivers or streams.
- Following construction, creek banks will be covered with erosion control blankets and replanted with locally indigenous species using locally collected materials (seed, plugs, willow or cottonwood wattles). These will be planted according to a revegetation plan approved by the resource agencies.

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TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

	MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	REPORTING RESPONSIBILITY	REPORTING SCHEDULE
Hydrol	logy and Water Quality			
Measur	re 4.B.3-2a: Implement Measure 4.A.3-1 (Storm Water Pollution tion Plan).		Construction contractor	Prior to construction
Mar	(easure 4.A.3-1a: The PVWMA shall require contractors to develop SWPPP for construction of proposed facilities, as required by the WQCB. The objectives of the SWPPP are to identify pollutant	 Prepare contract specifications for the construction contractor that require implementation of a Storm Water Pollution Prevention Plan. 	PVWMA	Periodically during project construction
a Sili S	surces that may affect the quality of stormwater discharge and to uplement BMPs to reduce pollutants in stomwater discharges. The WPPP for this proposed action would include the implementation, at minimum, of the following elements:	2) Monitor project construction activities to verify Storm Water Pollution Prevention Plan implementation. If non-compliance is noted, notify		
•	Source identification; Dremaration of a site man	the deadline for compliance.		
	Description of construction materials, practices, and equipment storage and maintenance;	· · · · · · · · · · · · · · · · · · ·		
•	List of pollutants likely to contact stormwater; Retimate of the construction site area and percent impervious area;			
	Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, straw bales, silf fences, check dams, geofabrics, drainage swales, and sandbag dikes;	· · ·		
	Proposed construction dewatering plans and List of provisions to eliminate or reduce discharge of materials to stormwater;			
#	Description of waste management practices; and			
•	Maintenance and training machices.			

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TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	Ł	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4, B.3-2b: Implement Measure 4.A.4-1a (construction within potentially jurisdictional wetlands/waters of the U.S. and streambeds).	(Prepare construction specifications that require bore and jack construction techniques be used to cross the Pajaro River.	PVWMA	Prior to project construction
habitat at the Highway I crossing of the Pajaro River may be avoided entirely by using bore and jack construction.	2)	Monitor project construction activities to ensure that the bore and jack construction is used at the Pajaro River crossing. If non-compliance is noted, notify the contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting engineer	During project construction
Messure 4.B.3-3: Obtain a National Pollutant Elimination Discharge System (NPDES) permit for construction dewatering and implement	(I	Prepare and submit an application for an NPDES permit to the RWQCB.	PVWMA	Prior to project construction
condutions of the perturn. An NEDCES perturn will be required from the RWQCB for all discharges for construction dewatering. Discharges must meet all applicable water quality objectives. The RWQCB may require certain conditions of the permit, such as treatment of the flows prior to discharge.	2)	Monitor construction activities to verify compliance with BMP water quality objectives and any conditions of the NPDES permit. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.3-4a: Implement measures to ensure that construction activities do not damage existing wells. Wells shall be capped in an	(Review construction plans and maps to ensure that the wells are identified.	PVWMA	Prior to project construction
appropriate manner to prevent soil and other contaminants from entering groundwater aquifers.	2)	Monitor construction activities to verify that wells in and near the project area are avoided. If non- compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.3-4b: PVWMA or its contractor shall correct any damage to wells and/or reimburse well owners for any loss of use of the well during construction.	(Inspect wells in the construction area prior to, and immediately following, project construction. Document any damage to wells resulting from construction activities. Repair any damage to the wells.	PVWMA	Prior to and immediately following construction

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MITIGATION MEASURE MONTORING MONTORING MONTORING MERPORTING MONTORING deauer 4.1340: (ent.) If access to existing welds in the construction area MONTORING RESPONSIBILITY SCHEDU deauer 4.1340: (ent.) 2) If access to existing welds in the construction area MONTORING RESPONSIBILITY deauer 4.1340: (ent.) 2) If access to existing welds in the construction area MONTORING RESPONSIBILITY deauer 4.1340: (ent.) 2) If access to existing welds in the construction area SCHEDU deaution inteless fifter, and/s well and the first during which are based and by WMAA so available. MONTORING cer Table 4. Deamine the areal extent of important cultural resource states within the project rate. Review Deamine diatacy within the project rate. Review Construction depliers alignments away from identified onlinal resource states within the project rate. Review Deamine diatacy within the project rate. Review Deamine diatacy within the project rate. Review deal pointer alignments away from identified onlinal resource states within the project rate. Review Deamine diatacy withe accounce dimportant cultural resource states and the diatacy	KTING ACTIONS te construction area berators in writing of the dates during which e available. oss of weli use based	MONITORING / REPORTING RESPONSIBILITY and PVWMA	MONITORING REPORTING SCHEDULE Prior to and immediately follow ri construction
Image: Lease of the solid sectors in only will be also during which goes of the solid sectors in writing of understand during which access to the well of will be the solid sectors of the solid sectors o	te construction area construction area construction areators in writing of a the dates during which c available oss of well use based	Construction contractor and PVWMA	Prior to and immediately follow in construction
certain and Wildlife certain and Wildlife ce Table 4. certain and Wildlife ce Table 4. callural Resources callural Resources constraint outwal densified cultural resource sites. An important cultural resource sites. An important cultural resource sites. An important cultural resource sites. An indirect cultural resource sites. An indirect cultural resource socialist shall be retained to assist in identified cultural resource sites. An indirect cultural resource socialist shall be retained to assist in identified cultural resource such site in the resource states within the project facilities would chorent states to be representation of detailed cultural resource such site in the resource valiation and recordinate with construction and recordinate with construction and recordinate with construction of the resource, relocation, or stabilization of the cultural resource such and recordinate with the dealtine for compliance is noted, notify the construction and recordinate with the resource reliand to cultural resource states and indirection. PVWAA's consulting the project facilities would the resource reliand to a state. The resource states and indirection that resource states area to the avoided, which may are contract specifications for the construction of the cultural resource states and indirection. PVWAA's consulting trace indirection to the resource states and indiversion that require implementation and recordinate with the resource reliand to a state. The cultural resource in the resource indirection and recordination of the reso			
 Juitural Resources Juitural Resources Juitural Resources Juitural Resource states Juiture Resource Juiture Resource			
feasure 4.B.5.1 a: Final pipeline and facility plans shall locate facilities 1) Determine the areal extent of important cultural resource sites. A undified cultural resource sites. A project harmonic cultural resource sites. A project plans to verify that project facilities would not be restant of important cultural resource sites to be avoided, which may cube horeated within these sites. 1) Determine the areal extent of important cultural resource sites. A project plans to verify that project facilities would not be located within these sites. 1) Determine the areal extent of important cultural resource sites to be avoided, which may cube horeated within these sites. 1) Prepare to the resource sites to be avoided, which may and the Native American Heritage 1) Determine the areal extent of important cultural resource sites would and the Native American flectula genoides a well as the local derive American and the Native American tellural resource relation will coordinate with local, state, and federal agencies as well as the local derive implementation and recordinate with local, state, and federal agencies area well as the local derive implementation of the resource relation of the resource relation of the resource relation of the resource, relocation, or stabilization of cumentation and recordation of the resource, relocation, or stabilization of cultural resources is implemented. If archaeologist consulting project area area and the detail agencies in the cultural resource and provided motion of the resource, relocation, or stabilization of required actions and the detailine for construction contraction and recordation of the resource, relocation, or stabilization of trequired actions and the detailine for construction contraction and recordation of the resource, relocation, or stabilization of the cultural resource is noted, notify the construction construction contraction construction construction and			
Measure 4.B.5-1b: If important cultural resource sites cannot be avoided, vVWMA will coordinate with local, state, and federal agencies in the velopment of an appropriate mitigation plan for the cultural resources. 1) Prepare contract specifications for the construction of the cultural resources in the construction by vow MA's consulting prior to request solution of an appropriate mitigation plan for the cultural resources. Prior to request solution by vow MA's consulting prior to request in plan developed under the programmatic Agreement. Programmatic Agreement in plan developed under the programmatic Agreement. Programmatic Agreement. Programmatic Agreement. Programmatic Agreement. Programmatic Agreement. Programmatic Agreement. During projection by vow A's consulting projection by vow A's consulting projection activities to ensure that the programmatic on the resource, relocation, or stabilization of the resource in on-compliance is noted, notify the construction construction contractor of required actions and the deadline for construction contractor. During projection construction actions and the deadline for construction construction actions and the deadline for compliance. During projection construction actions and the deadline for construction construction actions and the deadline for construction construction construction construction actions and the deadline for construction contrequired actions and the deadline for constru	important cultural ect area. Review ject facilities would es.	PVWMA's consulting archaeologist	Prior to final engineering design
ocumentation and recordation of the resource, relocation, or stabilization of a resource. The resource is noted, notify the construction contractor of required actions and the deadline for compliance.	s for the construction nentation of the cultural eloped under the	PVWMA's consulting archaeologist	Prior to requestin construction bids
	s to ensure that the plan is implemented. If fy the construction and the deadline for	PVWMA's consulting archaeologist	During project construction
	na si iti levia	ions for the construction lementation of the cultural leveloped under the tites to ensure that the m plan is implemented. If outfy the construction ms and the deadline for	ions for the construction PVWMA's consulting lementation of the cultural archaeologist leveloped under the PVWMA's consulting on plan is implemented. If archaeologist offy the construction uns and the deadline for

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Pajaro Valley Water

EXHIBIT E

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.5-2: Implement Measure 4.A.5-1.				
Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource	<u>(</u>	Prepare a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
specialist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Section 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	2)	Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
Measure 4.B.5-3a: The resource boundaries should be marked as exclusion zones both on the ground and on construction maps.	(1	Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	PVWMA's consulting archaeologist	Prior to, and during, project construction
Measure 4.B.5-3b: Construction supervisory personnel should be notified of the existence of these resources and be required to keep personnel and equipment away from these areas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	1)	Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	PVWMA	Prior to requesting construction bids
Measure 4.B.5-3c: Monthly monitoring of the cultural resources to be avoided should be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities.	(1	Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	PVWMA's consulting archaeologist	Monthly during project construction
If damage is detected a guard will be posted to patrol the site and adjacent important resources (such as gravestones and churches).	5)	If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	PVWMA	During project construction, if damage is detected

TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

rajaro valley water management Agency

EXHIBIT E

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APPENDLX D

TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	~	AONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MUNITURING / REPORTING SCHEDULE
Traffic and Circulation				
Measure 4.B.6-1 (Recommended): Implement Measures 4.A.6-1a and 4.A.6-ib.	(1	Prepare contract specifications for the construction contractor that require construction truck trips be seventied during off-seak hours and that haul routes	PVWMA	Prior to requesting construction bids
Measure 4.A.6-1a (Recommended): Schedule truck trips outside of peak commute hours.		be selected to minimize truck traffic on local roadways.	· .	
Measure 4.A.6-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the extent possible.				
Measure 4.B.6-2a: Limit construction hours to off-peak traffic periods on commute streets.	(1	Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	PVWMA	Prior to requesting construction bids
Measure 4.B.6-2b: The contractor shall be required to prepare traffic control plans to show specific methods for maintaining traffic flows. This chall include identifying roadway locations where special trenching	(1	Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids
techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Calirans and the governing Public Works Departments.	2)	Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction
Measure 4.B.6-3a: To minimize disruption of emergency vehicle access and maintain access to driveways to adjacent land uses, PVWMA would require the contractors to maintain steel trench plates at the construction sites to restore access across open trenches. Construction trenches shall not be left open after work hours.	(1	Monitor construction activities to ensure that steel trench plates are placed on construction trenches along driveways. If non-compliance is noted, notify construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.8.6-3b: To minimize disruption of emergency vehicle access, affected jurisdictions will be asked to identify detours to be posted by contractor.	(Place a large sign along roadways in the project vicinity at least one week in advance of construction.	PVWMA	Prior to project construction

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Pajaro Valley Water Management Agency

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APPENDIX D PVWMA MITIGATION COMMITMENTS

TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

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Pajaro Valley Water Management Agency

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MITGATION MEASURE MONTONING AND REPORTING MONTONING REPORTING		MITIGATION MONITORING AND R	TABLE D.1 (Continued) REPORTING PROGRAM FOR THE IMPORT V	WATER PROJECT	
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 Measure 4.8.7.14. Implement data control program described in with expensive 4.8.7.14. Implement data control program. With expensive 4.4.7.11. The romanizate go testing public leadin impacts associated with repeats associated with repeated with repeats associated with repeats associated with repeats ass		Air Quality		Add UMENIO JOSTA	SCHEDUI
 Charatre 44.7.1: The construction contractor shall implement a dust by provent of the construction solution program. Current Intracts in minutain at least two feet of freeboard. Current Intracts on maintain at least two feet of freeboard. Prove afforts and and other losse maintain at least two feet of freeboard. Prove afforts and and other losse maintain at least two feet of freeboard. Prove afforts on maintain at least two feet of freeboard. Prove afforts on maintain at least two feet of freeboard. Prove afforts on maintain at least two feet of freeboard. Prove afforts on a lupper dates and staging areas and staging areas and proved areas in construction sites. Sweep afforts on adjacent public strees. Sweep afforts on adjacent public strees. Sweep affort on adjacent public strees. Sweep affort affort areas a construction sites. Sweep affort affort areas and proved areas and streed afforts and exception affort areas a construction sites. Sweep affort affort areas and proved areas and strength affort areas and proved areas and areas and proved areas and proved areas and areas and areas and areas ar		Measure 4.B.7-1s: Implement dust control program described in Measure 4.A.7-1 to minimize potential public health impacts associated with exposure to contaminated soil dust.	 Prepare contract specifications for the construction Contractor that require implementation of a direction 	PVWMA	Tion to remove
 Cover all trucks haufing soil, soul, and other lose materials or free constraints or trucks haufing soil, soul, and other lose materials or require all trucks to maintain at least two feet of freeboard. Parse, apply water three times daily, or apply (non-toxic) soil areas and saging areas are construction site. Sweep daily (with water sweepers) if visible soil material previates areas and saging areas are construction site. Sweep daily (with water sweepers) if visible soil material previates areas and saging areas are construction site. Sweep daily (with water sweepers) if visible soil material previates areas and saging areas are construction sites. Sweep treats daily (with water sweepers) if visible soil material previating areas are construction areas. Sweep treats daily (with water sweepers) if visible soil material previating areas are construction areas. Sweep treats daily (with water sweepers) if visible soil material previating areas are construction areas. Sweep treats daily (with water sweepers) if visible soil material previating areas are construction areas. Sweep treats daily (with water sweepers) if visible soil material previating agricultural fields under cultivation nulses requested by (non-toxic) soil binders to prevent site. Brandose construction areas. Init traffic on unproved treats to prevent site prevent. Replant vegetation in disturbed areas a quickly as possible. 		Measure 4.A.7-1: The construction contractor shall implement a dust control program that includes the following elements.	2) Monitor construction activities to construction		onstruction bids
 Pave, apply water three times daily, or apply (non-toxic) soil selectizes on all upaved access roads, parking areas and staging areas and paved asging areas and staging areas and paved asging areas and paved asging areas and paved asging areas and paved asging areas and staging areas and paved asging areas and paved asging areas and paved asging areas are construction sites. Sweep daily (with water sweepers) if visible soil material thy or addinection sites. Sweep aterest daily (with water sweepers) if visible soil material on adjacent public streats. Hydroseed or apply (non-toxic) soil binders to inactive granting agreemants in the grower. Enclose, cover, water twice daily or apply (non-toxic) soil binders in the grower. Enclose, cover, water twice daily or apply (non-toxic) soil binders in the grower. Init traffic on unpuved roads to 15 mp. Replant vegetation in disturbed areas as quickly as possible. 		 Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard 	measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the	PVUMA	eriodically durir oject constructi
 Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction siles. Sweep streets daily (with water sweepers) if visible soil material Sweep streets daily (with water sweepers) if visible soil material Sweep streets daily (with water sweepers) if visible soil material Flydnoseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by Enclose, cover, water twice daily or apply (non-toxic) soil binders Limit traffic on unpaved roads to 15 mpl. Install sandbags or other etosion control measures to prevent sitt to mooff to public roadways. 	0.5	Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	deadline for compliance.		
 Sweep streets daily (with water sweepers) if visible soil material is carried outo adjacent public streets. Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in the grower. Enclose, cover, water twice daily or apply (non-toxic) soil binders to binders to index to be an easily of the grower. Enclose, cover, water twice daily or apply (non-toxic) soil binders to index to be an easily of the grower. Limit traffic on unpaved roads to 15 mph. Install standbags or other erosion control measures to prevent silt. Replant vegetation in disturbed areas as quickly as possible. 		 Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites 			
 Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in the grower, do not apply these measures in the grower. Enclose, cover, water twice daily or apply (non-toxic) soil binders to expose d stockpiles (dirt, sand, etc.). Limit traffic on unpaved roads to 15 mph. Install sandbags or other crosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 		Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.			
 Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). Limit traffic on unpaved roads to 15 mph. Install sandbags or other erosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 		 Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower. 			
 Limit traffic on unpaved roads to 15 mph. Install sandbags or other crosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 		 Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). 			
 Install sandbags or other crosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 		 Limit traffic on unpaved roads to 15 mph. 			
 Replant vegetation in disturbed areas as quickly as possible. 		 Install sandbags or other crosion control measures to prevent silt runoff to public roadways. 			
		 Replant vegetation in disturbed areas as quickly as possible. 			

APPENDIX I PVWMA MITIGATION COMMITMENTS

TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MONITORING REPORTING SCHEDULE	Prior to construction	During project construction	Prior to construction	During project construction	During project construction	During project construction, if necessary	
MONITORING / REPORTING RESPONSIBILITY	VIMMA	VIMMA	Construction contractor	Construction contractor	PVWMA's consulting health and safety professional	PVWMA's consulting health and safety professional	
MONITORING AND REPORTING ACTIONS	Prepare contract specifications for the construction contractor that require implementation of a Response Plan for hazardous materials and waste operations.	Monitor project construction activities to verify Response Plan implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	Prepare contract specifications for the construction contractor that require use of a photoionization detector to determine the potential for soil contamination.	Monitor project construction activities to determine the potential for soil contamination. If soil contamination is detected, notify PVWMA immediately and remove contaminated soils using appropriate procedures.	Monitor construction activities in high-risk areas to ensure worker safety and screen excavated materials.	If contamination is encountered, conduct soil sampling and submit soil testing results to PVWMA and the accepting landfill.	
MITIGATION MEASURE	Measure 4.B.7-1b: <u>Response Plan</u> . Prepare a project-specific Response 1) Plan that includes a project-specific contingency plan for hazardous	intractrats and washe operations are could proceed. The Response Plan, jurisdiction before site activities could proceed. The Response Plan, applicable to all excavation activities, shall establish policies and procedures 2) to protect workers and the public from potential hazards posed by hazardous wastes. The plan shall be prepared according to federal and California wastes. The plan shall also provide for proper storage and/or disposal of any contarninated soils that meet the definition of a hazardous waste. Such a protocol could include off-site treatment of contaminated wasted. The diameter of a maximumistic landfill.	Measure 4.8.7-1c: <u>Reduction of Excavation Impacts</u> . The contractor shall 1) monitor for odors and analyze excavated material with a photoionization detector to determine the potential for soil contamination and the need for	specialized soli-haritating processions to concerning procession (2) of suspected contamination.	Measure 4.B.7-1d: <u>Disposal Characterization</u> . Within high-risk areas 1) identified in Table 4.B.7-1, excavations shall be observed by a trained	health and safety professional equipped with an organic representation is screen excavated materials and ensure worker safety. If contamination is encountered, excavated soils shall be segregated and sampled relative to the 2) profiling requirements of the accepting landfill.	

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MITIGATION MONITORING AND R	TABLE EPORTIN	D.1 (Continued) NG PROGRAM FOR THE IMPORT V	WATER PROJECT	
MITIGATION MEASURE	INOM	ITORING AND REPORTING ACTIONS	REPORTING RESPONSIBILITY	REPORTING SCHEDULE
Measure 4.B.7-1e: <u>Groundwater and Soil Testing</u> . Conduct groundwater and soil testing for hazardous materials at identified potentially contaminated sites prior to pipeline construction. Treatment would be applied, in consultation with the Regional Water Quality Control Board, Department of Toxic Substances Control, and/or other regulatory agencies, to ensure that all discharges meet applicable regulations.	 Cond result agend imple the re 	tuct soil and groundwater testing and submit ts to PVWMA and appropriate regulatory cies. If hazardous materials are encountered, ement treatment measures in consultation with egulatory agencies.	PVWMA's consulting hazardous materials specialist and PVWMA	Prior to construction
Measure 4.B.7-1f: <u>Hazardous Materials Management/Spill Prevention Plan</u> . A Hazardous Materials Management/Spill Prevention Plan shall be developed and given to all contractors working on the project. At least one copy shall be	 Prepa contr Mate 	are contract specifications for the construction actor that require implementation of a Hazardous srials Management/Spill Prevention Plan.	PVWMA	Prior to construction
on-site with the construction manager at all times. The purpose of the plan is to provide on-site construction managers, environmental compliance monitors, and regulatory agencies with a detailed description of hazardous materials management, spill prevention, and spill response/cleanup measures associated with the construction of project elements. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following:	2) Moni imple Mane comp	itor project construction activities to verify ementation of the Hazardous Materials agement/Spill Prevention Plan. If non- pliance is noted, notify the construction contractor quired actions and the deadline for compliance.	AWWA	During project construction
 A discussion of hazardous materials management, including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assemble areas, temporary hazardous waste storage areas; 		•		
 Spill control and countermeasures, including employee spill prevention/response training; and 				
 Notification and documentation procedures. 				

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PVWMA MITIGATION COMMITMENTS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

SCHEDAFE KELOKLIAC WONILOKIAC \	RESPONSIBILITY REPORTING MONITORING I	MOUITORING AND REPORTING ACTIONS		MITIGATION MEASURE	
					<u>əsio</u> V
Prior to requesting construction bids	AMWVq	Prepare contract specifications for the construction contractor that require implementation of noise	(1	.I-8.A.4 srusseM memory in 1.8.8.4	oruseoM
		.I-8.A.4 antesatives listed in Measure 4.A.A.		asure 4.6.8-1: PVWMA shall incorporate into contract ifications the following measures:	t9M D∋az
Periodically during	АМWV9	Monitor construction activities to verify that the	(7	salur laval asion hus formos hunos lesol ils driw vienno.	• .
		implemented. If non-compliance is noted, notify the construction contractor of required actions and the		regulations, and ordinances.	
·		deadline for compliance.		Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction	

EXHIBIT

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Pajaro Valley Water Management Agency

noise impacts.

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impacts to residences adjacent to construction sites.

receptors, they shall be adequately muffled.

than impact equipment) whenever feasible.

Temporary walls may be erected at some locations to reduce noise

Impact equipment (e.g., jack harmets, pavement breakers, and rock drills) used for project construction shall be hydraulically- or electrically-powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is analy up to about 10 dBA. External jackets on the tools from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dbA. Quieter procedures shall be used (such as drilling rather

Stationary noise sources shall be located as far from sensitive receptors as possible. If they must be located near existing
PVWMA MITIGATION COMMITMENTS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT (Continued)

Prior to final engineering design	AMWVq	Prepare contract specifications for the construction contractor that include measures listed in Measure 4.B.9-1D.	(t	Measure 4.B.9-1D: The following measures are required for segments identified in final design as having potential conflict with significant utilities:
Prior to final engineering design	PVWMA's consulting engineer	Conduct a detailed study of utilities atong the project alignment and submit a report documenting the results of the study to PWWA.	(1	Measure 4.B.9-1a: A detailed study identifying utilities along the proposed alignment will be prepared during the pre-design stages of the project.
				Public Services
SCHEDAFE BELOBLINC WONIJOMND \	REPORTBULTY REPORTING MOUTOWUD /	MONITORING AND REPORTING ACTIONS		ANURAIM NOITADITIM

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actions and the deadline for compliance.

noted, notify the construction contractor of required

Monitor construction activities to verify that the measures are implemented. If non-compliance is

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Periodically during

AMWV9

disconnection of services.

Residents and businesses in the project area would be notified by the contractor in writing of planned utility service disruption two to four days in advance in conformance with County and State standards.

In areas where the pipeline would parallel wastewater mains, engineering and construction plans will include trench wall support measures to guard against trench wall failure and possible resulting loss

A detailed engineering and construction plan would be prepared as part of the design plans and specifications. This plan should include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services would be notified of PVWMA's construction plans and schedule. Attangements would be made with these entities regarding protection, relocation, or temporary made with these entities regarding protection, relocation, or temporary

Utility locations would be verified through field survey (potholing) and

permits include measures to minimize utility disruption. PVWMA and its contractors would comply with permit conditions. Permit requirements would be included in construction contract specifications.

Bell, U.S. Sprint, PG&E, City of Watsonville, and UPRR. These

the appropriate agencies, including the Public Works Departments of San Benito, Santa Clara, Santa Cruz and Monterey Counties, Pacific

Utility excavation and encroachment permits would be required from

of structural support for the wastewater main.

use of an underground locating service.

VPPENDIX D

PVWMA MITIGATION COMMITMENTS

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SCHEDAFE KELOKLINC WONLLOKINC \	KESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		AITIGATION MEASURE
		Implement the Monitoring and Reporting Actions for Messures 4.B.6-3.6 through 4.B.6-3.c, above.	(1	Measure 4.B.6.2: Implement Measures 4.B.6-3a through 4.B.6-3c in Section 4.B.6, Traffic and Circulation.
		Implement the Monitoring and Reporting Actions for Measures 4.B.6-2a and 4.B.6-2b, above.	(1	Measure 4.B.9-3 (Recommended): Implement Measures 4.B.6-2a and 4.B.6-2b in Section 4.B.6, Traffic and Circulation.
				Visual/Aesthetic and Recreational Resources
Prior to requesting construction bids	۷ <i>WW</i> Vq	Prepare contract specifications for the construction contractor that require revegetation of disturbed areas.	(1	Measure 4.A.10-1a: The PWWA shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.
Following project construction	2'AMWV9 to AWWV9 tsigoloid gnifluznoo	Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(Z	
Prior to final engineering design	AMWVq	Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings.	(1	Measure 4.A.10-1D: The PMWV shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain.
Prior to requesting construction bids	VWMhd	Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	(1	Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term
Following project construction	AMWVq	Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for	(Z	,8136 T "1 Ibusiv

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PVWMA MITIGATION COMMITMENTS

TABLE D.1 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

SCHEDRIFE REFORTING MONITORING /	RESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		MITICATION MEASURE
Prior to requesting construction bids	АМWVЧ	Prepare contract specifications for the construction Prepare contract specifications for the construction	(1	.2-01.A.4.B.10-2 (Recommended): Implement Measure 4.A.10-2.
Construction and following During and following construction	AMWVq	Conductor mar monute externor ngume gume conductor listed in Measure 4.A.10.2. Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(7	Measure 4.A.10-2 (Recommended): The PVWMA shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessary, landscaping shall be provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed attuctures.
Prior to delivering CVP water beyond the 30,200 acres	AMWA	Complete CEQA documentation for any water system improvements to serve areas beyond the 30,200 acres.	(I	Measure 4.C-1: CEQA Compliance. Delivery of CVP water for use in areas beyond the 30,200 acres of agricultural lands shown in Figure 4.C-2 shall be permitted only in accordance with the terms for delivery to Contractor's Service Area pursuant to any contract for the delivery of CVP water between Reclamation and PVWMA, and in accordance with any and a secondance with any contract for the delivery of CVP water between Reclamation and PVWMA, and in accordance with any and agency for any proposed land use changes; PVWMA will be the lead agency for preparation of an environmental document for any actions specific to water system improvements or other specific to water specific to water to areas beyond those as a spece of a specific to water system improvements or other specific to water specific to water to areas beyond those as a specific to water specific to water to areas beyond those is the set of a specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas beyond those specific to water water to areas beyond those specific to water specific to water to areas beyond those specific to water specific to water to areas b
Prior to delivering CVP water beyond the 30,200 acres CVP water beyond the CVP water beyond the 30,200 acres	AMWV9 AMWV9	Obtain proof of compliance with the Endangered Species Act prior to providing water to areas beyond the 30,200 acres. Comply with the Endangered Species Act for any water system improvements needed to serve areas beyond the 30,200 acres.	(z (1	Measure 4.C-2: Endangered Species Act Compliance. PVWMA will not deliver water for the purpose of converting any native lands to agriculture uses unless and until the project sponsor has complied with the Endangered Species Act and has determined that such conversion will not likely affect listed species or that appropriate mitigation has been provided. PVWMA PVWMA currently is not proposing to provide any CVP water for M&I purposes, nor is it proposing to provide any CVP water for M&I purposes, nor is it proposing to provide any CVP water for M&I purposes, nor is it proposing to provide CVP water outside of the approximately 30,200 acres of agricultural lands shown in Figure 4.C-2. If WWM is the lead agency for development of water outside of the

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PWWA will consult with the appropriate resource agency (California

and construction or operation of those improvements or any other PWMA actions that could adversely affect threatened or endangered species,

		VMWA	
MITIGATION MONITORING AND R	TABLE D.1 (Continued) EPORTING PROGRAM FOR THE IMPORT WA'	TER PROJECT	
MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	REPORTING REPORTING RESPONSIBILITY	REPORTING SCHEDULE
Department of Fish and Game, US Fish and Wildlife Service, and/or National Marine Fisheries Service) pursuant to all applicable laws, including CEQA and NEPA. PVWMA will implement project-specific mitigation measures and permit conditions as appropriate.			

APPENDIX D

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A MONITORING A	TABLE D.2 D REPORTING PROGRAM FOR THE RECYCLED	WATER PROJECT	
	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
and Use and Planning		PVWMA	Prior to project
leasure 4.A.1-1 (Recommended): Advance notification of constituities should be provided to all property owners, residents, and usinesses in the vicinity of construction areas. e also mitigation measures in Sections 4.A.6, Traffic and Circula. A.7, Air Quality, and 4.A.8, Noise, of this EIR.	 Send notices to all property owners resucting, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in week in advance of construction. Place large signs along roads in the construction. Place large signs along roads in the project vicinity at least one week in advance of construction. Submit copies of public notices to the project file to document compliance. 		construction
Measure 4.A.1-2: In order to compensate for the loss of prime age and, PVWMA will cause up to 8.5 acres of prime agricultural land to longer farmed to be restored or otherwise brought back into pro fitis can be accomplished through contribution to a fund dedicated restoration of agricultural land.	cultural 1) Identify 8.5 acres of prime agricultural land that is that is no longer farmed and return it to production, or alternatively, contribute to a fund dedicated to the alternation of agricultural land. Submit restoration of agricultural land restoration or documentation of agricultural land restoration or appropriate contribution to the project file and the Santa Cruz County Planning Department.	24	
Geology and Soils Measure 4.A.2-1a: Implement Measures 5.A.2-3a through 5.A.	-3f. 1) Review construction specifications to ensure that design recommendations for RWF construction and mireline installation listed in Measures 5.A.2-3a	PVWMA	rior to project ynstruction
Measure 5.A.2-3a: All grading and construction will contol requirements of the Monterey and Santa Cruz Counties Grad Ordinances. Measure 5.A.2-3b: Site grading and construction work are expose as little new ground surface as possible. Vegetation should be left intact to the extent practical.	nu to through 5.A.2-3f are included. 2) Monitor project construction activities to verify s will compliance with the construction specifications. If compliance is noted, notify the construction non-compliance is noted, notify the deadline for contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
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APPENDIX D MMITMENTS		MONITORING / REPORTING SCHEDULE						Revised BMP Draft Bl
	VATER PROJECT	MONITORING / REPORTING RESPONSIBILITY						
	ABLE D.2 (Continued) RTING PROGRAM FOR THE RECYCLED V	MONITORING AND REPORTING ACTIONS						
	TA MITIGATION MONITORING AND REPOR	AATTICATION MEASURE.	Measure S.A.2-3c: To the extent possible, grading activities in noncropped areas will be limited to the period between April 15 and October 15. If dry conditions persist after October 15, one-week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance.	Measure 5.A.2-3d: Implement best construction practices at all grading sites, regardless of soil erodibility hazard. Measure 5.A.2-3e: Upon completion of construction at all sites, loose soils shall be removed or spread and all areas shall be re-soiled and reseeded to ensure that a stable soil cover will remain.	Measure 5.A.2-3f: PVWMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.			
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MITIGATION MONITORING AND REP	TAF	BLE D.2 (Continued) FING PROGRAM FOR THE RECYCLED	WATER PROJECT	
MITIGATION MEASURE	2	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Mcasure 4.A.2-1b: Implement Measure 5.A.2-2.				
Measure 5.A.2-2: All diversion and pipeline facilities will comply with applicable policies and appropriate engineering investigation	1)	Include geotechnical report with recommendations as an appendix to construction specifications.	PVWMA	Prior to requesting construction bids
practices necessary to reduce the potential detrimental effects of expansive soils, and corrosivity. Appropriate geotechnical studies will be conducted using generally accepted and appropriate engineering	2)	Review construction specifications to ensure that design recommendations were included.	PVWMA	Prior to project construction
techniques for determining the susceptibility of the sites to unstabile, weak or corrosive soils. A licensed geotechnical engineer will prepare recommendations applicable to foundation design, earthwork, and site preparation prior to or during the project design phase. Recommendations will address mitigation of site-specific, adverse soil and bedrock conditions that could hinder development. Project engineers will implement the recommendations. Geotechnical design and design criteria will comply with applicable codes and requirements of the 1994 or 1997 UBC with California additions (CCR Title 24), applicable City construction and grading ordinances.	3)	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
Measure 4.A.2-2: Conduct geologic investigations of all project facilities and pipeline alignments prior to the final design, and implement design recommendations. The investigations will specify hazards related to ground movements and co-seismic effects, especially liquefaction. The	(1	Review construction specifications to ensure that the engineering geologist's design recommendations for RWF construction and pipeline installation are included.	PVWMA	Prior to project construction
recommendations of an engineering geologist with be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager will conduct inspections and certify that all design criteria have been met. While these measures would not eliminate the potential for damage to the facilities, they would ensure that the hazards have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less-than-significant level.	5)	Monitor project construction activities to verify compliance with the recommendations of the engineering geologist. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction

APPENDIX D PVWMA MITIGATION COMMITMENTS

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APPENDIX D

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TABLE D.2 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	REPORTING	REPORTING SCHEDULE
Hydrology and Water Ouality			
Measure 4.A.3-1a: The PVWMA shall require contractors to develop a SWPPP for construction of proposed facilities, as required by the RWQCB. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement BMPs to reduce	 Prepare contract specifications for the construction contractor that require preparation and implementation of a Storm Water Pollution Prevention Plan. 	PVWMA	Prior to construction
pollutants in stormwater discharges. The SWPPP for this proposed action would include the implementation, at a minimum, of the following -1-ments:	 Monitor project construction activities to verify Temporary Erosion and Sediment Control Plan implementation. If non-compliance is noted, notify 	PVWMA	Periodically during project construction
Source identification;	the construction contractor of required actions and the deadline for compliance.		
 reparation of a site triap, Description of construction materials, practices, and equipment storage and maintenance; 			
List of pollutants likely to contact stormwater;			
 Estimate of the construction site area and percent implements area. Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sandbag 	· · · · · · · · · · · · · · · · · · ·		
Proposed construction dewatering plans and List of provisions to eliminate or reduce discharge of materials to stormwater:			
Description of waste management practices; and Maintenance and training practices.			- - -
Measure 4.A.3-1b: Refer to Measure 4.A.4-1a in Section 4.A.4, Vegetation and Wildlife, regarding pipeline construction within poteritially jurisdictional wetlands/waters of the U.S. and streambeds and at the Pajaro	 Implement Monitoring and Reporting Actions for Measure 4.A.4-1a, below. 		

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Prior to project Construction	АМWVЯ	Prepare and submit an application for an MPDES permit to the RWQCB.	(1	Measure 4.A.3.28: Above-ground irrigation systems shall be operated in accordance with the requirements of Title 22 of the California Code of Secondance with the requirements signal approximation neutran spinor and show a spinor secondary of based of the spinor secondary of the spinor secondary of the spinor secondary spinor secondary of the spinor secondary spinor secondary spinor secondary spinor secondary spinor spi
Periodically following project implementation	АМWVq	Monitor operation of irrigation systems to verify compliance with applicable regulations and permits. If non-compliance is noted, notify the operator of required actions and the deadline for compliance.	(7	Cosst Region. Title 22 requires that irrigation rates match the evaporanspiration rates of the plants or crops being irrigated, and that application of reclaimed water be prohibited within 50 feet of any domestic water supply or wells.
Periodically following project implementation	AMWV9	Monitor crop productivity and submit documentation of crop yields to the project file. Adjust blending ratios if necessary.	(1	Measure 4.A.3-2b: Monitoring of crop productivity should be performed, and if adverse impacts to the yields of sensitive crops (e.g., strawberries) occurs, the blending ratio should be adjusted to decrease the fraction of recycled water in the applied irrigation water.
Prior to final engineering design	2'AMWV9 to AMWV9 Toonigno gnilluznoo	Review project plans to ensure they comply with FEMA and County of Santa Cruz requirements concerning floodproofing. If non-compliance is noted, revise plans as necessary.	(1	Measure 4.A.3. The facilities shall be designed to comply with FEMA and County of Santa Uruz requirements to floodproof the facilities and not increase upstream or downstream flood hazards.
Periodically during project construction	АМЖУЯ	Monitor project construction activities to verify compliance with FEMA and County of Santa Cruz requirements. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(7	
Prior to project construction	AMWV¶	Review construction plans and maps to ensure that the wells are identified.	(1	Measure 4.A.3-4a: Implement measures to ensure that construction activities do not damage existing wells. Wells shall be capped in an appropriate manner to prevent soil and other contaminants from entering
Periodically during project construction	VWMAd	Monitor construction activities to verify that wells in and near the project area are avoided. If non- compliance is noted, notify the construction contractor of required actions and the deadline for	(7	groundwater aquifers.

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compliance.

PVWMA MITIGATION COMMITMENTS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT **TABLE D.2 (Continued)**

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.3-4b: PVWMA or its contractor shall correct any damage to wells and/or reimburse well owners for any loss of use of the well during construction.	 Inspect wells in the construction area prior to, and immediately following, project construction. Document any damage to wells resulting from construction activities. Repair any damage to the wells. 	PVWMA	Prior to and immediately following construction
<u>Vegetation and Wildlife</u>	2) If access to existing wells in the construction area will be affected, notify well operators in writing c the loss of use of the well and the dates during wi access to the well(s) will not be available. Reimburse well operators for loss of well use bas on historical water use.	f Construction contractor and PVWMA ich	Prior to and immediately following construction
See Table 4.			
Cultural Resources			
Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A	 Prepare a resource recovery plan for the site including findings and recommendations and subi it to PVWMA, the U.S. Army Corps of Engineers the State Historic Preservation Officer, the Advis. 	PVWMA's consulting nit archaeologist	During project construction, if potential resources are encountered

Measure 4.4.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American function of the treatment and disposition of the remains.

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control of the control of the second and the second and submit including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	archaeologist	construction, if potential resources are encountered
Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered

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MITIGATION MONITORING AND REI	TAI	BLE D.2 (Continued) FING PROGRAM FOR THE RECYCLEI) WATER PROJECT	
MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.5-2: As part of the siting study for wells, PVWMA will retain an archaeologist to conduct archival research and surface reconnaissance of potential sites. The findings of the investigations will be incorporated into the selection of specific locations for wells and connecting pipelines such that PVWMA will avoid siting wells and attendant connecting pipelines at or through any significant cultural resources.	G	Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design
Traffic and Circulation				
Measure 4.A.6-1a (Recommended): Schedule truck trips outside of peak commute hours. Measure 4.A.6-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the extent possible.	.	Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-peak hours and that haul routes be selected to minimize truck traffic on local roadways.	PVWMA	Prior to requesting construction bids
Measure 4.A.6-2: Conduct a preconstruction survey of road conditions on key access routes to the project sites (e.g., San Andreas Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction	.	Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired.	PVWMA	Prior to project construction
shail be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.	5)	Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction
Measure 4.A.6-3a: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques	.	Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids
would be used to minimize impacts to traffic flow and operations. The traffic control plans prepared by the contractor shall include recommended detours for bicyclists. The traffic control plan shall be reviewed for appropriateness, and approved by the governing Public Works Department.	5)	Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction

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MONITORING REPORTING SCHEDULE project construction Periodically during Prior to requesting construction bids Revised BMP Draft EIS MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT RESPONSIBILITY MONITORING / REPORTING PVWMA PVWMA Implement the Monitoring and Reporting Action for Measure 4.A.1-1, above. implemented. If non-compliance is noted, notify the Prepare contract specifications for the construction MONITORING AND REPORTING ACTIONS construction contractor of required actions and the contractor that require implementation of a dust Monitor construction activities to verify that the measures of the dust control program are TABLE D.2 (Continued) deadline for compliance. control program. D-30 F A ନ Cover all trucks hauling soil, sand, and other loose materials or require Pave, apply water three times daily, or apply (non-toxic) soil stabilizers Install sandbags or other erosion control measures to prevent silt runoff areas. However, do not apply these measures in operating agricultural Enclose, cover, water twice daily or apply (non-toxic) soil binders to Hydroseed or apply (non-toxic) soil binders to inactive construction Sweep streets daily (with water sweepers) if visible soil material is Measure 4.A.7-1: The construction contractor shall implement a dust Sweep daily (with water sweepers) all paved access roads, paved on all unpaved access roads, parking areas and staging areas at Measure 4.A.6-3b: The contractor shall provide advanced public notification of construction activity and roadway/access closures. parking areas and paved staging areas at construction sites. Replant vegetation in disturbed areas as quickly as possible. fields under cultivation unless requested by the grower. all trucks to maintain at least two feet of freeboard MITIGATION MEASURE control program that includes the following elements; Limit traffic on unpaved roads to 15 mph. carried onto adjacent public streets. exposed stockpiles (dirt, sand, etc.). Pajaro Valley Water Management Agency to public roadways. construction sites. <u>Air Quality</u>

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MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT TABLE D.2 (Continued)

				ONITORING REPORTING SPONSIBILI	<u>`</u>	ONITORING REPORTING SCHEDULE
Noi						
Me	asure 4.A.8-1: PVWMA shall incorporate into contract specifications following measures:	1)	Prepare contract specifications for the construction contractor that require implementation of noise mitigation measures listed in Measure 4.A.8-1.	PVWMA	F 8	rior to requesting onstruction bids
•	Comply with all local sound control and noise level rules, regulations, and ordinances.	2)	Monitor construction activities to verify that the	PVWMA	Pe	eriodically during
•	Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts.		implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.		2	
	Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically- or electrically-powered wherver possible to avoid noise associated with compressed air exhaust from meumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used (such as drilling rather than impact equipment) whenever feasible.					
-	Stationary noise sources shall be located as far from sensitive receptors as possible. If they must be located near existing receptors, they shall be adequately muffled.					

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Temporary walls may be erected at some locations to reduce noise impacts to residences adjacent to construction sites.

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TABLE D.2 (Continued)	MULICATION MONITOKING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT
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MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.8-2: PVWMA shall incorporate into contract specifications the following measures:	 Prepare contract specifications for the construction contractor that include measures listed in Measure 	PVWMA	Prior to final engineering design
 The pumping facilities shall be designed with acoustical treatments (building enclosures, louvered vents, noise walls, etc.) that are adequate to maintain potential noise generation to fevels at or below ambient levels. 	 4.A.8-2. 2) Monitor construction activities to verify that the neasures are implemented. If non-compliance is noted, notify the construction contractor of required 	PVWMA	Periodically during project construction
 The blending facilities shall be built with enclosures that provide maximum feasible noise attenuation, to ensure that sensitive receptors would not be affected. 	actions and the deadline for compliance.		
Public Services			
Measure 4.A.9-1: A detailed study identifying utilities along the proposed alignment will be prepared during the pre-design stages of the project.	 Conduct a detailed study of utilities along the project alignment and submit a report documenting the results of the study to PVWMA. 	PVWMA's consulting engineer	Prior to final engineering design
The following measures are required for segments identified in final design as having potential conflict with significant utilities:	2) Prepare contract specifications for the construction contractor that include measures listed in Measure	PVWMA	Prior to final engineering design
 Utility excavation and encroachment permits would be required from the appropriate agencies, including the Public Works Departments of San Benito, Santa Clara, Santa Cruz and Monterey Counties, Pacific Bell, U.S. Sprint, PG&E, City of Watsonville, and UPRR. These permits include measures to minimize utility disruption. PVWMA and its contractors would comply with permit conditions. Permit requirements would be included in construction contract specifications. 	 A.A.P.I. Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance. 	PVWMA	Periodically during project construction
 Utility locations would be verified through field survey (potholing) and use of an underground locating service. 			

		MONITORING /	MONITORING
MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	REPORTING RESPONSIBILITY	REPORTING
Measure 4.A.9-1: (cont.)			
 A detailed engineering and construction plan would be prepared as part of the design plans and specifications. This plan should include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services would be notified of PVWMA's construction plans and schedule. Arrangements would be made with these entities regarding protection, relocation, or temporary disconnection of services. 			
 In areas where the pipeline would parallel wastewater mains, engineering and construction plans will include trench wall support measures to guard against trench wall failure and possible resulting loss of structural support for the wastewater main. 			
 Residents and businesses in the project area would be notified by the contractor in writing of planned utility service disruption two to four days in advance in conformance with County and State standards. 			
Visual/Aesthetic and Recreational Resources			
Measure 4.A.10-1a: The PVWMA shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	 Prepare contract specifications for the construction contractor that require revegetation of disturbed areas. 	PVWMA	Prior to requesting construction bids
	 Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance. 	PVWMA or PVWMA's consulting biologist	Following project construction

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APPENDIX D PVWMA MITIGATION COMMITMENTS

TABLE D.2 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.10-1b: The PVWMA shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain.	(1	Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings.	PVWMA	Prior to final engineering design
Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term visual impacts.	(]	Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	PVWMA	Prior to requesting construction bids
· · ·	2)	Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction
Mitigation Measure 4.A.10-2 (Recommended): The PVWMA shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessive landersining the movided economed	a	Prepare contract specifications for the construction contractor that include exterior lighting mitigation listed in Measure 4.A.10-2.	PVWMA	Prior to requesting construction bids
facilities. This vegetation shall be selected, placed, and maintained to facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	2	Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During and following construction

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MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Land Use and Planning			
Measure 8.1.3-1 (Recommended): The PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas. Geology and Soils	8.1.3-1: Send notices to all property owners residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along San Andreas Road, Beach Road, Trafton Road, and Highway 1 at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	YMM	Prior to project construction.
Measure 8.2.3-1a: All grading and construction shall conform to requirements of the Santa Cruz County Grading Ordinance. Measure 8.2.3-1b: Site grading and construction work areas shall expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical.	8.2.3-1a : Review project plans to verify that grading and construction activities comply with the Santa Cruz County Grading Ordinance and that they expose as little new ground surface as possible. Document compliance or non-compliance and remedial action(s) required and submit this documentation to the Santa Cruz County Public Works Department, and the project file.	PVWMA	Prior to project construction.
· · · · · · · · · · · · · · · · · · ·	8.2.3-1b: Conduct inspections of the construction site to verify compliance with Mitigation Measures 8.2.3-1b, 8.2.3-1c, 8.2.3-1e. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting engineer	During and immediately following project construction.
Measure 8.2.3-1 c: To the extent possible, grading activities in non-cropped areas shall be limited to the period between April 15 and October 31. If dry conditions persist after October 31, one week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farming practices and construction disturbance.			

PV WMA MITIGATION COMMITMENTS

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ENVIRONMENTAL COMM	TABLE D.3 (Continued) TMENTS FOR THE INTEGRATED COASTAL, D	NSTRIRITIA	
MITIGATION MEASURE	MONFTORING AND REPORTING ACTIONS	REPORTING	MUNITORING
sure 8.2.3-1d: Implement best construction practices at all ng sites, regardless of soil erodibility hazard.		KESPONSIBILITY	SCHEDULE
ure 8.2.3-1e: Upon completion of construction at all loose soils shall be removed or spread and all areas shall soiled and reseeded to ensure that a stable soil cover will a.			
Ire 8.2.3-1f. PVWMA will prepare and implement an tion and maintenance program for the right-of-way and fify sites. The plan will include routine inspection plans porting, and prescriptive methods for correcting erosion instability problems.	8.2.3-1c: Prepare a report that presents the inspection and maintenance program that includes routine inspection plans and reporting, and recommendations for correcting erosion or soil instability problems. Submit this report to the project file.	PVWMA	Prior to project construction.
re 8.2.3-4: Conduct geologic investigations of the d pipeline alignment and pumping facilities prior to the sign, and implement design recommendations. The ations will specify hazards related to corrosion, weak	1.2.3-4a: Prepare a report that presents the results of the cotechnical investigation and includes design recommendations or the project. Submit this report to the project file.	PVWMA's consulting cogineering geologist	Prior to completion of final engineering
ated into the design and specifications and shall be ated into the design and specifications and shall be nited by the construction contractor. The construction shall conduct inspections and certify that all design ave been met. While these measures would not envire dominant.	2.3-4b: Monitor project construction activities to verify ompliance with the recommendations of the geotechnical port. If non-compliance is noted, notify the construction intractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	design. Periodically during project construction.
at design standards have been met and the hazards at design standards have been met and the hazards ould be reduced to an acceptable jevel of risk. Therefore, the ould be reduced to a less than significant level.			•
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TABLE D.3 (Continued) ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.2.3-5: Conduct geologic investigations of the proposed pipeline alignment and pumping, diversion and filtration facilities prior to the final design and implement design eventuations will exactly the final eventuations will exactly the five structure of the five structure of the struc	8.2.3-5a: Prepare a report that presents the results of the geotechnical investigation and includes design recommendations for the project. Submit this report to the project file.	PVWMA's consulting engineering geologist	Prior to completion of final engineering design.
hazards related to ground movements and co-seismic effects, especially liquefaction. The recommendations of an engineering geologist shall be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager shall conduct inspections	8.2.3-5b: Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction.
and certify that all design criteria have been met. While these measures would not ensure that damage to the facilities would not occur, it would ensure that the hazzads have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less than significant level.			
Hydrology and Water Ouality			
Measure 8.3.3-1: Employ construction storm water quality management practices.	8.3.3-1: Monitor project construction activities to ensure that storm water quality management practices are implemented. If non-compliance is noted, notify the contractor of required actions and the deadline for compliance.	Рүшма	Periodically during project construction.
Measure 8.3.3-2: Obtain NPDES permit for construction dewatering and implement conditions of the permit. An NPDES mentit will be required from the RW/OTB for all	8.3.3-2a: Prepare and submit an application for an NPDES permit to the RWQCB.	PVWMA	Prior to project construction.
discharges for construction dewatering. Discharges must meet water quality objectives specified in the Basin Management Plan as described in Section 3.3. The RWQCB may require certain conditions of the permit, such as treatment of the flows prior to discharge.	8.3.3-2b: Monitor construction activities to verify compliance with BMP water quality objectives and any conditions of the NPDES permit. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.

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М	MONITORING / REPORTING SCHEDULE	Prior to project construction. Periodically during project construction.	·	Prior to final engineering design.	Prior to requesting construction bids.	Periodically during project construction.
TRIBUTION SYSTE	MONITORING / REPORTING RESPONSIBILITY	PVWMA PVWMA		PVWMA's consulting archaeologist	PVWMA	PVWMA's consulting archaeologist
TABLE D.3 (Continued) FMENTS FOR THE INTEGRATED COASTAL DIS	MONITORING AND REPORTING ACTIONS	 8.3.3-4a: Review construction plans and maps to ensure that the wells are identified. 8.3.3-4b: Monitor construction activities to verify that wells in and near the project area are avoided. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance. 	·	8.5.3-1a: Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	8.5.3-1b: Prepare contract specifications for the construction contractor that require implementation of the cultural resources mitigation plan developed under the Programmatic Agreement.	8.5.3-1c: Monitor construction activities to ensure that the cultural resources mitigation plan is implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.
ENVIRONMENTAL COMMIT	MITIGATION MEASURE	Measure 8.3.3-4: Avoid construction impacts to the wells. The precise well locations shall be identified in preconstruction surveys. The pipeline construction trench, material stockpile areas and soil excavation stockpiles shall be designated in the construction plans and specifications to specifically avoid impacting the well and access to the wells.	<u>Vegetation and Wildlife</u> See Table 4. <u>Cultural Resources</u>	Measure 8.5.3-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from these identified important cultural resource sites. A qualified cultural resource specialits shall be retained to assist in identifying the areal extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American Commission.	Measure 8.5.3-1b: If important cultural resource sites cannot be avoided, the Pajaro Water Management Agency will enter into a Programmatic Agreement with the U.S. Army Corps of Entimeers the California State Historic Preservation Officer	and the Advisory Council on Historic Preservation to develop an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, recovery and relocation, or stabilization of the resource.

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MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.5.3-2: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified	8.5.3-2a: Submit a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist	
any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources.	8.5.3-2b: Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered.
In addition, pursuant to Sections 5097.107 and 5097.108 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	Preservation and the project file.		
Measure 8.5.3-3a: The resource boundaries shall be marked as exclusion zones both on the ground and on construction maps.	8.5.3-3a: Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	PVWMA's consulting archaeologist	Prior to, and during, project construction.
Measure 8.5.3-3b: Construction supervisory personnel shall be notified of the existence of these resources and required to keep personnel and equipment away from these areas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	8.5.3-3b: Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	PVWMA	Prior to requesting construction bids.

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MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDIILE
Measure 8.5.3-3c: Monthly monitoring of cultural resources to be avoided shall be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities. If damage is deterted a surver	8.5.3-3c: Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	PVWMA's consulting archaeologist	Monthly during project construction.
will be posted to patrol the site and adjacent important resources (such as gravestones and churches). Traffic and Circulation	8.5.3.3d: If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	PVWMA	During project construction, if damage is detected.
Measure 8.6.3-1a (Recommended): Schedule truck trips outside of peak commute hours.	8.6.3-1a: Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-seek house of 4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	рушма	Prior to requesting construction bids.
Measure 8.6.3-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the extent possible.	minimize truck traffic on local roadways.		
Measure 8.6.3-2a: Limit construction hours to off-peak traffic periods on commute streets.	8.6.3-2a: Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	PVWMA	Prior to requesting construction bids.
Measure 8.6.3-2b: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying	8.6.3-2b: Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids.
roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Caltrans and the governing Public Works Departments.	8.6.3-2c: Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction.
Measure 8.6.3-3a: Construction trenches shall be covered by steef trench plates to allow access to driveways.	8.6.3-3a: Monitor construction activities to ensure that steel trench plates are placed on construction trenches along driveways. If non-compliance is noted, notify construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.

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TABLE D.3 (Continued) ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.6.3-3b: To minimize disruption of emergency vehicle access, contractors will work with affected jurisdictions (Santa Cruz or Monterey County or City of Watsonville) to identify detours during construction.	8.6.3-3b: Prepare contract specifications for the construction contractor that require the contractor contact the Santa Cruz County Public Works Department to determine detours.	AMWA	Prior to project construction.
Measure 8.6.3-3c: Police, fire, and emergency services shall be notified of the timing, location, and duration of construction activities and the locations of detours and lane closures.	8.6.3-3c: Send notices to police, fire, and emergency service providers at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place a large sign along San Andreas Road at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction.
Measure 8.6.3-4: Conduct a preconstruction survey of road conditions on key access routes to the project site. The pavement conditions of local streets and designate roads judged to be in good condition for use by heavy truck traffic will be monitored. Roads damaged by construction shall be remained to	8.6.3-4a: Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired.	PVWMA	Prior to project construction.
a condition equal to, or better than, that which existed prior to construction activity.	8.6.3-4b: Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction.
Measure 8.6.3-5a: The traffic control plans prepared by the contractor (see Mitigation Measure 8.6.3-2b) shall include detours for bicyclists.	8.6.3-5a : Review the traffic control plans to ensure that detours for bicyclists are included. If they are not included, notify the construction contractor of required revisions to the traffic control plan and the deadline for submitting the revised plan.	PVWMA	Prior to project construction.
Measure 8.6.3-5b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	8.6.3-5b: Implement Monitoring and Reporting Action 8.1.3-1, above.	PVWMA	Prior to project construction.

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TABLE D.3 (Continued) ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING - SCHEDULE
Air Quality			
Measure 8.7.3-1: The construction contractor shall implement a dust control program.	8.7.3-1a: Prepare contract specifications for the construction contractor that require implementation of a dust control program.	PVWMA	Prior to requesting construction bids.
·	8.7.3-1b: Monitor construction activities to verify that the measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.
Socioeconomics and Public Utilities			
Measure 8.8.2-1: A detailed study identifying utilities along the proposed alignment will be done during the pre-design stages of the project.	8.8.2-1: Conduct a detailed study of utilities along the project alignment and submit a report documenting the results of the study to PVWMA.	PVWMA's consulting engineer	Prior to final engineering design.
Measure 8.8.2-2: Refer to Mitigation Measures 8.6.3-3a, b, c.	8.8.2-2: See Monitoring and Reporting Actions 8.6.3-3a, b, c.		
Measure 8.8.2-5: The PVWMA will establish a procedure to compensate growers for the financial losses that they incur as a result of the impacts caused by the excavation and construction activities that occur in the easements for the placement of the local distribution system. The growers will receive compensation based upon the total amount of farmland disrupted, the amount of time of the disruption, the historical type of crop planted on the land and the current year unit market price for the unplanted crop.	8.8.2-5: Develop a procedure for compensating growers with financial losses resulting from project construction activities. Prepare a report outlining this procedure and submit it to the project file.	PVWMA	Prior to project construction.
VisuaVAesthetic and Recreational Resources			
Measure 8.9.3-1a: The PVWMA will revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	8.9.3-1a: Prepare contract specifications for the construction contractor that require revegetation of disturbed areas, restoration of the topography, and repair of any damaged roads within the project area.	PVWMA	Prior to requesting construction bids.

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APPENDIX D PUWMA MITIGATION COMMITMEINTS

MONITORING 7 REPORTING SCHEDULE Following project construction. ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM REPORTING RESPONSIBILITY MONITORING / PVWMA are revegetated, the topography is restored, and roads are repaired, if necessary. If non-compliance is noted, notify the construction contractor of required actions and the deadline for 8.9.3-1b: Inspect the project area to verify that disturbed areas 8.9.3-2: See Monitoring and Reporting Actions 8.6.3-4, 8.6.3-5a and 8.6.3-5b, above. MONITORING AND REPORTING ACTIONS contractors restore the topography of disturbed areas afong the pipeline alignment to their pre-project condition such that short-erm construction disturbance does not result in long-term and 8.6.3-5b would ensure that damaged roads would be paired to pre-construction conditions, and that detours would be provided for bicyclists and motorists during the construction leasure 8.9.3-2: Implementation of Measures 8.6.3.4, 8.6.3. Measure 8.9.3-1b: The PVWMA will ensure that its MITIGATION MEASURE

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TABLE D.A. TABLE D.A. Thorinal Experimentation Butch Description of Miggrino Description of Miggrino Lootinal ED/# Butch Description of Miggrino Description of Miggrino Tripetion data to open teach Butch Description of Miggrino Description of Miggrino Millere Canal crossing: Data Description of Miggrino Description of Miggrino Millere Canal crossing: Data Description of Miggrino Data proto construction Millere Canal crossing: Data Contentration will be underground (forticonal openetion activity within protection measures) for channels Description of Millere Canal crossing activity within the reconstruction activity within activity activity and activity activity and activity and activity activity and activity and activity activity and activity and activity and activity activity and activity and activity activ
IRONMENTAL COMMITMENTS FOR BIOLOGICAL BASOURCES FOR THE REVISED BMP PRO Jocation ¹ ED # Phet Description of Mitgation Deadline State Jocation ¹ ED # Bref Description of Mitgation Deadline State State Ingelion ditch open themet Statediad protection measures for California Deadline State State Statediad protection measures for California Deadline State Mildres Statediad protection measures for California Deadline Deadline State Statediad protection State
IRONMENTAL COMMITMENTS FOR BIOLOGCICAL RESOURCES FOR THE REVISED BM Location1 ED # PhotoEcological Resources for Allow provide construction Location1 ED # PhotoEcological Resources for Allow prior to construction Indication dited open terrach Sandard protection measure for california Data prior to construction Deadlife Indication dited open terrach Sandard protection measure for california Data protection measure for california Data protection and expension diffing, from programmatic Biologica During construction and expension and expension diffing, from programmatic Biologica During construction and expension diffing, from programmatic Biologica During construction and expension and expension construction and expension and expension and expension of the expension of
IRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES Fi Location ¹ ED # Brief Description of Mitigation Irrigation dich open trench Standard protection measures for California programmatic Biologica Willers Canal trossing: Data Construction will be underground (horizontal and-jack); no construction rection activity within: pro-jack measures for california provint 19 Millers Canal trossing: Data Construction will be underground (horizontal and-jack); no construction familing, microinneling, or bare and and-jack); no construction familing in the indeground for construction familing in the indeground for theindeground for the indeground for the indeground for the
IRONMENTAL COMMITMENT Location ¹ ED # Irrigation ditch open trench crossings Millers Canal crossing: Data point 19 astruction adjacent to nal pool: Data point 26
IRONMENTAL COMM Location ¹ Irrigation ditch open trench crossings Millers Canal crossing: Data point 19 ustruction adjacent to mal pool: Data point 26

	ENVIRONMENTAL COMM	T NITIAI T TA	FOR BIOLOGICAL RESOURCES FO	K I HE KEVISED BMP PRO	DIECT
Agency to Perform Commitment	Location	ED #	Brief Description of Mitigation	Deadline	to fine
PVWMA	Pipeline crossing of culvert within Betabel Road: Data point 7		Exclusionary fencing (orange netting) will be placed between riparian zone and construction areas. Confine construction activities to Betabel Road.	During construction	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fiedged.	15 days prior to construction, During construction	· · ·
F V WMA	Pajaro River crossing west of HWY 101: Data point 14		Construction will be underground (horizontal directional driling, microtunneling, or bore-and-jack).	During construction	
			Exclusionary fencing (orange netting) will be placed between riparian zone and construction areas.		
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
			A qualified biological monitor will be on site during underground stream crossing activities.		
		·	If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests untif young have fledged.	15 days prior to construction, During construction	
AWWA	Open trench crossing of two unnarned drainages near Pescadero Creek: Data points 25 and 27		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction,	
		•		After construction	

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VEPENDIX D

PVWMA MITIGATION COMMITMENTS

ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT (Continued)

sufat	Deadline S	Brief Description of Mitigation	ED #	Location ¹	Agency to Perform Commitment
	15 days prior to construction, During construction	If construction scrivities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established disturbance buffer zones will see the been			
		around active ond nests mult young have			
	noitɔurtɛnoɔ 1əfî A.	Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian cover. Revegetation of wetland CDFG and USFWS and implementation of a monitoring and reporting plan.		Open trench crossing of two unnamed drainages near Pescadero Creek: Data points 25 and 27 (cont.)	AMWVq
	15 days prior to construction During construction,	Standard protection measures for California red-legged frog from programmatic Biological Opinion		Sargent Creek open trench crossing: Data point 24	AMWVq
	After construction				·
	During construction	All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).			
		Capture and relocation of steelhead, water diversion, screened pumping, sediment curtains, spill prevention plan, biological monitor, and site restoration.			
	15 days prior to construction, During construction	If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged.			

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APPENDIX DAMARMENTS APPENDIX D

ENAIBONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT TABLE D.4 (Continued)

 sutat2 oallba	Brief Description of Mitigation De	ED #	Location ¹	Agency to reriorm Commitment
 er construction	Project disturbance corridor width will be		Sargent Creek onen trench	AWWV9
	confined to 40 feet or less in riparian areas.		crossing: Data point 24 (cont.)	
	Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or			
	least riparian cover. Revegetation of wetland			
	and riparian habitat at a ratio acceptable to			
	CDFG and USFWS and implementation of a			
•			· · · · · · · · · ·	
azys prior to construction	Cl Bimotific Strong measures for Californial		Upen trench crossing of	AMWV1
ing construction,	Opinion During the programming Divident Du		23	
er construction	ĤA.			
days prior to construction	Conduct preconstruction surveys for WPT 15 eggs and nests.			
noitoratanoo puri-	urd neeveted betelnmon ed Ifixr portorntanon [[A			
IIODAD SAMA AM	Ince 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to line 15)			
	iles and a strid more the solution			
	Capture and relocation of scienced, water diversion, screened pumping, sediment curtains, spill prevention plan, biological monitor, and site restoration.			
days prior to construction,	If construction activities are scheduled during 15			
นงบุวกฎรนดว ฮินเฺ	the breeding season (March 1 through Du August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have			
	iledged.			
er construction	Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian habitat at a ratio acceptable to CDFG and USFWS and implementation of a monitoring and reporting plan.		Open trench crossing of Pescadero Creek: Data point 23 (cont.)	VWMAd

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ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT (Continued)

Agency to Perform Commitment	Location ¹	¥ ДЭ	Briel Description of Mitigation	Deadline	Status
AWWA	Open trench crossing of		Standard protection measures for California	IS days prior to construction	
	Data point 9		Opinion	During construction,	
			· ·	After construction	
			Preconstruction surveys for California tiger salamander according to CDFG protocol	Two years prior to construction	
			(1998) and burrow excavation and relocation	During construction	
VV dimiu			(cee bage 0-z).		
AMWYY	Open trench pipenne crossing		Standard protection measures for Cantornas red-legged frog from programmatic Biological	nonsuration of fond system of	
	Graniterock property: Data		noiniqO	nung construction,	
	95 HROD			Aiter construction	
			Conduct preconstruction surveys for WPT eggs and nests.	ionursuos of roing systemetro	
АМWVA	Open trench pipeline crossing of Pajaro River on		All construction will be completed between June 15 and November 1 to minimize direct	During construction	
	Graniterock property: Data point 48 (cont.)		impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
			Capture and relocation of steelhead, water diversion, screened pumping, sediment curtains, spill prevention plan, biological		
		,	monitor, and site restoration.		
			If construction activities are scheduled during		
			August 15), preconstruction surveys and no-		
			disturbance butter zones will be established around active bird nests until young have		
			fledged.		

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APPENDIX D

DAMWV WILIGKTION COMMITMENTS

ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT (Continued)

	noitorutenoo refiA	Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of distinage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian tabitat at a ratio acceptable to		
		CDFG and USFWS and implementation of a monitoring plan.		
	15 days prior to construction, During construction,	Standard protection measures for California red-legged frog from programmatic Biological Opinion	Open trench crossing of drainage west of Aromas: Data point 22	AWWA
	During construction	Construction will be underground (horizontal directional drilling, microtunneling, or bore-	Pajaro River pipeline crossing west of HWY 1; Data point 1	AMWVq
		апа-раску; по сонянасной асцуну within 11ранап агеа.		
	· · ·	Exclusionary construction fencing (orange netting) to be placed at around construction areas.	· .	
		All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
		A qualified biological monitor will be on site during underground stream crossing activities.		
	15 days prior to construction, During construction	If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have		
	noitentance of roine such 21	fledged.	:!- nin decent conQ	v y v Annu
	During construction,	Standard protection frog sammatic Biological	Open uench piperme crossings of Watsonville 21 Opurb: User Matsonville	LA MINY
	After construction	noundo	C DUR OC SUILOA DIRA URIDOLO	

EXHIBIT

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Pajaro Valley Water Management Agency

VIERNDIX D

PVWMA MITIGATION COMMITMENTS

ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT (Continued)

Agency to Perform Commitment	^l noitroo.L	ED #	Briel Description of Mitigation	ealibead	sutat2
АМЖУЯ	Pipeline construction adjacent to irrigation ponds		Exclusionary fencing (silt fencing) will be placed between pond and construction areas. Confine construction activities to farm roads and agricultural fields.	During construction	
AMWV9	Pipeline construction adjacent to irrigation ponds (cont.)		If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged.	is days prior to construction, During construction	
VWMAd	Pipeline crossing of Hanson Slough: Data point 38		Construction will be underground (horizontal directional drilling, microtunneling, or bore- and-jack); no construction activity within riparian area.	noitorntenoo gairuC	·
			Exclusionary construction fencing (orange netting) to be placed at around construction areas.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged	15 days prior to construction, During construction	
VWMAd	Pipeline construction adjacent to Harkins Slough: Data point 39		Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to farm roads and agricultural fields.	notionatenoo gainua	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged.	3.5 days prior to construction, During construction	
			/		

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Pajaro Valley Water Management Agency

VPPENDIX D

PVWMA MITIGATION COMMITMENTS

ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT (Continued)

ation ¹ ED # Brief Description of Mitigation	Reference of Mitigation at Mitigation	Deadline	Status
sline crossing at road Standard protection measures for California vert of drainage south of red-legged frog from programmatic Biological from Road: Data point 44 Opinion	Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction, During construction,	
		After construction	
If construction activities are scheduled during the breeding scason (March 1 through August 15), preconstruction surveys and no- distrubance buffer zones will be established around active bird nests until young have thereed	If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established stround active bird nests until young have thedged	LS days prior to construction, During construction	
Acceptions adjacent Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road construction activities to Struve Road and agricultural fields.	Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road and agricultural fields.	noitourtenoo gainud	
If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged.	If construction activities are scheduled during the breeding season (March 1 through August disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
sline crossing of Construction will be underground (horizontal diffing, microtunneling, or bore- and-jack); no construction activity within and-jack); no construction activity within tiparian area.	Construction will be underground (horizontal directional drilling, microtunneling, or bore- and-jack); no construction activity within riparian atea.	noisourtenoo gninud	
Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road and agricultural fields.	Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road and agricultural fields.		
cont.) If construction activities are scheduled during Clusky Slough: Data point the breeding season (March 1 through August disturbance buffer zones will be established around active bird nests until young have fledged.	If construction scrivities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no- disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
ential San Joaquin kit fox Preconstruction surveys of potential dens tiat	Preconstruction surveys of potential dens	15 to 30 days prior to construction	

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Pajaro Valley Water Management Agency

EN	VIRONMENTAL COMM	ITMENTS FO	R BIOLOGICAL RESOURCES FOR	THE REVISED BMP PROJE	ECT
Agency to Perform Commitment	Location ¹	ED#	Brief Description of Mitigation	Deadline Statu	R18
			Implement additional measures from USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox	During construction	
PVWMA	Potential burrowing owl habitat		Preconstruction surveys for occupied burrows	15 days prior to construction	
			Passive relocation or seasonal avoidance of occupied burrows according to the California Burrowing Owl Consortium guidelines	During construction	
1 Data points refer to Fi	 gures B1 through B6 in the Map Aj	ppendix			

Pajaro Valley Water Management Agency

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EXHIBIT

APPENDIX D

PAWAR MITIGATION COMMITMENTS

MILICATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT TABLE D.5

			S-S.A.Z surgement memory instant :1-AZA surgements M	
			sliog bus veology	
		project vicinity at reast one week in advance of the construction. Submit copies of public notices to the project file to document compliance.	See also mitigation measures in Sections 4.A.6, Traffic and Circulation, A.A.4, Air Quality, and 4.A.8, Noise, of this EIR.	
HODOR DEVICO		week in advance of construction. Publish notices in week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along roads in the	Measure 4.A.1-1 (Recommended): Advance notification of construction activities should be provided to all property owners, residents, and businesses in the vicinity of construction areas.	
Prior to project	AMWVq	Send notices to all property owners residents, and	(I	
			gainnelf bus sel bus J	
SCHEDATE REPORTING MONITORING /	KESPORTBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS	MITIGATION MEASURE	

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During and immediately following project construction	gnitluzaco s'AMWV9 121201099 gairsearigas	Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions	(٤	;
construction		design recommendations were included.		
Prior to project	AMWV9	Review construction specifications to ensure that	5)	1
sbid noitourtenoo		as an appendix to construction specifications.		
Prior to requesting	AMWA	Include geotechnical report with recommendations	(1	

applicable City construction and grading ordinances. of the 1994 or 1997 UBC with California additions (CCR Title 24), and design criteria will comply with applicable codes and requirements engineers will implement the recommendations. Geotechnical design and bedrock conditions that could hinder development. Project Recommendations will address mitigation of site-specific, adverse soil preparation prior to or during the project design phase. recommendations applicable to foundation design, earthwork, and site weak or corrosive soils. A licensed geotechnical engineer will prepare techniques for determining the susceptibility of the sites to unstable, be conducted using generally accepted and appropriate engineering expansive soils, and corrosivity. Appropriate geotechnical studies will practices necessary to reduce the potential detrimental effects of with applicable policies and appropriate engineering investigation Measure 5.A.2-2: All diversion and pipeline facilities will comply

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and the deadline for compliance.

V PPENDIX D

SINEWLIWWOO NOLLADITIM COMMITMENTS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

				villerO una Water Ouslicy
			י סע ע	Measure 5.A.2-3f: PVMMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems
				Measure S.A.2-3d: Implement best construction practices at all grading sites, regardless of soil erodibility hazard.
Prior to project construction Prior to project construction immediately following immediately following project construction	PVWMA PVWMA PVWMA's consulting engineering geologist engineering geologist	Obtain Monterey and Santa Cruz County Grading Permits. Review construction specifications to ensure that design recommendations for ASR construction and pipeline installation were included. Monitor project construction activities to verify pipeline installation were included. Monitor project construction activities to verify or project construction activities to verify non-compliance is noted, notify the construction non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	3) 5) (1	 Measure ASR-2: Implement Measures 5.A.2-3a through 5.A.2-3f. Measure ASR-2: Implement Measures 5.A.2-3a through 5.A.2-3f. Measure 5.A.2-3a: All grading and construction will conform to requirements of the Montercy and Santa Cruz Counties Grading requirements of the Montercy and Santa Cruz Counties Grading continences. Measure 5.A.2-3b: Site grading and construction work areas will expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical. Measure 5.A.2-3c: To the extent practical. Measure 5.A.2-3b: Site grading and construction work areas will be trace as possible. Works Department. In areas where the soil is tilled, grading activities will be continued there the county activities will be contained with the local form the County activities will be contained with the local form the County activities will be contained with the local form the County activities will be contained with the local form the county activities will be contained to mort the soil is tilled, grading activities will be contained to more the soil is tilled, grading activities and practices and county activities will be contained with the local form the County activities will be contained to the period between Activities and period between the soil is tilled, grading activities will be contained to the period between the soil at the county activities will be contained to the period between the soil at the county activities and practices and constances and constances between t
SCHEDATE BEFORTING MONITORING /	KESFONSIBILITY Reforting Monitoring /	MONITORING AND REPORTING ACTIONS		ARUZAZIN MOITAJITIM

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of surface water does not occur.

injection/extraction well development, initial pumping, and backwashing as well as long-term operational maintenance shall be conducted in accordance with NPDES permit issued through the RWQCB to ensure that degradation

Measure ASR-3: All groundwater discharges associated with

contractor of required actions and the deadline for

non-compliance is noted, notify the construction

compliance with NPDES permit requirements. If

Monitor project construction activities to verify

compliance.

construction

AMWV9

During project
VPPENDIX D

PVWMA MITIGATION COMMITMENTS

WILLIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT MITTIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

SCHEDREE REFORTING MONITORING /	BESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		MITIGATION MEASURE
Prior to final engineering design During, and following, project construction	АМWУЧ 7 И, Ч	Review engineering design to ensure that design meets regulations listed in Measure 5.D.3-4a. Monitor project operation to verify compliance with regulations listed in Measure 5.D.3-4a. If non- compliance is noted, notify the construction compliance of required actions and the deadline for compliance.	(z (1	Measure ASR-4a: The PVWMA will operate the proposed project in compliance with the Surface Water Treatment Rule, Safe Drinking Water Act, where applicable, the SWRCB's Antidegradation Policy, and applicable DHS regulations regarding drinking water quality. Water injected into the groundwater aquifers from surface sources would be drinking water and those set forth by SWRCB's Antidegradation Policy. The RWQCB has regulatory authority over injectate water quality standards for groundwater degradation not occur and that injectate water meet both primary and secondary Title 22 standards. Federal and state drinking water groundwater degradation not occur and that injectate water due to that groundwater degradation not occur and that injectate water meet both primary and secondary Title 22 standards. Federal and state drinking water for many constituents, including fecal coliform, heavy metals, torsondary Title 22 standards. Federal and state acceptable concentrations for many constituents, including fecal coliform, heavy metals, TDS, and for many constituents, including fecal coliform, heavy metals, TDS, and
Following project completion	PVWMA or PVWMA's consulting engineer	Monitor surface water intended for injection to determine compliance with applicable federal and state regulations. If non-compliance is noted, notify regulatory agencies and, in consultation with the agencies, adjust water treatment methods to reduce contaminants to levels below the federal and state contaminants to levels below the federal and state drinking water standards.	(1	Mutates. Material and the power will prepare and implement a treatment and monitoring program to ensure that surface water intended for injection is monitored and adequately treated so that applicable federal and state frinking water standards are not exceeded. Proposed injectate will require treatment to meet Surface Water Treatment Rule provisions and to remove, among other potential constituents, nitrate, iron, manganese, and potentially aluminum and arsenic. Treatment of the water to meet regulatory aluminum and arsenic. Treatment of the water to meet regulatory requirements could require multiple treatment technologies. Given the miscitate, compliance with the Surface Water Treatment technologies. Given the miscitate, compliance with the Surface Water Treatment technologies. Given the sedimentation, filtuation, and distinfection. Removal of dissolved protection, filtuation, and distinfection. Removal of dissolved predimentation, filtuation

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standards, will require additional treatment technologies, such as reverse osmosis and ion exchange. The PVWMA will prepare and implement a plan that addresses regular monitoring of surface water sources and defines adequate treatment methods to reduce concentrations of contaminant, if present, to levels below the federal and state drinking water standards.

SCHEDAFE BEFORTING MONITORING /	KESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS	MITICATION MEASURE
Foliowing conceptual well field delineation	АМWA	 Γτερατε hydrogeologic feasibility study. 	Measure ASR-5: PVWMA will complete a hydrogeologic feasibility study and testing for the proposed injection/extraction well field prior to design.
Prior to Tinal engineering design	АМЖУЯ	2) Review the groundwater monitoring plan to ensure that it includes procedures to adjust, if necessary, injection/extraction rates to avoid mounding and drawdown.	PWMM will develop a groundwater monitoring plan to monitor the groundwater develop a groundwater monitor the trocedures to adjust, if necessary, the injection/extraction rates to avoid adverse aquifer response such as injection/extraction rates to avoid adverse aquifer response such as mounding or drawdown.
Prior 10 final Prior 10 design	gnitluscos e'AMWYq srchaeologist	 Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites. 	Cultural Resources Measure ASR-6a: As part of the siting study for wells, PVWMA will retain an archaeologist to conduct archival research and surface reconnaissance of potential sites. The findings of the investigations will be incorporated into the selection of specific locations for wells and attendant connecting pipelines at that PVWMA will avoid siting wells and attendant connecting pipelines at or through any significant cultural resources.
Prior to final engineering design	gnitiuans's consulting archaeologist	4.B.S-1a: Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	Measure ASR-6b: Implement Measures 4.B.5-1a and 4.B.5-1b. Measure 4.B.5-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from identified cultural
Prior to requesting construction bids	PVWMA's consulting srchaeologist	4.B.S-1b: Prepare contract specifications for the construction contractor that require implementation of the cultural resources mitigation plan developed under the Programmatic Agreement.	resource sites. A quantited cultural resource speciality takin be retained to assist in identifying the extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American community and the Native American Heritage Commission.
During project construction	PVWMA's consulting archaeologist	 Monitor construction activities to ensure that the cultural resources mitigation plan is implemented. If non-compliance is noted, notify the construction 	Measure 4.B.S-Ib: If important cultural resource sites cannot be avoided, PVWMA will coordinate with local, state, and federal agencies in the development of an appropriate mitigation plan for the

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

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relocation, or stabilization of the resource.

resources may include documentation and recordation of the resource,

cultural resource. Possible mitigation measures for important cultural

contractor of required actions and the deadline for

compliance.

PVW/WF/TIGATION COMMITMENTS

WILICVLION WONILOBING VAD REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT (Continued)

SCHEDATE REBORLINC WONLLORING \	RESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS	MITIGATION MEASURE
			Measure ASR-7: Implement Measure 4.A.S-I.
During project construction, if potential resources are encountered	PVWMA's consulting archaeologist	 Prepare a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file. 	Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or anchitectural temains be encountered atrifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PWWM staff will be contacted. A qualified cultural resource specialist shall be retained and will perform any necessary
running project potential resources are encountered	Providence	2) Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	Investigations to determine the significance of the ind. PVWMA will then implement any initigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and discovery of human remains, all work must be halted and the County to be Native American, guidelines of the Native American Heritage to be Native American, guidelines of the treatment and disposition of the remains.
Prior to, and during, project construction	PVWMA's consulting archaeologist	4.B.5-38: Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	Measure ASR-8: Implement Measures 4.B.5-3a through 4.B.5-3c. Measure 4.B.5-3a: The resource boundaries should be marked as
Prior to requesting sbid notionitenoo	AMWVq	4.B.5-3D: Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	excitution zones both on the ground and on construction maps. Measure 4.B.5-3b: Construction supervisory personnel should be notified of the existence of these resources and be required to keep personnel and equipment away from these areas. During construction and onerstings personnel and equipment will be restricted to the

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surveyed corridor.

PPENDIX MITIGATION COMMITMENTS

WILLIGYLION WONILOBING VAD BEFORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT
TABLE D.5 (Continued)

SCHEDAFE BEFORTING MONITORING /	RESPORTING / MONITORING /	MOUITORING AND REPORTING ACTIONS		MITICATION MEASURE
project construction	PVWMA's consulting archaeologist	Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	(1	Measure 4.B.5-3c: Monthly monitoring of the cultural resources to be avoided should be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related
During project construction, if damage is detected	AMWV9	If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	(7	activities. It damage is detected a guard will be posted to pairol the site and adjacent important resources (such as gravestones and churches).
				<u>Traffic and Circulation</u>
Prior to requesting construction bids	AMWV4	Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-near hours and that have contents	(1	Messure S.D.6-1 (Recommended) : Implement Messures 4.A.6-1b. 4.A.6-1b.
		scheduled during on peak nous and that had routed be selected to minimize (ruck traffic on local routed) roadways.		Measure 4.A.6-1a (Recommended): Schedule truck trips outside of peak commute hours.
				Measure 4.A.6-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the extent possible.
				Measure ASR-9: Implement Measures 4.B.6-2a and 4.B.6-2b.
Prior to requesting construction bids	VWMAd	Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	(1	Measure 4.B.6-28: Limit construction hours to off-peak traffic periods on commute streets.
Prior to requesting sbid notiouriton bids	ې VWMAd	Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	(1	Measure 4. B.6-2b: The contractor shall be required to prepare traffic flows. control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special flow of the flow of the state of the stat
Prior to project construction	PVWMA, Caltrans, Santa Cruz County Public Works Department	Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	(7	dencing recondence would be used to minimize impacts to traine now and operations. The traffic control plan shall be reviewed for appropriatences, and approved by Calitans and the governing Public Works Departments.

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APPENDIX D

PVWAR MITIGATION COMMITMENTS

WILLEVILON MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT
(Continued) 2. (Continued)

steel PVWMA Periodically during bes project construction a the construction provide PVWMA Prior to project ction PVWMA Prior Prior to project ction PVWMA Prior Prio			MITICATION MEASURE
atteel PVWMA Periodically during hes hes project construction for to project construction for to project crion PVWMA Prior Pri			.e.f. fitrough the second of the second s
ction PVWMA Prior to project construction construction construction crion PVWMA Prior to project construction provided and construction construction and sand sand construction construction sand construction constructicon construction construction construction const	Monitor construction activities to ensure that a trench plates are placed on construction trench along driveways. If non-compliance is noted, construction contractor of required actions and deadline for compliance.	(1	Measure 4.B.6-3a: To minimize disruption of emergency vehicle access and maintain access to driveways to adjacent land uses, PVWMA would require the contractors to maintain steel trench plates at the construction sites to restore access across open trenches. Construction trenches shall not be left open after work hours.
rvice PVWAA Prior to project construction ction PVWAA Prior to project survey construction and and	Place a large sign along roadways in the projec vicinity at least one week in advance of construction.	(1	Measure 4.B.6-3b: To minimize disruption of emergency vehicle access, affected jurisdictions will be asked to identify detours to be posted by contractor.
ction PVWMA Prior to project survey Construction and Construction dat	Send notices to police, fire, and emergency ser providers at least one week in advance of construction.	1)	Measure 4.B.6-3c: The contractor will notify the appropriate police, fire, and emergency services of the timing, location, and duration of construction activities and the locations of detours and lane closures prior to beginning construction in the immediate vicinity of affected roadways.
bas ba	Prepare contract specifications for the construc Prepare contract specifications for the construction s	(1	Measure A.A.A.: Implement Measure 4.A.6-2. Measure 4.A.6-2: Conduct a preconstruction survey of road Measure 4.A.6-2: San Andres to the project sites (e.g., San Andreas
re that PVWMA Following project ion, if construction e d the	of key routes to the project site be conducted, s that roads damaged by construction be repaired inspect access roads to the project site to ensur roads are repaired following project constructi necessary. If roads are not repaired, notify the construction contractor of required actions and	(7	Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction shall be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.

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APPENDIX D

PYWAR MITIGATION COMMITMENTS

WILLEVILON WONILOBING VAD BEFORTING PROCRAM FOR THE SUPPLEMENTAL WELLS PROJECT (bounitno2) 2.G AJBAT

Prior to requesting construction bids	AMWVq	Prepare contract specifications for the construction contractor that require implementation of a dust	(1	Measure 4.A.7-1: The construction contractor shall implement a dust control program that includes the following elements:
				ni bedraseb margorq fontoo tau dument described in I-7.A.4 suvesim
				<u>xiikuQ tiA</u>
Prior to project construction	AMWV9	Review the traffic control plan to ensure that it considers other planned traffic detours related to consider other planned detours, notify the construction contractor of required actions and the construction contractor of required actions and the deadline for compliance.	(1	Measure 5.A.6-7: The traffic control plan shall include consideration Measure 5.A.6-7: The traffic control plan shall include consideration of any other planned traffic detours related to nearby and concurrent construction projects.
uoitoutsuos		Send nonces to an property owners, residenty and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place a large sign along each affected roadway at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	ίτ	Measure A.R.J. 19. Condactor man provide advanced public notification of construction activity and roadway/access closures.
Prior to requesting construction bids Prior to construction	AMWV9 AMWV9	Prepare contract specifications for the construction contractor that require preparation of a traffic safety and control plan. Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	(z (1	Measure 4.A.6-3s: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plans prepared by the contractor shall include recommended detours for bicyclists. The traffic control plan shall be reviewed for appropriateness, and approved by the governing Public Works Department.
SCHEDULE REPORTING MONITORING /	RESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		ARUSAAM NOITADITIM .de-3.a,4 bas se-3.a,4 s91u2s9M inemejqui :SI-ASA 91u2s9M

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Pajaro Valley Water Management Agency

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Revised BMP Draft EIS

TABLE D.5 (Continued) MITIGATION MONITORING AND REPORTING PROCRAM FOR THE SUPPLEMENTAL WELLS PROJECT

SCHEDRLE REFORTING MONITORING /	KESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		MITICATION MEASURE	
Periodically during Project construction	AMWVq	control program. Monitor construction activities to verify that the measures of the dust control program are	(7	Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.	•
		implemented. It non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.		Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	•
				Sweep daily (with water sweepers) all paved access roads, paved	٠

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 Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

parking areas and paved staging areas at construction sites.

- Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower.
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

APPENDIX D

project construction

Periodically during

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AMWVq

PYWMA MITIGATION COMMITMENTS

WILLICYLION WONILOBING VND BEFORTING FROCKAM FOR THE SUPPLIAL WELLS PROJECT TABLE D.5 (Continued)

Prior to requesting	AMWV9	1) Prepare contract specifications for the construction	Measure 4.A.4. SMWVA shall incorporate into contract
			.I-8.A.2 A.Resure M. molensing miles d. A.A.
SCHEDULE REPORTING MONITORING /	RESPONSIBILITY REPORTING MONITORING /	MOUITORING AND REPORTING ACTIONS	MITICATION MEASURE

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construction contractor of required actions and the

2) Monitor construction activities to verify that the

.I-8.A.4 sures in measures in Measure 4.A.4.

contractor that require implementation of noise

implemented. If non-compliance is noted, notify the measures of the noise control measures are

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specifications the following measures: icontestinos oun statogroom flada AMWV9 :1-8.A.h stuzesM

- regulations, and ordinances. Comply with all local sound control and noise level rules,
- .etosqnii ezion attenuating shields or shrouds) in order to minimize construction use of intake silencers, ducts, engine enclosures and acoustically the best available noise control techniques (including mufflers, Equipment and trucks used for project construction shall utilize

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- rather than impact equipment) whenever feasible. of 5 dBA. Quieter procedures shall be used (such as drilling would be used where feasible, and this could achieve a reduction by up to about 10 dBA. External jackets on the tools themselves shall be used; this muffler can lower noise levels from the exhaust unavoidable, an exhaust muffler on the compressed air exhaust However, where use of pneumatically powered tools is with compressed air exhaust from pneumatically powered tools. electrically-powered wherever possible to avoid noise associated rock drills) used for project construction shall be hydraulically- or Impact equipment (e.g., jack hammers, pavement breakers, and
- receptors, they shall be adequately muffled. receptors as possible. If they must be located near existing Stationary noise sources shall be located as far from sensitive .
- impacts to residences adjacent to construction sites. Temporary walls may be erected at some locations to reduce noise

Pajaro Valley Water Management Agency

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D-62

Revised BMP Draft EIS

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

SCHEDALE BEPORTING MONITORING /	REPORTING REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		MITIGATION MEASURE
Prior to final Prior to final design	АМWV9	Prepare contract specifications for the construction contractor that include measures listed in Measure 5.B.8-2.	(1	Measure 5.D.8-2: Implement Measure 5.B.8-2. Measure 5.D.8-2: Implement Measure 5.B.8-2.
βετίοdically during project construction	ሏጠሢህዊ	Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(7	specifications the following measures: The pumping facilities shall be designed with acoustical treatments (building enclosures, louvered vents, noise walls, etc.) that are adequate to maintain potential noise generation to levels at or below ambient levels.
Prior to final Brior to final engineering design	AMWV¶	Submit documentation of consultation with PG&E to the project file to ensure that adequate capacity is available.	(1	Public Services Measure 5.D.9-3: The design of all pump facilities with a potential to exceed the capacity of existing PG&E systems will be coordinated with PG&E to ensure adequate capacity is available.
Prior to requesting	АМѠѴЧ	Prepare contract specifications for the construction contractor that require revegetation of disturbed areas.	(1	<u>Visual/Aesthetic and Recreational Resources</u> Measure 5.D.10-1: Implement Measure 4.A.10-1a through 4.A.10-1c. Measure 4.A.10-1a: The PWWM shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation areas to minimize textural contrasts with the surrounding vegetation missing grasses, shrubs and trees typical of the immediately surrounding
Following project	2'AMWVA or PVWWY9 seigoloid gaiiliseoo	Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	5)	BJB

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PVWMA MITIGATION COMMITMENTS

TABLE D.5 (Continued) MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

SCHEDNER REPORTING MONITORING /	KESPONSIBILITY REPORTING MONITORING /	MONITORING AND REPORTING ACTIONS		WILICELLON MEASURE
Prior to final வேது்ரைகள்து கேர்நாது	AMWVq	Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings	(I	Measure 4.A.10-1D: The PMWVF shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth- their surrounding terrain.
Prior to requesting construction bids	AMWVq	Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	(1	Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result
Following project construction	∆ ₩₩A¶	Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(7	n jong-tem visual impacts.
				Mitigation Measure S.D.10-2 (Recommended): Implement Measure 4.A.10-2.
Prior to requesting construction bids	AMWVq	Prepare contract specifications for the construction contractor that include exterior lighting mitigation listed in Measure 4.A.10-2.	(1	Mitigation Measure 4.0.10-2 (Recommended): The PWWV shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from the provided of the stars. If necessary landershing shall be
During and following construction	AMWVI	Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	(z	and/or finishes shall not be used in the designs for proposed structures. The designs of provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.

APPENDIX B SUMMARY OF IMPACTS AND MITIGATION MEASURES OF THE ICDS PROJECT

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ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION	XHIBI
8.1 Land Use and Planning - Coastal Distribution			
Impact 8.1.3-1 : Construction of the proposed coastal distribution system would result in short-term disturbance of adjacent land uses.	Mitigation Measure &1 3-1: The PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas. Additionally, measures identified in Sections 8.6.3, Traffic, and 8.7.3, Air Quality, will be implemented	Less than significant.	
Impact 8.1.3-2: The proposed coastal distribution system would be generally consistent with policies of the Santa Cruz County General Plan/LCP and the Monterey County General Plan, North County <i>Area</i> Plan, and North County LUP/LCP.	None required.	Less than significant.	6
8.2 Geology and Soils - Coastal Distribution System			L
Impact 8.2.3-1: Construction of the proposed pipelines would result in accelerated erosion and attendant loss of soil resources and effects on sediment discharges in water courses. The impact would be significant on slopes over 2 percent and in grass with	Mitigation Measure 8.2.3-la: All grading and construction shall conform to requirements af the Santa Cruz County Grading Ordinance and Monterey County Grading Ordinance.	Less than significant.	
soils having moderate or greater erosion hazard, which includes the entire area of the coastal distribution system.	Mitigation Measure 8.2.3-1b : Site grading and construction work areas shall expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical.		
	Mitigation Measure 8.2.3-1c : To the extent possible, grading activities in non-cropped areas shall be limited to the period between April 1 and October 31. If dry conditions persist after October 31, one week extensions of grading activities should be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities should be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance.		

TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

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SUMMAR	Y OF IMPACTS AND MITIGATION MEASURES			
ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION		
	Mitigation Measure 8.2.3-Id Implement best construction pracuces at all grading sites, regardless of soil erodibility.			
	Mitigation Measure 8.2.3-le: Upon completion of construction at all sites, loose soils shall be removed or spread and all areas shall be re-soiled and reseeded to ensure that a stable soil cover will remain			
	Mitigation Measure 8.2.3-1f : PVWMA should prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan should include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.		R	
Impact 8.2.3-3: The project would result in a less than significant loss of prime agricultural soils.	None required.	Less than significant.	U .	
Impact 8.2.3-4: Proposed pipelines on the Pajaro floodplain pass through areas with Clear Lake clay soils that are weak soils subject to settlement, expansive soils and potentially corrosive soils that could damage the proposed facilities.	Mitigation Measure 8.2.3-4: Conduct soil engineering investigations of the proposed pipeline alignments prior to the final design and implement design recommendations. The investigations should specify hazards related to weak soils and settlement, including differential settlement. The recommendations of an engineering geologist shall be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager shall conduct inspections and certify that all design criteria have been met. While these measures would not ensure that some damage to the facilities would not occur, it would ensure that design standards have been met and the hazards have been reduced to an acceptable level of risk. Therefore, the impact would be reduced to a less than significant level.	Less than significant.		

TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

SUMMARY	TABLE 1 (Continued) Y OF IMPACTS AND MITIGATION MEASURES		BIT
ENVIRONMENTALIMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
Impact 8.2.3-5: Large earthquakes would be expected to damage the proposed facilities, impairing and/or disrupting their intended operations.	Mitigation Measure 8.2.3-5: Conduct geologic investigations of the proposed pipeline alignment and pumping facilities prior to the final design and implement design recommendations. The investigations should specify hazards related to ground movements and co-seismic effects, especially liquefaction. The recommendations of an engineering geologist shall be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager shall conduct inspections and certify that all design criteria have been met. While these measures would not ensure that damage to the facilities would not occur, it would ensure that the hazards have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less than significant level.	Less than significant	д /
8.3 Hvdrology and Water Ouality – Coastal Distribution			
Impact 8.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigation Measure 8.33-1The PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas.	Less than significant.	
Impact 8.3.3-2: Construction activities at the proposed project site could result in dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 4.3.3-2: Employ construction storm water quality management practices.	Less than significant.	
Impact 8.3.3-3: Development at the project site may expose structures to flood hazards. However, after construction, all of the project pipeline will be underground and will not cause a flood hazard.	None required.	Less than significant.	

	8.4 Vegetation and Wildlife – Coastal Distribution Impact 8.4.3-1—Wetlands: Construction of the proposed project could result in temporary impacts of up to 2.4 acres of streambeds and banks. Potential impacts could occur due to sedimentation of the channels outside of the construction area during trenching activities, and loss of riparian vegetation and stream function as wildlife and fishery habitat.	Impact 8.3.3-5: The coastal distribution system project would convey water to agricultural lands for irrigation, thereby decreasing the need to pump groundwater.	Impact 8.3.3-4: The proposed pipeline would be constructed wat adjacent to a number of wells. Construction activities could provide the wells or block access to the wells.	ENVIRONMENTAL IMPACT	SUMMARY OF
Appendix B-4	Mitigation Measure 8.4.3-1a—Avoidance of Wetlands: All crossings of jurisdictional areas at the Pajaro River, McClusky Slough, Watsonville Slough and the unnamed ephemeral Slough, Watsonville Slough and the unnamed ephemeral feasible by project construction, maintaining all facilities feasible by project construction, maintaining all facilities outside the jurisdictional area defined by riparian or emergent outside the lower crossing of Watsonville Slough by extending and the lower crossing of Watsonville Slough by extending and and the lower crossing of Watsonville Slough by extending and possibly enlarging nearby laterals shall be incorporated into the final design. Bore and jack methods shall be used to install the final design. Bore and jack methods shall be used to install the potentially occurring in the waterways (see Impact 8.4.3-2). If potentially occurring in the waterways (see Impact 8.4.3-1b.	None required.	Aitigation Measure 8.3.345: Avoid construction impacts to vell. The precise well location shall be identified in vell. The precise well location shall be identified in reconstruction surveys. The pipeline construction trench, anterial stockpile areas and soil excavation stockpiles shall be lesignated in the construction plans and specifications to pecifically avoid impacting the well and access to the well.	AITIGATION	TABLE 1 (Continued) IMPACTS AND MITIGATION MEASURES
	Less than significant.	Beneficial.	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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	ENVIRONMENTAL IMPACT		
 Mitigation Measure 8.4.3-1b—Implement Journal Control Protective Measures to Maintain Water Quality and Control erosion and sedimentation: Standard measures to maintain Erosion and Sediment Curains, placing spoil diversions as teasible, use of sediment curains, placing spoil diversions as teasible, use of sediment curains, placing spoil diversions as teasible, use of sediment curains, placing spoil diversion wetlands, and revegetating impacted wetland vegetation wetlands and materials outside the prevention plan, storing equipment and materials outside the prevention of a detailed revegetation plan approved by the Corps according to a detailed revegetation plan approved by the Corps (McClusky Slough wetlands and Watsonville Slough forest, McClusky Slough wetlands and Watsonville Slough forest, McClusky Slough wetlands and Watsonville Slough period of 3:1 to replace lost wegetation, specifications for after ratio of 3:1 to replace lost wegetation, specifications for after installation care, weed control, and monitoring for a three year installation following installation. Wetland restoration shall include period following installation. Wetland restoration shall include reinstallation, weed reinstallation following the completion of construction, weed reinstallation following the completion for specific and replacement consist of measures, as needed. Revegetation materials shall consist of measures, as meeded. Revegetation specifies. 	MITIGATION	TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES	
		VEL OF SIGNIFICANCE AFTER MITIGATION	F

	· · · · · · · · · · · · · · · · · · ·			Impact 8.4.3-2: Construction of facilities in and near wetlands could result in temporary loss of up to 2.4 acres of habitat for special status animal species. Impacts could occur due to increased sedimentation in streams, dewatering of pools, habitat loss through vegetation removal, destruction of nests and burrows and construction disturbance.	ENVIRONMENTAL IMPACT	SUMMARY	
Appendix B-6	Mitigation Measure 8.4.3-2dProtection of Nesting Special Status Birds: To avoid conflicts with nesting raptors, yellow warblers and tricolored blackbirds, construction activities within 500 feet of Valley Foothill Riparian or Fresh Emergent Wetland habitat shall begin prior to or after the nesting season (March to July).	Mitigation Measure 8.4.3-2cSurvey, Consultation and Protection Measures for special status wildlife species: As part of the habitat assessment, potential habitat for the California red-legged frog was found to be present at Watsonville Slough. Potential habitat may also be present for Santa Cruz long-toed salamander. Central Coast steelhead, and tidewater goby are present at the Pajaro River, and potential habitat for California red-legged frog was identified here as well. As a result, PVWMA will initiate formal consultation with USFWS and CDFG if these areas will be impacted.	Mitigation Measure 8.4.3-2bProtect Riparian and Wetland Habitat: Erect exclusion fencing during construction along the edge of riparian and wetland vegetation where the construction area is within 25 feet of the riparian zone.	Mitigation Measure 8.4.3-2a-Avoid Loss of Riparian and Wetland Habitat: Avoid removal or damage to all riparian and wetland vegetation within the project corridor using bore and jack and/or directional drilling techniques to avoid all impacts to McClusky Slough and to the lower crossing of Watsonville Slough, resulting in a potential reduction of 0.8 acres of sensitive wildlife habitat.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES	
				Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION		
		- 6	84		EXHI	BIT E	, ł

Impact 8.4.3-3: Construction of facilities in coastal scrub habitat above the Watsonville Slough could result in temporary or permanent impacts to special status plant species.		ENVIRONMENTAL IMPACT	SUMMARY
Mitigation Measure 8.4.3-3— <i>Protection of Special Status</i> <i>Plants:</i> Prior to construction of the lower Watsonville Slough crossing, preconstruction surveys for the robust spineflower shall be carried out during the flowering period of this species, May-September. If any populations are found, they will be flagged and avoided during construction.	Mitigation Measure 8.4.3-2e Protection of Steelhead Migration Habitat: Impacts to steelhead smolt passage shall be reduced by avoiding construction in the Pajaro River until after June 1, when smolt are assumed to have completed their migration.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
Less than significant		LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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	Impact 8.5.3-2: Ground-disturbing activities associated with t proposed coastal distribution system could reveal previously unknown buried or otherwise obscured significant prehistoric i historic cultural resources.			8.5 <u>Cultural Resources - Coastal Distribution</u> Impact 8.5.3-1: Construction activities associated with the proposed coastal distribution system may result in the alteration or destruction of identified cultural resources.	ENVIRONMENTAL IMPACT	SUMMARY OF	
Appendix B-8	he Mitigation Measure 8.5.3-3 presented under impact to a applied to these sites, if present, would reduce this impact to and Less than significant level.	resource. Mitigation Measures 8.5.3-1a and 8.5.3-1b presented under Mitigation Measures 8.5.3-1a to these sites would reduce this impact Impact 8.5.3-1 applied to these sites would reduce this impact Impact 8.5.3-3 applied to these sites would reduce this impact to a Less than significant level.	Mitigation Measure 8.5.3-1b: If important curves and several agencies in the sites cannot be avoided, the Parajo Water Management Agency will coordinate with local, state, and federal agencies in the development of an appropriate mitigation plan for the cultural development of an appropriate mitigation and recordation of the resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, recovery and relocation, or stabilization of the	Mitigation Measure 8.5.3-1a: Final pipeline and facility purper shall locate facilities and pipeline alignments away from these identified important cultural resource sites. A qualified cultural resource specialist shall be retained to assist in identifying the areal extent of important cultural resource sites cultural resource evaluation of detailed identifying the areal extent of important cultural resource sites to be avoided, which may include the preparation with local, to be avoided, which may include the preparation with local, state, and federal agencies as well as the local Native American Commission.	MITIGATION	TABLE 1 (Continued) IMPACTS AND MITIGATION MEASURES	
		Less than significant.		87	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION EXHIBIT	E

	 Impact 8.5.3-3: Potential induced improve of the increased access to primarily vandalism, could result from the increased access to could result in the loss of integrity of important cultural resources. 8.6 Traffic and Circulation - Coastal Distribution Impact 8.6.3-1: Traffic on area roadways would increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities. 	SUMMARY (
Appendix B-9	 cultural resources, second architectural remains, or amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to retained and will perform any necessary investigations to addeermine the significance of the find. PVWMA will then on determine the significance of the find. PVWMA will then on determine the significance of the find. PVWMA will then on addor protection of the cultural resources. Although this impact would be less than significant, the nitigation measures presented under Impact 8.6.3-1 are mitigation Measure 8.6.3-1a (Recommended): Schedule Mitigation Measure 8.6.3-1b (Recommended): Use haul Mitigation Measure 8.6.3-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the routes that minimize truck traffic on local roadways to the extent possible. 	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES MITIGATION Mitigation Measure 8.5.3-3: Should any as yet undiscovered Mitigation Measure 8.5.3-3: Should any as yet undiscovered
	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION Less than significant.
	87	EXHIBIT E

			land uses for both general and emergency access to	8.6.3-3: Protect construct		for vehicles traveling past the construction zone.	ct 8.6.3-2: Project construct	SUMMA
Mitigation Measure 8.6.3-3c: Police, fire, and emergency services should be notified of the timing, location, and duration of construction activities and the locations of detours and lane closures.	Mitigation Measure 8.6.3-3b: To minimize disruption of emergency vehicle access, contractors will work with affected jurisdictions (Santa Cruz or Monterey County or City of Watsonville) to identify detours during construction.	Mitigation Measure 8.6.3-3a: Construction trenches would be covered by steel trench plates to allow access to driveways.	Mitigation Mcasures presented under Impact 4.6.3-3 would reduce this impact to less than significant levels.	Mitigation Measure 8.6.3-2b: The construction contractor shall prepare traffic safety and control plans to show specific identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for Public Works Departments.	Mitigation Measure 8.6.3-2a: Limit construction hours to off-peak traffic periods on commute streets.	Mitigation Measures presented under Impact 8.6.3-2 would reduce this impact to less than significant levels.	MITIGATION	TABLE 1 (Continued) RY OF IMPACTS AND MITIGATION MEASURES
· · · ·			Less than significant.			Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	

					Impact 8.6.3-5: Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.		Impact 8.6.3-4: Project construction would increase wear-and- tear on area roadways used by construction vehicles.	ENVIRONMENTAL IMPACT	SUMMARY
• Water all active construction sites at least twice daily.	Mitigation Measure 8.7.3-1: The construction contractor shall implement a dust control program that includes the following elements:	Non Required	Mitigation Measure 8.6.3-5b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	Mitigation Measure 8.6.3-5a: The traffic control plans prepared by the contractor (see Mitigation Measure 8.6.3-2b) shall include detours for bicyclists.	Mitigation Measures presented under Impact 8.6.3-5 would reduce this impact to less than significant levels.	Mitigation Measure 8.6.3-4: Conduct a preconstruction survey of road conditions on key access routes to the project site. The pavement conditions of local streets and designate roads judged to be in good condition for use by heavy truck traffic should be monitored. Roads damaged by construction should be repaired to a condition equal to, or better than, that which existed prior to construction activity.	Mitigation Measures presented under Impact 8.6.3-4 would reduce this impact to less than significant levels.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
	Less than significant.	Less than significant.		·	Less than significant.		Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
				8	7		EX	HIBIT	E

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	 Impact 8.7.3-2: Lane closures and detours necessitated b construction of the project could temporarily increase veh emissions. Impact 8.7.3-3: Vehicle trips resulting from operation an maintenance of the various components of the project wo generate emissions of criteria air pollutants. 			ITTIONIMENITAT. IMPACT	SUMM
Apcomix B-1Z	y icular nd uld	 Install sandbags or other erosion control measures prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quictly as possible. 	 Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least tw of freeboard. Pave, apply water three times daily, or apply (non-tt tic) soil stabilizers on all unpaved access roads, parking treas and staging areas at construction sites. Sweep daily (with water sweepers) all paved access oads, paved parking areas and paved staging areas at contruction sites. Sweep streets daily (with water sweepers) if visible oil material is carried onto adjacent public streets. Hydroseed or apply (non-toxic) soil binders to inac ve requested by the grower. Enclose, cover, water twice daily or apply (non-to) :) soil binders to exposed stockpiles (dirt, sand, etc.). Limit traffic on unpaved roads to 15 mph. 	MITTIGATION	ARY OF IMPACTS AND MITIGATION MEASURES
	Less than significant.	Less than significant.		AFTER MITIGATION	

	 Impact 6.8.4-2: Pripetine construction could temporarily impact vehicle access to emergency services as well as to collection and delivery services. This impact could affect Counties' Sheriff's Departments, fire departments, emergency services (e.g. ambulance companies), delivery and collection services. 	Impact 8.8.2-1: Pipeline and/or facility construction could result in temporary, planned or accidental disruption to utility services provided by underground lines.	8.8 Socioeconomic and Public Utilities - Coastal Distribution	ENVIRONMENTAL IMPACT	SUMMARY
	ivilugation preasure 0.0.2.2. Acted to pringation preasures 8.6.3-3a, b, c.	Mitigation Measure 84.8.2-1: A detailed study identifying utilities along the proposed alignment will be done during the pre-design stages of the project.		MITIGATION	TABLE 1 (Continued) 7 OF IMPACTS AND MITIGATION MEASURES
		Less than significant.		LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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Appendix B-15

 economic impacts on some smark, economicarly and force them out of business. However, cost increases attributable to the project would be less than two percent to net returns. In addition the increase in irrigation water fees will tend to be mitigated by better management practices and increased conservation and for the market forces to lower land rents to reflect the lower net returns for growers. Impact 8.8.2-5: During the construction phase of the proposed project, the farmlands within construction access easements, the required distribution system easements would not be in production for one growing season. 	require snort-term police and the projection accidents and other service requests. Impact 8.8.2-4: The proposed project would increase water augmentation fees required to support the costs of the project and will cause Pajaro Valley growers' crop production costs to rise and increase production costs would lower their net return per unit of production. This could result in substantial adverse		ENVIRONMENTAL IMPACT	SUMMARY
Mitigation Measure 8.8.2-5: The PVWMA will establish a procedure to compensate growers for the financial losses that they incur as a result of the impacts caused by the excavation and construction activities that occur in the easements for the placement of the local distribution system. The growers will receive compensation based upon the total amount of farmland disrupted, the amount of time of the disruption, the historical type of crop planted on the land and the current year unit market price for the unplanted crop.	None required.	None required.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
Less than significant	Less than significant	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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Appendix D-14

SUMMARY ENVIRONMENTAL IMPACT	OF IMPACTS AND MITIGATION MEASURES MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
8.9 Visual/Aesthetic and Recreational Resources - Coastal	Mitigation Measure 8.9.3-1:	Less than significant.
<u>Distribution</u>	Mitigation Measure 8.9.3-1b: The PVWMA will revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	
	Mitigation Measure 8.9.3-1c: The PVWMA will ensure that its contractors restore the topography of disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-	
	term visuat impacts.	

					SUMMAR
Mitigation Measure 8.6.3-5b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	Mitigation Measure 8.6.3-5a: The traffic control plans prepared by the contractor, which will consist of specific methods for maintaining traffic flows, shall include detours for bicyclists. This control plan shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Caltrans and the governing Public Works Departments.	Mitigation Measure 8.6.3-4: Conduct a preconstruction survey of road conditions on key access routes to the project site. The pavement conditions of local streets and designate roads judged to be in good condition for use by heavy truck traffic should be monitored. Roads damaged by construction should be repaired to a condition equal to, or better than, that which existed prior to construction activity.	Mitigation Measure 8.9.3-2: Implementation of Measures 8.6.3-4, 8.6.3-5a and 8.6.3-5b would ensure that damaged roads would be repaired to pre-construction conditions, and that detours would be provided for bicyclists and motorists during the construction period.		TABLE 1 (Continued) Y OF IMPACTS AND MITIGATION MEASURES
			Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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Impact 8.9.3-2: Development of the coastal distribution system component would temporarily disrupt recreational uses along designated recreational bicycle trails in Santa Cruz and Monterey Counties.






















EXHIBIT F











June 2,2004

Joan Van der Hoeven Santa Cruz County Planning Department 701 Ocean Street, 4th Floor Santa Cruz, CA 95060

Subject: Coastal Permit Application Submittal for the Pajaro Valley Water Management Agency Revised (PVWMA) Basin Management Plan Projects

Dear Ms. Van der Hoeven:

On August 12,2003, the Pajaro Valley Water Management Agency (PVWMA) initiated the process to obtain a Coastal Development Permit by attending a preapplication meeting for implementation of its Revised Basin Management Plan Projects (project). The project is proposed to develop new water supplies to the Pajaro Valley Basin, and to alleviate conditions of groundwater overdraft, ground subsidence and seawater intrusion.

The proposed project is comprised of three components: the Import Pipeline, Recycled Water Facility, and Integrated Coastal Distribution System (ICDS). Portions of the Import Pipeline and Integrated Coastal Distribution System (ICDS) are located in Santa Cruz County. The purpose of the Import Pipeline is to connect the Pajaro Valley Basin with the Santa Clara Conduit of the San Felipe Unit facilities to allow PVWMA to take delivery of CVP contract water and water from other sources. This water would be used for distribution to agricultural users via the ICDS. Project components within the Coastal Zone in Santa Cruz County include 12-inch diameter pipelines: distribution turnouts, and pump stations. The ICDS is the second phase of the PVWMA Water Supply Project which is a component of the Revised Basin Management Plan. The first phase included the Harkins Slough Project and the Accelerated Pipeline which both involved development in the Coastal Zone in Santa Cruz County under a previously issued Coastal Development Permit.

The proposed project requires approval by the U.S. Department of the Interior, Bureau of Reclamation; therefore, an Environmental Impact Statement (EIS) was prepared to satisfy requirements under the National Environmental Policy Act (NEPA). In addition, formal consultation with the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries under Section 7 of the Endangered Species Act was completed during the NEPA process. A Biological Opinion (BO) was issued by NOAA Fisheries and the USFWS in August 2003 and March 2004. respectively. In addition, a Programmatic Agreement between the State Historic Preservation Office (*SHPO*) and the Army Corps of Engineers issued in 2000 for the Harkins Slough Project is currently under amendment to include the entire project (i.e. Import Pipeline, ICDS, and Recycled Water Facility).

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(415) 896-5900 fax 896-0332



Santa Cruz County June 2,2004 Page 2

PVWMA is submitting an apperation r a Coastal Deve pment Permit pertaining to portions of the Import Pipeline and ICDS that are located in the coastal zone in Santa Cruz County and therefore subject to the Local Coastal Program. Included in this submittal are 15 copies of the following:

- Project Description
- Project Location Maps and Site Plans

The project description provides the necessary information required for a Coastal Development Permit as the application requirements apply to the proposed project. The project location maps and site plans provide both an overview of the project components and detailed site plans with on an aerial base demonstrating the proposed location for pipelines in relation to existing features. The site plans also include parcel number information. A table is provided as an appendix in the project description that provides land owner information for each of the parcel numbers provided in the site plans. PVWMA is currently in the process of attaining the necessary owner/agent documentation required by the County. It is expected that this information will be available in early July, and will be forwarded as soon as it is completed.

A meeting was held with Santa Cruz County on April 23,2004, to discuss the project and the needed application materials to streamline the permitting process. At this meeting, PVWMA provided Santa Cruz County with copies of the Lead Agency Findings and Notice of Determination for the Local Coastal Project EIR prepared and certified in May 1999.

It is PVWMA's intent to provide this information in a clear and concise manner in order to expedite your review. Please contact Jennifer Johnson or myself at (415) 896-5900, or Mary Bannister of PVWMA at (831)722.9292 if additional information is required pertaining to the application submission.

Sincerely.

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Johanna Evans, Permit Manager Environmental Science Associates Consultant for PVWMA

 Enclosures: Project Maps and Site Plans (15 copies)
Project Description (15 copies)
NOAA Fisheries and USFWS Biological Opinions
CD containing: Local Water Supply and Distribution Final EIR, EIR Addendum and NOD; Revised Basin Management Plan Project Draft EIS and Final EIS

email:esa.rf@erartsoc.com

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June 23,2004

Joan Vanderhoeven County of Santa Cruz, Planning Department 701 Ocean Street Santa Cruz, CA 95060

Subject: Pajaro Valley Water Management Agency Revised (PVWMA) Basin Management Plan Project.

To Whom It May Concern:

The Pajaro Valley Water Management Agency (PVWMA) is proposing to implement the Basin Management Plan Projects (project) to develop new water supplies to the Pajaro Valley Basin, and to alleviate conditions of groundwater overdraft, ground subsidence arid seawater intrusion. The objective of this project stems from the need to augment Pajaro Valley water supplies to address problems of groundwater overdraft and seawater intrusion. In the Pajaro Valley Basin, groundwater levels have declined as the groundwater pumping rate has exceeded the rate of natural replenishment. In the coast areas overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes the fresh water to stratify above sea water.

In order to attain the objectives of this project, a 22.2 mile pipeline will be constructed to link the Pajaro Valley Basin with the Santa Clara Conduit of the San Felipe Unit facilities to allow the PVWMA to take delivery of CVP contract water and water from other sources. This pipeline (Import Pipeline) will connect to the proposed Integrated Coastal Distribution System (ICDS) on the north side of the Pajaro river levee, roughly 1,900 feet west of SR 1. The ICDS consists of facilities (pipelines, pump stations, turnouts, and crossings) required to provide complete irrigation to agricultural user in the coastal area of the Pajaro Valley Basin. With the delivery of the water, growers have agreed to eliminate groundwater pumping in the coastal area roughly bounded by Monterey Bay to the west, SR 1 to the east, Elkhom Slough to the south, and Buena Vista Drive and Harkins Slough Road to the north.

Under the Santa Cmz County General Plan and Local Coastal Program, policies are provided to guide land use decisions within the "coastal zone" in Santa Cruz County. For purposes of attaining this Coastal Development Permit, the "coastal zone" is defined as property in Santa Cruz County west of Highway 1. Although this project encompasses several components in several different counties, only two components, one portion of the Import Pipeline project and

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two portions of the ICDS, the North Plateau Lateral & the Northeast Addition Lateral, are located within the "coastal zone" of Santa Cruz County.

Moreover, the California Coastal Commission (CCC), after review of their post certification maps has determined that it retains permitting jurisdiction for a portion of the proposed Import Pipeline in the "coastal **zone"** of Santa Cruz County located from the county border in the center of the Pajaro River to the edge of the existing levee.

For your information and records, in addition e the CCC Application for Coastal Development. PVWMA is actively pursing the necessary approval from other appropriate Federal, State and County agencies for the implementation of the pipeline project in this area of the Pajaro River as retained under the jurisdiction of the CCC. Numerous permits are being pursued for the project as a whole; however, the following is **a** list of the permits as well as environmental documentation specifically necessary for the pipeline crossing at the Pajaro River.

- Federal
 - united States Army Corp of Engineers, Section 404 Nationwide Permits 12 (Utility Line Activities) and 33 (Temporary Construction, Access, and Dewatering). Issued
 - b. United States Fish and Wildlife Service and NOAA Fisheries, Consultation under Section 7 of the Endangered Species Act. **Biological Opinions Issued**
- State
 - California Regional Water Quality Control Board, Central Coast Region, Section 401 Standard Water Quality Certification for Discharge of Dredged and/or Fill Materials: Issued
 - b. California Regional Water Quality Control Board, Central Coast Region, Section 401 Water Quality Certification or Waiver of Certification for Fill of Wetlands and Other Waters of the United States: **Issued**
 - c. California Department of Fish and Game, Section 1603 Notification of Lake or Streambed Alteration: **Pending**
 - d. California Coastal Commission, Application for Coastal Development Permit: **Pending**

Lastly, a requirement of the CCC's Coastal Development Permit Application, is that the applicant. PVWMA, must submit evidence that the development proposed within the

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Commission's jurisdiction in Santa Cruz County, as described above, has been approved by Monterey County. Therefore, we respectfully request, that the County of Santa Cruz Planning Department consider this requirement during its review of PVWMA's application. If you have any questions regarding this matter, please feel free to contact me at 415-896-5900, or Mary Banister of PVWMA at (831)722-9292.

Sincerely,

Jennifer Johnson, Senior Associate Environmental Science Associates Consultant for PVWMA





July 9, 2004

Joan Van der Hoeven County of Santa Cruz, Planning Department 701 Ocean Street Santa Cruz. CA 95060

Subject: PVWMA Preliminary Comments, Application 04-0258 Response to Comments

To Whom It May Concern:

The Pajaro Valley Water Management Agency (PVWMA) is proposing to implement Phase 3 of the Basin Management Plan Projects (project) to develop new water supplies to the Pajaro Valley Basin. and to alleviate conditions of groundwater overdraft; ground subsidence and seawater intrusion. As discussed in Permit No.: 99-0335, the objective of Phase 3 was to implement pipeline construction of the Northeast Addition Lateral, which starts approximately .25 miles northeast of the intersection of San Andreas/Beach Road following a farm road for approximately 1.25 miles (*now .6 miles*) northwest, to serve **14** (*now 4*) parcels. The Northeast Addition Lateral is proposed to cross Watsonville Slough. In addition to the Northeast Addition Lateral, a new lateral, the North Plateau Lateral is proposed for construction as part of Phase **3**.

The North Plateau Lateral begins just north of the Harkins Slough Recharge Basin extending about .4 miles from which point it continues both east. approximately .4 miles and west, approximately .5 miles. crossing San Andreas Road. From the road crossing of San Andreas Road the lateral extends north for approximately 1.5 miles ending on Academy Road. There are three sub-laterals that extend off the San Andreas Road lateral. The first is a .2 mile lateral following Sunset Beach Drive westward. The second is following a county road approximately .3 miles east then extending ai; additional 200 feet south. Off this second lateral. at approximately .3 miles east then extending ai; additional 200 feet south. Off this lateral is approximately 1 mile south of Academy Road and extends approximately .2 mile!; northwest following a county road that leads to the city dump. The North Plateau Lateral will serve 20 parcels of land.

The following remarks are in response to a memo entitled "Preliminary Comments, Application 04-0258". faxed to ESA on 6/23/04 from Joan Van der Hoeven of the County of Santa Crur Planning Department.

Comment 1: The 1999 ER describes the anticipated network of distribution lines and lateral. This network was somewhat modified and a few hydraulic features added and therefore an EIR addendum was produced in August 2003. The plan that came in with the Application 04-0258 (Figure 1,Key Plan) is somew liat modified from what was analyzed in 2003.



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Comment **la:** Please confirm that there is no extension at Beach Drive proposed at this time and no crossing of the Pajaro River. These are both in the 2003 addendum but not on the current plan. These are the two areas in which the Coastal Commission (CCC) indicated jurisdiction. If the applicant proposes to accomplish these two crossings but under separate permit directly with the CCC then this permit that we issue should show the areas but explicitly state "not a part" of the approval.

Response **la:** There is no extension at Beach Drive proposed at this time. However, there will be a crossing at the Pajaro River. This crossing is within the "coastal zone" and is part of the Import Pipeline project. Information provided by the CCC regarding this project indicates that coastal permit jurisdiction for the pipeline is limited to the crossing of the Pajaro (between the top edges of the existing levees). We understand that because the CCC will take jurisdiction of the portion of the Import Pipeline in the Pajaro River, Santa Cruz County permit will not include this crossing in approval of this project.

Comment **lb**: Is the pump station (2003 addendum) part of the application. If yes, it should be shown on Figure 1. Also they should submit plans showing the station and fence so we can evaluate need for conditions to mitigate visual impact in the special coastal scenic area (such as building and fence color/materials).

Response **lb**: Although a pump station is under consideration, and studies continue for the siting and design of the facility. it is not part of the current application.

Comment **1c:** Of the lines and crossing discussed in the 2003 addendum six are environmentally sensitive. However, three or four of those don't appear in this application, therefore the focus will be on the lines crossing Harkins Slough and Watsonville Slough: 1 need a to see details of proposed crossing to see how mitigation measures specifying certain construction/design techniques are bring implemented. Also. my Figure 1 is missing the Harkins slough "j" line (it only goes through "I").

Response 1c: Based on refined project designs of turnout locations and alignments, the only environmentally sensitive location in Santa Cruz County is the crossing of Watsonville Slough. Unlike the originally proposed crossing techniques, which was to trench across the slough, the alignment is now proposed to stay within the road and trench under the culvert; therefore, impacts to the slough are. not anticipated and no marsh vegetation or habitat will be directly disturbed. The Biological Opinion issued by Fish and Wildlife Service (March 19, 2004) for this project indicated that this location of Watsonville Slough was poor habitat for California red legged frog, California tiger salamander, western pond turtle, and Santa Cruz long-toed salamander (these were the species identified as sensitive in this area).

Construction across Watsonville Slough will be contained to the road, biological fencing will be erected to prevent construction equipment spoils and any other construction related debris or materials from entering the slough. In addition, activities at this location will be monitored daily by a qualified biologist, **As** indicated in the Local Supply Project EIR, PVWMA will implement standard protective measures to maintain water quality and control erosion and sedimentation through the implementation of a Storm Water Pollution Prevention Plan (SWPPP). Mitigation measures as stipulated in the Biological Opinion will also be applied to construction including preconstruction surveys, environmental training of construction crews; and ail affected areas will be returned to their original condition at the end of all project activities. If dewatering of the trench is required during construction, intakes will be completely screened, and water will be released or pumped downstream at an appropriate rate to maintain



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downstream flows during construction. (See Biological Opinion for further details of required mitigation measures)

If you have any questions or need further information clarifying these matters, please feel free to contact me at 415-896-5900. or Mary Banister of PVWMA at (831) 722-9292.

Sincerely.

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Environmental Science Associates Consultant for PVWMA

cc: Mal-y Banister, PVWMA Lidia Gutierrez, RMC Pete Rude. CH²MHill



COUNTY OF SANTA CRUZ PLANNING DEPARTMENT

DATE:July 22,2004TO.Joan Van der Hoeven, Cathy GravesFROM:Paia Levine, Environmental PlanningSUBJECTComments PVWMA

Comments on PVWMA AP # 04-0258 dated July 5, 2004

I received plans **showing** the pipeline construction and specifically the crossing of Watsonville Slough on Monday July 19. I have reviewed those plans and have the following comments (**this** is **the** second set of comments for the project). Note that Bob Loveland is **also** preparing comments addressing **Resource** Planning issues and technical issues related to the Preliminary Grading Approval.

- These comments apply only to the portion of the ICDS that appears on the Key Index, Figure 1, CH2MHill, June 11 2004. The plans show pipeline segments that are not connected to each other and future additional lines may be expected. There should be aproject condition that states that **only** segments shown on the Key Index are covered and that future connectors will be evaluated separately. Reason: The future connections may include crossings of wetland and riparian areas.
- 2. We have been provided with 30% plans to review. A *permit* condition should state that EP **staff shall** review and approve the final plans in writing prior to exercise **of** the permit.
- 3. The sensitive part of the project is the portion of pipe that crosses Watsonville Slough. The comments apply to that portion of pipeline.
- 4. The EJR, EIR addendum, and the project biological opinion (BO) prepared by the USFWS (March 19, 2004) required a series of avoidance and mitigation measures to mitigate impacts from possible sedimentation of drainages, disturbance within wetlands and/or riparian corridors, impacts to wildlife, etc. At the permit stage those mitigation measures must be translated into a site specific erosion and sediment control plan for the crossing (the elements of which are specified in the *mitigation* measures), vegetation restoration plan, etc. Specific plans that implement the various mitigation measures have not been submitted. Normally we would require these plans prior to the public hearing, but due to the funding deadline we can require them prior to exercising the permit.
 - a. Please add a *project* condition that states that a detailed erosion control plan, including spoils management, location of staging areas, diversion of **flows as** necessary, timing of the construction activities, details of sediment control structures, designated site to receive **spoils**, and all other elements required by the applicable Mitigation Measures **and** BO must be **reviewed** and approved in writing by EP staff prior to exercise of the permit.

Furtherproject conditions having to do with erosion control and containment:

• work shall occur between August 1 and October 15;

• staging areas shall be located at least 50 feet from waterway and shall be confined to the southwest si& of the railroad track;

• project plans **shall** be revised to show detail of the boring *entry* and exit pits adequate to verify design consistent with **standards** called for in the BO.

- b. Please add aproject condition that **states** that if any wetland or riparian vegetation is disturbed a detailed revegetation plan, including replacement with locally collected plants at the ratio of 3:1, success goals, three year maintenance and monitoring plan, weed control, and **all** other elements required by the applicable Mitigation Measures must be reviewed and approved in **writing** by EP staff prior to exercise of the permit.
 - Furtherproject conditions having to do with vegetation:

• Revise. the project plans to indicate fencing demarcating the 25 foot riparian corridor setback where work will occur within thirty feet of the corridor.

EXHIBIT H

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c. *Project conditions* regarding impacts to wildlife:

• Biological monitor **shall** conduct surveys for special **status** species covering the slough crossing and the **staging** areas within two weeks of beginning that portion of the work, as called **for** in the BO. Results of the surveys shall be submitted to EP staff.

• Biological monitor shall be on site during all drilling and construction of the crossing;

• Final plans shall show the location of exclusionary fencing;

• Recommendations of the BO, including follow up monitoring of relocated individuals, **shall** be **followed.**

For ANY portion of the ICDS:

• Final plans shall indicate areas of Freshwater Emergent Wetland of Valley Foothill Riparian (as designated in the EIR). No construction shall occur between March 1 and July 30 within 500 feet of these areas <u>unless work is preceded by surveys</u>, <u>carried out as described in the EIR and BO</u>, that show an absence of protected bird species. Survey results shall be submitted to EP staff prior to disturbance in these areas.

COUNTY OF SANTA COMMENTS

Project Planner: Joan Van Der Hoeven Application No.: 04-0258 APN: 046-151-06 Date: July 28, 2004 Time: 10:48:14 Page: 1

Environmental Planning Completeness Comments

The project should be conditioned for an erosion control plan.

Environmental Planning Miscellaneous Comments

The following "Conditions of Approval" are based on a review of the "30% Design Drawings". dated 7/5/04:

1. Submit an approved storm water pollution prevention plan (covering areas shown on sheets: PP-23, PP-25 & PP-26).

2. Submit a detailed erosion control plan (covering areas shown on sheets: PP-23, PP-25 & PP-26).

3. Obtain a riparian exception from Environmental Planning.

Project Review Completeness Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

Project Review Miscellaneous Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

address all environmental planning comments, June 21 2004 levine memo

Dpw Drainage Completeness Comments

----- REVIEW ON JULY 1, 2004 BY CARISA REGALADO ------ Plans accepted as submitted and discretionary stage application review is complete

EXHIBIT



Project Planner: Joan Van Der Hoeven Application No.: 04-0258 APN: 046-151-06 Date: July 28, 2004 Time: 10:48:14 Page: 2

for this division

Dpw Drainage Miscellaneous Comments

No comment.

Dpw Driveway/Encroachment Completeness Comments

ENCROACHMENT PERMIT REQUIRED FOR ANY WORK IN THE COUNTY ROAD RIGHT OF WAY

Dpw Driveway/Encroachment Miscellaneous Comments

Encroachment permit required for all off-site work in the County road right-of-way.

Dpw Road Engineering Completeness Comments

----- REVIEW ON JUNE 25. 2004 BY GREG J MARTIN -----

Dpw Road Engineering Miscellaneous Comments

An encroachment permit shall be required for any work in the County right-of-way Engineered plans shall be required.

Environmental Health Completeness Comments

Once a property is receiving water from the ICDS, how does PVWMA confirm that growers "have taken their wells out of service" (p.5) Does this mean well abandonment via a permit, or a well pump gets pulled (who confirms this ?). or some other protocol? Compliance with keeping wells out of service seems to be critical in implementing the plan.

Environmental Health Miscellaneous Comments

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COUNTY OF SANTA CRUZ **Planning Department**

COASTAL ZONE/DEVELOPMENT/ **RIPARIAN EXCEPTION PERMIT**

Applicant: Paiaro Vallev Water Manaaement Aaency_ Permit Number 99-0335 Address: 36 Brennan Street Watsonville, CA 95076

Parcel Number(s) 052-191-08. et al

PROJECT DESCRIPTION AND LOCATION

Proposal to construct facilities and infrastructure to implement the Pajaro Valley Water Management Agency's Harkins Slough Recharge and Water Redistribution Project. The project consists of an intake and treatment facility at the existing Harkins Slough pump station, construction of a 50,000 cubic yard recharge basin and associated production wells, and approximately 26,000 lineal feet of distribution pipeline. Requires a Coastal Development Permit, Riparian Exception, preliminary Grading approval, and a General Plan policy interpretation. The proposed intake facility site is located at a reach of Harkins Slough near San Andreas Road. The recharge basin site is located at the end of Dairy Road. Distribution **pipes** are proposed on San Andreas and **Dairy** Roads between both sites and on Beach Road north and south of the Beach and San Andreas roads intersection, San Andreas planning area.

SUBJECT TO ATTACHED CONDITIONS.

Approval Date: 2-23-00 Exp. Date (if not exercised): 3-8-02 Denied by:

Effective Date: 3-8-00 Coastal Appeal Exp. Date: Call Coastal Comm. Denial Date:

This project requires a coastal zone permit which is not appealable to the California Coastal Commission. It may be appealed to the Planning Commission. The appeal must be filed within 14 calendar days of action by the decision body.

This project requires a Coastal Zone Permit, the approval of which is appealable to the California Coastal <u>X</u> Commission. (Grounds for appeal are listed in the County Code Section 13.20.110.) The appeal must be filed with the Coastal Commission within 10 business days of receipt by the Coastal Commission of notice of local action. Approval or denial of the Coastal Zone Permit is appealable. The appeal must be filed within 14 calend days of action by the decision body.

This permit cannot be exercised until after the Coastal Commission appeal period. That appeal period ends on the above indicated date. Permittee is to contact Coastal staff at the end of the above appeal period prior to commencing any work.

A Building Permit must be obtained (if required) and construction must be initiated prior to the expiration date in order to exercise this permit. THIS PERMIT IS NOT A BUILDING PERMIT.

By signing this permit below, the owner agrees to accept the terms and conditions of this permit and to accept responsibility for payment of the County's costs for inspections and all other actions related to noncompliance with the permit conditions. This permit shall be null and void in the absence of the owner's signature below

March 13 Date' March 13, 2000 Date EVL Signature of Owner// Staff Planner istribution: Applicant File Clerical Coastal Commission

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CONDITIONS OF APPROVAL

Coastal Zone/Development/Riparian Exception Permit No. 99-0335 Including a Preliminary Grading Approval

<u>Applicant and Property Owner</u>: Pajaro Valley Water Management Agency (PVWMA) for the Boyle Trust, J-and D Farms, Paul Tao and various other owners

Assessor's Parcel No.: 52-181-16, et al.

Property location and address: The intakelfiltrationfacility is located at a reach of Harkins Slough near San Andreas Road. The recharge basin site *is* located at the end of Dairy Road. The distribution pipeline is located on Dairy Road and San Andreas Road between both sites describes above and on Beach Road, north and south of the intersection of Beach and San Andreas Roads, in the San Andreas planning area.

EXHIBITS:

- A: Site Map and Listing of Project Parcels
- B: Selected Pages of Project Plans prepared by Montgomery Watson, dated October 1999 consisting of 13 sheets
- C: Preliminary Grading and Erosion Control Plan prepared by Montgomery Watson, dated October 1999 with revisions, consisting of 6 sheets Title Sheet Sheet G-6 - Key Map Sheet C-2 - Plan View of Intake/Filtration Facility Site Sheet C-4 - Plan View of Recharge Basin Site and Immediate Vicinity Sheet C-5 - Plan View of Recharge Basin Sheet C-6 - Cross-sections of Recharge Basin
 - Sheet C-9 Plan View and Details of Segment of Dairy Road to be Paved
- *D*: Erosion Control Plan Narrative prepared by Montgomery Watson, undated, consisting of 2 sheets
- **E:** Wetland/Riparian Mitigation Plan prepared by CH2M Hill, dated November 9, 1999 consisting of 3 sheets
- F: Mitigation Monitoring and Reporting Program prepared by County Planning dated February 23, 2000

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EXHIBIT

CONDITIONS:

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- I. This permit authorizes the construction of:
 - A surface water intakelfiltration facility as shown on Sheet C-2 of Exhibit C;
 - An earthen recharge basin and associated recovery and monitoring wells as shown on Sheets C-4 and C-5 of Exhibit C;
 - A buried pipeline to convey water from the intake facility to the basin as shown on Sheet G-6 of Exhibit C; and
 - A buried pipeline to distribute recovered water to the 48 project parcels shown on Exhibit A.

This is a three phase project. The intake facility, recharge basin, associated wells and the pipelines between the intake facility and the basin will be constructed as phase 1. This phase will include water distribution to 8 of the project parcels. Pipeline construction paralleling San Andreas Road and Beach Road southwest of the San Andreas/Beach Road intersection to serve 21 parcels and pipeline construction west of the recharge basin to serve 5 parcels will be done as phase 2. Pipeline construction northeast of the San Andreas/Beach Road intersection to serve 5 parcels will be done as phase 2. Pipeline construction northeast of the San Andreas/Beach Road intersection to serve 14 parcels will be done as phase 3.

This permit also authorizes the grading of 73,400 cubic yards of earth to construct the facilities described above.

Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:

- A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
- B. Obtain a Grading Permit from the County of Santa Cruz Planning Department.
- C. Pay an EIR filing fee of \$850.00 to the Clerk of the Board of the County of Santa Cruz as required by the California Department of Fish and Game mitigation fees program or submit written documentation that this fee has been previously paid.
- D. Adopt PVWMA Ordinance 2000-02, or a substantially similar ordinance, establishing regulations for the classification and operation of groundwater wells in the PVWMA local water supply service area, and submit a certified copy to County Planning.
- II. Prior to issuance of a Grading Permit the PVWMA shall:
 - A. Conduct geologic investigations of the proposed pipeline alignment and

EXHIBIT

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pumping facilities prior to the final design and implement design recommendations. The investigations will specify hazards related to ground movements and co-seismic effects, especially liquefaction. This report shall be submitted to County Planning for review and approval by making an application for a geologic report review. The County approved recommendations of an engineering geologist shall be incorporated into the design and specifications of grading plans and shall be implemented by the construction contractor

- B. Obtain NPDES permit for construction dewatering and any discharges into the stream during construction and submit a copy of the permit to County Planning.
- C. Obtain a Streambed Alteration Permit from the State Department of Fish and Game for all work proposed in or adjacent to Harkins and Watsonville Sloughs and the seasonal wetland on the Tao parcel (APN 52-191-08), and comply with all conditions thereof
- D. Obtain a Water Rights Permit (Water Diversion License) for the proposed use of Harkins Slough water from the State Water Resources Control Board.
- E. Obtain an Encroachment Permit from the Department of Public Works for any work performed in the public right-of-way. All work shall be consistent with the Department of Public Works Design Criteria.
- F. Establish the final details of the procedure to compensate growers for the financial losses that they incur as a result of the impacts caused by the excavation and construction activities that occur in the easements for the placement of the local distribution system. The growers will receive compensation based upon the total amount of farmland disrupted, the amount of time of the disruption, the historical type of crop planted on the land and the current year unit market price for the unplanted crop. A written description of this procedure which has been formally adopted by the PVWMA Board shall be submitted to County Planning staff for review and approval.
- *G.* Complete a detailed study identifying utilities along the proposed alignment. The results of this study will be used during pipeline construction to minimize impacts to area utilities during the construction stage of the project.
- H. Conduct a pre-construction survey of the road conditions on key access routes to project sites which shall be used to document road conditions prior to construction.
- I. Conduct a pre-construction survey of road conditions on key access

EXHIBIT

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routes to the project sites which shall be used to document the road conditions prior to construction.

- J. Submit written documentation that \$2,000.00 has been provided to the Natural Resources Conservation Service specifically to fund habitat restoration activities at the seasonal wetland on the Tao parcel (APN 52-191-08).
- K. Submit written documentation that the PVWMA has both temporary construction easements and permanent maintenance easements over the project parcels adequate to allow project facilities to be constructed and maintained as proposed; or in the alternative, documentation that PVWMA owns the property or has obtained a court order allowing access.
- III. All construction shall be performed in accordance with the approved plans, including Exhibits B, C and D of this permit. PVWMA shall comply with the following conditions:
 - A. All work adjacent to or within a County road shall be subject to the provisions of Chapter 9.70 of the County Code, including obtaining an encroachment permit where required. Where feasible, all improvements adjacent to or affecting a County road shall be coordinated with any planned County-sponsored construction on that road.
 - B. To minimize conflicts with uses on projects parcels and surrounding properties, the PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas at least two weeks in advance of construction. In addition, PVWMA shall publish notices in local newspapers at least two weeks in advance of construction and place a large temporary sign along San Andreas Road at least two weeks in advance of construction advising the public of the planned construction and any potential inconveniences caused by the construction (i.e. traffic delays). The temporary sign shall remain in place during the entire construction period and shall be removed within 1 week of the completion of construction affecting or within clear view of a public roadway.
 - C. All project grading and construction of facilities shall conform to requirements of the Santa Cruz County Grading Ordinance and all recommendations of the geotechnical report prepared by CH2M Hill for this project dated May 26, 1999. All grading related work and inspections shall comply with the requirements contained in the County acceptance letter dated October 19, 1999, including the submittal of final grading inspection letters from the project engineer to County Planning. Site grading and construction work areas shall expose as little new ground surface as possible. Vegetation cover should be left intact to the extent

EXHIBIT I

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practical. The project geotechnical engineer shall conduct inspections of the construction sites to verify compliance with these requirements. If non-compliance is noted, the identified problems shall be immediately communicated to the construction contractor with remedial actions

necessary to solve the identified problem and the deadline to rectify the problem.

- D. All grading shall be done with the construction related erosion control measures in place as specified in Exhibits. C and D of this permit. All grading activities in non-cropped areas shall be limited to the period between April 15 and October 15. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance. Upon completion of construction at each site, final erosion control measures shall be implemented. Any stockpiled soils shall be spread and all areas shall be reseeded to ensure that a stable soil cover will remain.
- E. No land clearing, grading or excavating shall take place between October 15 and April 15 unless a separate winter erosion-control plan is approved by the Planning Director.
- F. All grading and construction of project facilities shall be done in accordance with the County approved recommendations of the engineering geologic report described in condition II.A above. The project engineering geologist shall conduct inspections of the construction sites to verify compliance with these requirements. If non-compliance is noted, the identified problems shall be immediately communicated to the construction contractor with remedial actions necessary to solve the identified problem and the deadline to rectify the problem.
- G The PVWMA shall implement conditions of the NPDES Permit. Any discharges that occur must meet water quality objectives specified in the RWQCB's Pajaro Basin Management Plan. As part of complying with the permit, the PVWMA shall monitor construction activities to verify compliance with best management practices, water quality objectives and all other conditions of the NPDES permit. If non-compliance is noted, the construction contractor shall be notified immediately of the problem, remedial actions necessary to solve the identified problem and the deadline to rectify the problem.
- **H.** To minimize potential impacts to aquatic wildlife, **all** construction near Harkins and Watsonville Sloughs shall include erecting exclusion fencing at the perimeter of the construction zone for the intake/filtration facility and pipeline alignment, along the edge of the wetland vegetation

EXHIBIT

> for 25 feet in either direction. If wetland habitat will not be entirely avoided, PVWMA shall inform County Planning, USFWS and the U.S. Army Corps of Engineers (COE) and conduct the surveys for the California red-legged frog (Rana aurora draytonii), the Santa Cruz longtoed salamander (Ambystoma macrodactylon croceum) and the Tiger salamander (Ambystoma californiense) according to USFWS protocol. The PVWMA shall consult with the USFWS and the COE regarding the results of the surveys and shall implement the protective measures to benefit the three amphibian species as required by the USFWS and COE. If protective measures are implemented, the PVWMA shall provide County Planning with a written description of the measures that will be implemented during and after construction. In the event that protective measures are warranted, the project wildlife biologist shall monitor construction activities to verify compliance with these requirements. If non-compliance is noted, the biologist shall immediately notify the construction contractor of the identified problem, required remedial actions and the deadline for compliance.

- 1. To minimize construction impacts to biotic habitats of wetlands and riparian corridors, PVWMA shall implement the construction related measures of Exhibit E, including retaining at least 6 inches of a trunk of any cut willow to allow resprouting. The contractor shall be provided a copy of Exhibit E and advised of measures to minimize biotic impacts.
- J. To avoid any contribution to capacity problems at the County's Buena Vista landfill, all excess fill material exported from the project sites shall be transported to and disposed of at the Monterey Peninsula Waste Management Agency's landfill near Marina in accordance with the agreement made with that agency.
- To avoid any potential for impacts to archaeologic resources, final ĸ. pipeline and facility plans shall locate facilities and pipeline alignments away from all identified important cultural resource sites. A qualified cultural resource specialist shall be retained to educate construction workers of sighs that are indicative of buried archaeological resources and to assist in identifying any possible finds during construction. The project cultural specialist/archaeologist shall inspect the site periodically during project construction to determine if any impacts to archaeological resources could occur from construction activities... Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA will contact County Planning and follow the requirements of County Code Section 16.40.040. Any applicable State and federal agencies shall also be contacted at that time. The project archaeologist will perform any necessary investigations to determine the significance of the find. and

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exhibit

> map the areal extent of important cultural resource sites to be avoided. This may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American Commission. If important cultural resource sites cannot be avoided, the PVWMA will enter into a Programmatic Agreement with the U.S. Army Corps of Engineers, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation and County Planning to develop an appropriate mitigation plan for the cultural resource.

L To minimize traffic problems on public roadways during construction, PVWMA shall require the contractor to do the following:

- 1. Schedule truck trips outside of peak commute hours and use haul routes that minimize truck traffic on local roadways to the extent possible;
- 2. Prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by the County Public Works Departments;
- 3. Cover construction trenches with steel trench plates to allow access to driveways; and
- 4. Contact emergency vehicle agencies serving properties in the project vicinity to identify detours during construction.

These requirements shall be included in the contract specifications for the construction contractor hired to provide construction services for this project.

- J. To minimize air quality impacts of construction activities, the construction contractor shall implement a dust control program that includes watering down exposed earthen surfaces at a frequency that prevents significant amounts of dust from leaving the project sites.
- **K.** All construction staging areas shall be located off wetland and riparian habitats or other environmentally sensitive areas and any areas where archeological resources are discovered. Staging areas shall also be located off arable agricultural land to the fullest extent feasible.
- IV. PVWMA shall conduct the following activities immediately after construction/pipeline installation **at** each project site:

EXHIBIT 1

7.

A. Final erosion control measures shall be installed, including the planting of native groundcover in accordance with Exhibit C of this permit. Planting of groundcover shall include the following soil conditioning:

Soil shall be tilled to a depth of 6 inches and amended with six cubic yards of organic material per 1,000 square feet to promote infiltration and water retention. After planting, a minimum of 2 inches of mulch shall be applied to retain moisture, reduce evaporation and inhibit weed growth.

- B. The side slopes of the recharge basin shall be planted with native perennial grass and forbs species as specified in Exhibit D of this permit prior to October 15. This planting shall be irrigated on a regular basis to allow sufficient growth of the groundcover to prevent erosion d the side slopes from winter or filling of the basin with diverted surface water. Two vehicular access ramps shall be provided on the side slopes to provide access to the bottom of the basin for farming equipment. The ramps shall have a maximum gradient of 15% and be surfaced with 5 inches of class 2 base rock (or better).
- C. The 700 foot long segment of Dairy Road connecting with San Andreas Road shall be surfaced with 6 inches of class 2 base rock overlain with 1-1/2 inches of asphalt (or better). Asphaltic emulsion shall be applied over the asphalt. Roadside drainage improvements shall be installed according to Sheet C-9 of Exhibit C. All this work must be completed prior to October 15.
- D. The alder trees shown on Sheet C-1 of Exhibit B shall be planted as shown at the westerly edge of the intake/filtration facility site. These trees shall be 15 gallon size and provided with irrigation for a minimum of 3 years or until adequately established. PVWMA shall request an inspection by County Planning staff to determine when the irrigation should cease.
- E. Financially compensate growers for loss of cropland from pipeline installation during the construction period as described in condition II.E above.
- F. Extinguish the construction easements on all project parcels.
- **G** Roads damaged by construction shall be repaired to a conditions equal to, or better than, that which existed prior to construction activity.
- **v.** Operational Conditions.
 - A. All 48 project parcels shall be connected to the project pipeline so they

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EXHIDII

can benefit from the alternative source irrigation water this project will provide. Extending the pipeline to serve other parcels in the future will require an amendment to this permit.

- B. Project water will be used solely to provide untreated irrigation water to agricultural properties for agricultural purposes. The filtration of all project water shall be limited that necessary to remove sediment and allow the proper conveyance of water in a manner that will not result in deposition of sedim'ent in the project pipeline or recharge basin. Project water shall not be used as a primary source or supplemental source of domestic water to serve other types of land uses.
- C. All pipelines used to convey project water shall always be limited to that purpose. The pipelines shall never be used to convey domestic water nor water unrelated to PVWMA's efforts to remedy seawater intrusion and groundwater overdraft problems.
- D. The withdrawal of surface water from Harkins Slough shalt be limited to the winter months when surface flows are high enough to commence flood control pumping by the County Public Works pump station on Harkins Slough. Water withdrawals shall be supplied by the existing County pump station facility, which may received minor upgrades to provide an adequate volume of water for the project.
- E. Any proposed changes to the operation of the project or the method to which PVWMA will serve its project water customers is subject to review by the Planning Director. Such review shall determine if the proposed change requires an amendment or Minor Variation to this permit.
- F. All groundcover and trees planted under conditions IV.A-IV.D above shall be permanently maintained by PVWMA.
- F. The bottom of the recharge basin (6.7 acres) shall be made available for organic crop raising during the months the basin is not being used to percolate project water into the ground. The lessee of the basin bottom shall have full access to the basin for regular farming equipment and labor during the time crop cultivation, growing and harvesting occurs.
- *G.* Any future disturbance of agricultural land within the maintenance easement for the pipeline shall be kept to the minimum period possible for maintenance purposes. Disturbed land shall be restored to an arable condition immediately after needed maintenance activities have been completed.
- H. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full

EVHIBIL 1

> cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

- I. Water diversions shall be limited to that specified by the Water Rights Permit described in condition II.H. All other requirements and conditions of the Water Rights Permit shall be complied with on a permanent basis.
- J. The PVWMA shall maintain vegetation around the perimeter of the pond to keep ground cover but prevent riparian vegetation growth and mosquito breeding.
- K PVWMA shall provide biannual reports.to County Planning on its progress towards using reclaimed water from the City of Watsonville wastewater treatment plant for a supplemental source of agricultural irrigation water. These reports shall be placed on the consent agenda of the Planning Commission and shall be submitted until the reclaimed wastewater becomes used as an irrigation water source, or it has been determined that such use is not feasible.
- VI. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.
 - A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. *If* COUNTY fails *to* notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
 - B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith
 - C. <u>Settlement</u>. The Development Approval Holder shall not be required to

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EXHIBIT

> pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

- D. <u>Successors Bound</u>. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.
- E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the office of the Santa Cruz County Recorder an agreement which incorporates the provisions of this condition, or this development approval shall become null and void.
- VII. Mitigation Monitoring Program
 - A. The mitigation measures listed in Exhibit F of this permit have been incorporated into the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. As required by Section 21081.6 of the California Public Resources Code, a monitoring and reporting program for the above mitigations is hereby adopted as a condition of approval for this project. This monitoring program is specifically described following each mitigation measure listed in Exhibit F. The purpose of this monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to Section 18.10.462 of the Santa Cruz County Code.
 - B. There shall be a review of condition compliance and mitigation monitoring by the Planning Commission at the three project stages listed below after the PVWMA has submitted a progress report on condition compliance and mitigation monitoring to County Planning staff for review. Staff shall place the report on the consent agenda of the Planning Commission within 2 months of receipt of the report from the PVWMA. The report shall use Exhibit F as a guide to prepare the report so it is easy to discern the monitoring results of each individual permit condition that is derived from an EIR mitigation measure. The monitoring of other permit conditions shall also be provided in these reports in a format identical or similar to that provided for by Exhibit F for mitigation measures. PVWMA shall submit these reports at the following intervals:
 - 1. On of before October 1, 2000 (Partial completion of overlapping



phases 1 and 2);

- On or before October 1, 2001 (Completion of phases 1 and 2); and Within 1 month of completion of phase 3 of the project. 2. 3.

(Refer to condition I for description of project phases)

Minor variations to this permit which do *not* affect the overall concept or density may be approved by the Planning Director at the request of the applicant or Planning staff *in* accordance with Chapter 78.10 of the *County* Code.

PLEASE NOTE: THIS PERMIT EXPIRES TWO YEARS FROM DATE OF APPROVAL UNLESS YOU OBTAIN YOUR GRADING PERMITAND COMMENCE CONSTRUCTION.

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EXHIBIT A. ERMIT NO. 99-0335 C

Property Owners of Parcels Enumerated on Map E-1

(Project Property Owners)

operty Reference	Owner	Parcel Number
200	Boyle, Lorraine E.	052-211-27
205	Colendich Farms, Inc.	052-241-33
206	Crosetti, Jr., J.J. (Trustee)	052-551-05
207	Pecci and Antle	052-171-13
218	Fuii, Yoshiteru and Kimiyo	052-191-23
		052-191-50
227	Hirahara, Teyo (Trustee)	052-231-13
228	Innes, Gail F. (Trustee)	052-231-34
229	J and D Farms	052-181-16
		052-181-17
231	Joii Toshio and Shizumi	052-191-24
232	lones T Larry and Susan	052-191-57
232		052-191-53
<u>ک</u> ی		052-191-54
234	LCM Properties	052-211-26
236	Malatesta, Andrew (Trustee)	052-171-21
238	Malatesta, Clara	052-191-56
242	Marinelli, Mary and Wells Fargo	052-551-01
247	Mine, Susan	052-241-09
248	Mine, Tom I.	052-241-26
		052-241-38
		052-241-39
249	Mine, William and Sayono	052-241-10
254	PVUSD and Wells Fargo	052-551-04
255	Radovich, Marlene	. 052-191-20
257	Robert Trafton Family	052-231-07
262	Tanimura and Antle	052-231-06
263	Tao, Akira and Mitsuyo	052-191-08 052-191-55
265		052-241-04
200	Terbanan Babart and Lassa (Trustees)	052-231-09
266	Torbensen, Robert and Leona (Trustees)	052-231-12
		052-201-00
267	raπon, Harold and Leoπa (Trustees)	050 404 40
268	Ination, Harold and Leona (Trustees)	052-181-10
	Wait Charles and Wells Farmo	052-551-03
		052-001-58
TE SATT RYN		002-101-00
N pr		E
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Sheet 1 of 3

Property Owners of Parcels Enumerated on Map E-I			
Property Reference	Owner	Parcel Number	
275	SCP-1	052-171-05 052-171-20 052-541-01 052-541-02 046-151-24	
276	Jeanne Ashcroft	052-231-05	
	Rocchi	052-231-04	
	Desante	052-231-03	
	Innes	052-191-25	

EXHIBIT A PERMIT NO. 99-0335

COUNTY OF SANTA CRUZ 1

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EXHIBIT

sheet 2 of 3



COUNTY OF SANTA CRUZ **Planning Department**

COASTAL ZONE PERMIT AMENDMENT

Susan Mine Owner Address No Situs Watsonville, CA Permit Number 02-0596 ParcelNumber(s) 052-581-06 & -09

PROJECT DESCRIPTION AND LOCATION

Permit to retrofit an existing well on Assessor's Parcel Number 052-581-06, install a new well at APN 052-581-09, and install connections to the Integrated Coastal Distribution System as a part of the Pajaro Valley Water Management Agency Basin Management Plan. Requires an Amendment to Coastal Zone Permit 99-0335. Project located on the south side of West Beach Road in Watsonville, about 3,000 feet southwest from Highway One.

SUBJECT TO ATTACHED CONDITIONS.

Approval Date: 6/6/03 Exp. Date (if notexercised): 6/20/05 Denied by: _____ Effective Date: 6/20/03 Coastal Appeal Exp. Date: Call Coastal Com. Denial Date:

This project requires a Coastal Zone Permit which is not appealable to the California Coastal Commission. It may be appealed to the Planning Commission. The appeal must be filed within 14 calendar days of action by the decision body.

This project requires a Coastal Zone Permit, the approval of which is appealable to the California Coastal Commission. (Grounds for appeal are listed in the County Code Section 13.20.110.) The appeal must be filed with the Coastal Commission within 10 business days of receipt by the Coastal Commission of notice of local action. Approval or denial of the Coastal Zone Permit is appealable. The appeal must be filed within 14 calendar days of action by the decision body.

This permit cannot be exercised until after the Coastal Commission appeal period. That appeal period ends on the above indicated date. Permittee is to contact Coastal staff at the end of the above appeal period prior to commencing any work.

A Building Permit must be obtained (if required) and construction must be initiated prior to the expiration date in order to exercise this permit. THIS PERMIT IS NOT A BUILDING PERMIT.

By signing this permit below, the owner agrees to accept the terms and conditions of this permit and to accept responsibility for payment of the County's costs for inspections and all other actions related to noncompliance with the permit conditions. This permit shall be null and void in the absence of the owner's signature below.

Signature of Owner/Agent Date <u>Joan Vander Koer</u> 6-20-03

Staff Planner

Distribution Applicant, File, Clerical, Coastal Commission



Application #: 02-0596 APN: 052-581-06, -09 Owners: Susan Mine, Christopher Willoughby

CONDITIONS OF APPROVAL

Exhibit A: Amendment to the Harkins Slough Project #99-0335 and Grading Permit #00126057 to Construct Two Supplemental Wells by RMC Consulting Engineers, dated November 2002.

- I. This permit authorizes the retrofit and construction of two water wells. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:
 - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
 - B. Obtain the required Well Drilling Permits from the Santa Cruz County Environmental Health Service. The individual well capacity shall not exceed 2,000 gallons per minute. The wells shall be used exclusively for agriculture and agriculture related purposes.
 - C. Obtain an Encroachment Permit from the Department of Public Works for all offsite work performed in the County road right-of-way.
- II. All construction shall be performed according to the approved plans for the Well Drilling Permit. Prior to final inspection, the applicant/owner must meet the following conditions:
 - A. All inspections required by the Environmental Health Service shall be obtained. The wells shall comply with all conditions of the Environmental Health Service Well Drilling Permit.
- III. Operational Conditions
 - A. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.
 - B. All requirements of Coastal Development Permit #99-0335 and Grading Permit # 00126882 remain in effect
- IV. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development

EXHIBIT C



Approval Holder.

- A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
- B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith.
- C. <u>Settlement</u>. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifymg or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.
- D. <u>Successors Bound</u>. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.
- E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the office of the Santa Cruz County Recorder an agreement which incorporates the provisions of this condition, or this development approval shall become null and void.

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.



Page 11
Application #: 02-0596 APN: 052-581-06, -09 Owners: Susan Mine, Christopher Willoughby

PLEASE NOTE: THIS PERMIT EXPIRES TWO YEARS FROM THE EFFECTIVE DATE UNLESS YOU OBTAIN THE REQUIRED PERMITS AND COMMENCE CONSTRUCTION.

Approval Date:	June 6.20	03
Effective Date:	June 20.2	003
Expiration Date:	June 20.2	005
Don Bussey Deputy Zoning Admin	le listrator	<u>Joan Vandetbewen</u> Joan Van der Hoeven Project Planner

Appeals: Any property owner, or other person aggrieved, or any other person whose interests **are** adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.

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EXHIBI

EXHIBIT C

PVWMA BASIN MANAGEMENT PROJECTS

PROJECT DESCRIPTION - COASTAL DEVELOPMENT PERMIT APPLICATION

1.0 INTRODUCTION

In **1984,** the Pajaro Valley Water Management Agency (PVWMA) was formed and given the responsibility of managing groundwater resources within the Pajaro Valley. The PVWMA service area encompasses approximately **79,600** acres of irrigated agricultural lands, native and nonirrigated lands in the hillside areas, the City of Watsonville, and the unincorporated communities of Pajaro, Freedom, Corralitos, and Aromas. The boundaries of the PVWMA service area generally correspond to the topographic and hydrologic boundaries **of** the valley. The Pajaro Valley is home to over **80,000** residents, all **of** whom, to a great degree, rely on the existing groundwater supply. In addition, agriculture is the most significant economic industry in the valley with high-value crops including strawbemes, bush berries, apples, flowers, lettuce, artichokes, and a vanety of other vegetables.

In the coastal areas and throughout much of the groundwater basin of the Pajaro Valley, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater from the Pacific Ocean to move inland, where it mixes with fresh water. Seawater intrusion, documented since the **1950's**, increasingly is degrading water quality, and limiting the utility of groundwater for irrigation and domestic purposes. These conditions are not expected to improve without the elimination of groundwater pumping in areas adjacent to the coast and development and delivery of additional water supplies.

PVWMA prepared a Basin Management Plan (BMP) that identified elimination of groundwater pumping to irrigated lands as the key to restoring the Pajaro Basin average annual groundwater yield and to slowing seawater intrusion. The **BMP** includes the importation of water supplies via a 22-mile pipeline ("Import Pipeline") to connect the Pajaro Valley Basin with the Santa Clara Conduit of the San Felipe Unit facilities allowing PVWMA to take delivery of C W contract water and water from other sources. This water would be used for distribution to agricultural users via **an** Integrated Coastal Distribution System (ICDS).

2.0 PROJECT OVERVIEW AND BACKGROUND

2.1 PROJECT OBJECTIVES AND NEEDS

The purpose of the proposed project is to prevent further overdraft of the groundwater basin and to halt seawater intrusion by providing quality water for the long-term sustainability of agricultural irrigation and production.

EXHIBIT

OVERDRAFT

Overdraft occurs when the amount of groundwater withdrawn from a basin exceeds the amount of fresh water replenishing the basin. In the Pajaro Valley Basin, groundwater levels have declined as the groundwater pumping rate has exceeded the rate of natural replenishment. These overdraft conditions result in increased pumping costs and land subsidence, which in turn can cause building settlement and increased flooding.

SEAWATER INTRUSION

In the coastal areas and throughout much of the basin, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater to move inland, mixing with fresh groundwater. The density difference between seawater and fresh water causes the fresh water to stratify above the seawater. As seawater encroaches into the fresh groundwater basin, water quality degrades, limiting the usability of groundwater for irrigation and domestic purposes, and the wells have to be abandoned. Seawater intrusion creates a progressive increase in the concentrations of chloride, magnesium, and/or other constituents in groundwater. Chloride is **used as** an indicative constituent for seawater intrusion; increasing chloride concentrations in well water samples are an indication of Seawater intrusion. For agricultural uses, acceptable chloride concentrations range depending on the salt tolerance of the crop. However, water is likely to result in increasing problems for agricultural irrigation when chloride levels exceed 142 mg/L.

CURRENTAND FUTURE WATER USE

The current total water demand is estimated at 71,500 acre feet per year (afy) with total groundwater demand estimated at 69,000 afy. Conservation measures are expected to reduce groundwater demand by 5,000 afy. The difference between total groundwater demand (69,000 afy) and a basin sustainable yield of 47,000 afy (assuming fluctuations in the supplemental water supply) is 17,000 afy. Groundwater modeling results indicate that PVWMA needs to supply a total of 18,500 afy to the coastal area in order to create a hydrostatic barrier to prevent further seawater intrusion into the groundwater basin while also meeting near-term (2007) demand and 27,500 afy to prevent further seawater intrusion into the groundwater basin while approximately 1,100 afy of the 18,500 afy needed; PVWMA proposes to obtain the balance – 17,400 afy – via CVP water and other water sources.

2.2 BACKGROUND

ENVIRONMENTAL HISTORY

The proposed project requires approval by the **U.S.** Department of the Interior, Bureau of Reclamation (Reclamation), and therefore an Environmental Impact Statement **(EIS)** was prepared to satisfy requirements under the National Environmental Policy Act (NEPA). In addition, formal consultation with the **U.S.** Fish and Wildlife Service (USFWS) and NOAA

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Fisheries under Section 7 of the Endangered Species Act was completed during the NEPA process A Biological Opinion (BO) was issued by NOAA Fisheries and the USFWS in August 2003 and March 2004, respectively. In addition, a Programmatic Agreement between the State Historic Preservation Office (SHPO) and the Army Corps of Engineers issued in 2000 for the Harkins Slough Project is currently under amendment to include the entire project (i.e. Import Pipeline, ICDS, and Recycled Water Facility).

In addition to NEPA requirements, the process required for the California Environmental Quality Act (CEQA) is completed and an EIR (*PVWMA Local Water Supply and Distribution EIR*) addressing the **ICDS** was certified in May 1999. **An** addendum to the "Local Projects" EIR was approved in August 2003. The addendum proposed changes to the location of laterals to serve specific agricultural users in the coastal area, the construction of two additional booster pumps, the construction of a potential new pump station to serve agriculture in the "North Plateau" area (in Santa **Cruz** County), and additional crossings at the Pajaro River, Hanson Slough and Watsonville Slough. During the CEQA process, mitigation measures were adopted to address the resources discussed in the EIR (primarily Biological Resources, Hydrology and Water Quality) to address potential impacts resulting from project activities.

PLANNING HISTORY

As early as August 1953, the State Water Resources Control Board documented groundwater overdraft, seawater intrusion, and safe (sustainable) yield in the Pajaro Valley Basin. Following a series of events, including legislation passed to have CVP water delivered to the area, and the creation of the PVWMA, the BMP was adopted and subsequently revised to outline the extent and degree of seawater intrusion, and to identify a preferred water supply alternative for meeting needs. In February 2002, the PVWMA Board of Directors identified a "Recommended Alternative" (outlined in **Table 1**), adopted the Revised BMP, and certified the EIR.

3.0 IMPORT WATER PROJECT AND IMPORT PIPELINE

3.1 WATER SUPPLY

As previously discussed, the PVWMA will need to supply a total of 17,400**afy** to the coastal area in order to prevent further seawater intrusion into the groundwater basin while also meeting near-term (2007) demand. An additional 27,500 afy of water supply will be needed to prevent further seawater intrusion into the groundwater basin while also meeting future (2040) demand.

The water supply imported to the valley would be made up of CVP water from a contract assigned by Mercy Springs Water District (6,260 afy), as well as water from other local sources (College Lake, Watsonville, **Harkins** Slough, diversion from the Pajaro River at Murphy Crossing, and existing large capacity wells located **in** inland areas). These local supply components are expected to yield a combined average surface water supply of approximately 5,000 to 6,000 afy.

Pajaro Valley Water Management Agency Coastal Development Permit Application Package

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TABLE 1PVWMA WATER SUPPLY PROJECT

Pro	oject	status			
Pha	ise 1				
) 11 12	Coastal Distribution System (Harkins Slough portion located in Santa Cruz County only) Conservation: (5,000 afy) Harkins Slough with Harkins Slough Recharge Basin, Supplemental Wells, and Connections (1,100 afy)	Completed 2003 Currently underway; full implementation in 2007 In operation			
Pha	se 2 = 2004-2007				
*	Remaining portions of the Integrated Coastal	Evaluated in the 2003 EIS			
	Import Water Project with Out-of-Basin	Evaluated in the 2003 EIS			
2	Banking (13,400 afy) and Supplemental Wells Water Recycling Project (4,000 afy) Watershed Management Programs (e.g., nitrate management)	Evaluated in the 2003 EIS To be developed			
Pha	se 3 – After 2007 (Potential Future Projects)				
	Wells for conjunctive use of CVP water Inland Distribution System College Lake (storage project) Watsonville Slough (local surface water diversion project) Murphy Crossing (local surface water diversion project)	Need for and selection of Phase 3 projects to be implemented will be determined after 2007, based on future water supply and demand conditions. Additional environmental review will be required.			

Additionally, the United States Bureau of Reclamation has reserved a CVP entitlement for PVWMA from the San Felipe Committee of the CVP for 19,990 afy. However, with the passage of the Central Valley Project Improvement Act (CVPIA) in 1992, Congress prohibited Reclamation from entering into new contracts for water supply until an environmental analysis (e.g. the PEIS) was completed. Reclamation signed the Record of Decision (ROD) for the **CVPIA** PEIS in January 2001. Reclamation expects that the environmental review implementation requirements in the ROD will not be completed for several years, at which point PVWMA could negotiate a contract with Reclamation.

CVP contractors experience supply reductions during *dry* years. The yield in any given year could range from zero percent to 100 percent of a contract entitlement because of dry-year reductions. Due to legal restrictions, such as future implementation of the **CVPIA** and requirements established by CALFED for fisheries and water quality in the Sacramento-San Joaquin Delta, as well fluctuations in weather conditions, Reclamation has predicted that

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agricultural CVP contractors south of the Delta may receive only 60 percent of their annual contract allocations on a long-term average basis.'

In order to offset the anticipated shortfall in CVP water supplies due to dry-year reductions, PVWMA would rely on groundwater banking within the basin and in a groundwater basin outside the Pajaro Valley (out-of-basin banking). The basin sustainable yield is then reduced from 48,000 afy to 47,000 afy due to increased reliance on groundwater pumping during dry years, when cutbacks in CVP water could occur.

3.2 IMPORT PIPELINE

To supply water to the Pajaro Valley Basin, PVWMA has proposed an import pipeline as a key component of the BMP. The Import Pipeline would link the Pajaro Valley with the Santa Clara Conduit of the San Felipe Unit facilities. The San Felipe Unit of the CVP supplies water to Santa Clara Valley, the northern portion of San Benito County, the southern portion of Santa CNz County, and the northern edge of Monterey County. The proposed Import Pipeline would connect to the Watsonville turnout on the Santa Clara Conduit. Potential future delivery **of** water to Pajaro Valley was incorporated into the design of the **San** Felipe Unit pumping and transmission facilities. The design capacity available to PVWMA in the Santa Clara Conduit **is** 67 cubic feet per second (cfs), equal to approximately 4,500 to 4,600 acre feet per month. Facilities are planned per contract limitations on flow (67 cfs) but **may** be exceeded consistent with the operations of Santa Clara Valley Water District and San Benito County Water District. Except for the connection to the Santa Clara Conduit, no construction **or** physical modifications to CVP facilities are anticipated. The pipeline would extend from the existing Watsonville turnout across portions of San Benito, Santa Clara, Santa Cruz, and Monterey Counties and would connect with the ICDS near **SR 1**.

4.0 INTEGRATED COASTAL DISTRIBUTION SYSTEM

Another key component of the BMP is the Integrated Coastal Distribution System or ICDS. The purpose of the ICDS is to deliver water to growers in the coastal area roughly bounded by Monterey Bay to the west, SR 1 to the east, Elkhom Slough to the south, and Buena Vista Drive and Harkins Slough Road to the north. Growers in this area receiving water **from** the ICDS would take their wells out of service, thereby reducing the groundwater pumping rate. The ICDS consists of facilities required to provide complete irrigation to approximately 10,000 acres (gross), approximately 8,960 acres (net), with imported water supplies.

In addition to blended recycled water and imported water, the ICDS has a third supply source: the Harkins Slough diversion project, located in Santa **Cruz** County. The Harkins Slough project was completed in **2001**, including segments of the ICDS, to deliver water to nearby growers.

¹ This delivery figure, while subject to various considerations, is explained further in the CVPIA Programmatic EIS.

pipeline has already been constructed as part of the Harkins **Slough** project (site plans and pipeline alignment maps provided under separate cover).

5.0 PROJECT COMPONENTS WITHIN THE COASTAL ZONE

5.1 IMPORT PIPELINE

As the pipeline alignment continues west across Salinas Road, south of the community of Pajaro, it enters the "coastal zone" of Monterey County. The alignment continues west across SR 1 and turns north along a farm road, roughly 1,900feet west of SR 1. The alignment continues north across the Pajaro River to the north side of the river levee, which is the end point of the Import Pipeline and the beginning of the distribution system

5.2 ICDS

The South Plateau Lateral which would serve the Monterey County Service Area is wholly located in the "coastal zone. This lateral extends west along the south levee of the Pajaro River, and then proceeds south to a farm road. The pipeline follows this farm road for approximately two miles to its western terminus near the Pajaro River. The lateral travels south from this pipeline (approximately 1,500 feet west of the Pajaro River) then continues south approximately **18 miles,** crosses McClusky Slough, and endsjust north of the Struve Road *I* Giberson Road intersection. A main north-south sub-lateral extends branches from the South Plateau Lateral up the bluffjust west of SR 1, and then travels south for about **1.5** miles before turning east and crossing SR 1.

The ICDS pipeline in the Santa Cruz County Service Area would begin approximately 700 feet west of SR 1 on the north side of the Pajaro River. It parallels the Pajaro River along the outside of the north levee for approximately **0.3** mile in a westerly direction, **and** proceeds north past the wastewater treatment facility to West Beach Road. A main lateral extends west along Beach Road for approximately **2.25** miles, ending at the intersection of Beach and Shell Roads.

Two main laterals branch off of the Beach Road Lateral. The Northeast Addition Lateral travels north along a farm road approximately 1.25 miles. The North Plateau Lateral branches north off of the Beach Road alignment and follows San Andreas Road for approximately one-half mile to the north side of Watsonville Slough. From this point, the pipeline parallels the Harkins Slough pipeline, turns west along Dairy Road, and extends northwest for about one-half mile to the **Harkins** Slough recharge basin. The North Plateau Lateral then extends east to San Andreas Road and north along that road for approximately 1.5miles. In addition, the system includes **16** sublaterals (four along the Beach Road Lateral, four along the Northeast Addition Lateral, and eight along the North Plateau Lateral) to provide service to all parcels of land.

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6.0 BIOLOGICAL AND CULTURAL RESOURCES WITHIN THE COASTAL ZONE

6.1 VEGETATION, FISH, AND WILDLIFE

The ICDS can be divided into two service areas: Santa Cruz and Monterey Counties. The ICDS pipeline in the Santa Cruz Service Area would begin approximately 700 feet west of SR 1 on the north side of the Pajaro River. It parallels the Pajaro River on the outside of the north levee for approximately 0 **3** mile in a westerly direction surrounded by agriculture to the north and the Pajaro River Valley Foothill Riparian vegetation south of the levee. The pipeline then proceeds north past the Watsonville Wastewater Treatment Facility and agricultural fields to Beach Road. **A** main lateral extends west along Beach Road for approximately 2.25 miles, ending at the intersection of Beach Road and Shell-Road... Drainage ditches which support patches of freshwater emergent wetland in some locations parallel Beach Road.

Two main laterals branch off of the Beach Road Lateral. The Northeast Addition Lateral travels north along a farm road for approximately 1.25 miles. The surrounding habitat is agricultural with the exception of a bore and jack crossing of Hanson Slough, two crossings of Watsonville Slough, and another irrigation ditch crossing. Hanson Slough supports freshwater emergent wetland and willows. Watsonville Slough and the irrigation ditch are channelized at the crossing locations and support Freshwater Emergent Wetland. The North Plateau Lateral branches north off of the Beach Road alignment and follows San **Andreas** Road for approximately one-half **mile** across Watsonville Slough, which supports Freshwater Emergent Wetland and willows^Z. From this point, the pipeline parallels the Harkins **Slough** pipeline and turns west along Dairy Road and extends northwest for about one-half mile to the Harkins Slough recharge basin. From this point, the North Plateau Lateral extends east to San Andreas Road and north along that road for approximately 1.5 miles. Habitat surrounding the alignment is all agricultural with the exception of irrigation ditches and ponds, some of which support degraded Freshwater Emergent Wetland. In addition, the system includes 16 sub-laterals (four along the Beach Road Lateral, four along the Northeast Additional Lateral and 8 along the North Plateau Lateral) to provide service to all parcels of land.

The South Plateau Lateral would service the Monterey Service Area. This lateral extends west adjacent to the south levee of the Pajaro River and valley foothill riparian habitat beyond, and then proceeds south along **farm** roads. The pipeline follows farm roads for approximately two miles to its western terminus near the Pajaro River through agricultural fields and across irrigation ditches, some of which support degraded freshwater emergent wetland. The Lateral travels south along a farm road across Trafton Road and a steeply sloping area of natural vegetation, primarily coastal scrub and mixed chaparral. The alignment crosses an unnamed drainage within this habitat at the location of a culvert within an existing road and then continues south through agricultural fields. This drainage supports freshwater emergent wetland habitat as well as extensive willows. From this point the pipeline continues south approximately **18** miles, crosses McClusky Slough

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² The bore and jack crossing of Watsonville Slough has already been constructed as part of the Harkins Slough Pipeline Project.

through trenchless construction methods, and ends just north of the Struve Road / Giberson Road intersection adjacent to Bennett Slough. Both Bennett Slough and McClusky Slough support extensive and high-quality examples of freshwater emergent wetland. Numerous laterals branch off of the South Plateau Lateral through agricultural fields lacking natural habitat. Irrigation ponds and ditches which support degraded freshwater emergent wetland and a patch of coastal scrub a few hundred feet south of Jensen Road are also located in the project area.

WZLDLIFE

The agricultural portions of the ICDS area support little wildlife habitat, but the areas of natural vegetation contain suitable habitat for a number of **species**. McCluskey Slough is the most notable habitat, since it is a large and well-developed freshwater marsh. McCluskey Slough **is** a known locality for the Santa Cruz long-toed salamander, and was rated as excellentquality habitat for the California red-legged frog and western pond turtle. The seeps and drainage south of Trafton Road were noted as being potential habitat for the California red-legged frog. Santa Cruz long-toed salamander, and western pond turtle may inhabit suitable areas in Hanson Slough and Bennett Slough. Finally, Watsonville and Harkins Sloughs were considered potential movement corridors for California red-legged frog and western pond turtle. A small drainage parallel to San Andreas Road empties into Watsonville Slough and lies within the project area. Although identified as a Waters of the **U.S.(ESA, 1999c)**, this drainage sustains only ephemeral flow and was not considered to be a movement corridor or temporary habitat for Californiared-legged frog or western pond turtle.

WETLANDS

The Pajaro River, McCluskey Slough, Bennett Slough, and Hanson Slough support moderate to high quality wetland habitat. Within the immediate project area, Watsonville Slough and downstream reaches of Harkins **Slough** are channelized irrigation ditches that support lower quality habitat. Some upstream and downstream reaches of these sloughs maintain more natural features and provide higher quality habitat as a result. Lastly, imgation ditches throughout the ICDS project area support wetlands with cattail (*Typha* sp.), tule (*Scirpus* sp.), and other wetland indicator species. Habitat in these manmade ditches is degraded due to surrounding agricultural practices. With the exception of manmade irrigation ditches, all of the abovementioned wetland features likely fall under the jurisdiction of the U.S. Army Corps of Engineers.

FISHERIES

The Pajaro River provides important migration habitat for steelhead, and the Pajaro Lagoon is known to contain a population of tidewater gobies. With the exception of the lower reaches of Watsonville Slough below the tide gates, which are located outside the ICDS project area, the various sloughs discussed above **do** not provide habitat for sensitive **fish** species.

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NATURAL COMMUNITIES

Sensitive natural communities are found at wetlands with moderate to high quality habitat (coastal freshwater marsh), and along the Pajaro River (valley foothill riparian). Manmade irrigation ditches with fragmented wetland habitat are not considered sensitive natural communities.

6.2 CULTURAL RESOURCES

Five previously recorded prehistoric cultural resources (CA-SCR-60, CA-SCR-61, CASCR-102, CASCR-130, and CA-SCR-154) are located along or adjacent to the proposed laterals within the Santa Cruz Service Area of the ICDS. CA-SCR-60 consists of a large flaked-stone and shell scatter, while CA-SCR-61 is a large prehistoric habitation site with extensive shell midden and ground-stone tool scatter. CA-SCR-102, CA-SCR-130, and CA-SCR-154 generally consist of flaked-stone scatter with shell deposits.

In addition to the prehistoric sites, three properties listed as Santa Cruz County historic places are also located along or adjacent to the proposed laterals within the Santa Cruz Service Area of the ICDS. These sites consist of two large concrete water tank **towers** (constructed in 1912) and the Thurwachter Road Marker (constructed in 1934). None of these sites are considered eligible for listing on the NRHP (Holson, 1997). These sites were avoided during construction.

Proceeding under the terms of the Programmatic Agreement (PA) between the **U.S.** Army Corps of Engineers (USACOE) and the California SHPO executed in 2000 for the PVWMA Local Water Supply and Distribution Project, CA-SCR-60 and CASCR-130 were the subject of subsurface investigations prior to construction of the Harkins Slough project. Both sites contain deep stratified deposits and human remains, and thus were determined eligible for listing on the *NRHP*. Analysis of the materials and reporting was completed in Spring 2003. Subsurface probing at CA-SCR-61 suggested that the site is located outside of the pipeline alignment. Monitoring was conducted at this site during pipeline construction. CA-SCR-154 and CA-SCR-102 were outside of the pipeline alignment.

Cultural resource studies for the ICDS in the Santa Cruz Service Area were conducted and continue to be conducted in accordance with the PA between the USACOE and the California *SHPO*. CA-SCR-60 and CASCR-130 were determined eligible for inclusion in the NRHP. Mitigation of pipeline construction impacts were completed for these sites. CASCR-61, CA-SCR-102, and CA-SCR-154 were avoided during construction.

7.0 CONSTRUCTION OF COMPONENTS

7.1 PIPELINE CONSTRUCTION METHODS

Construction methods for the installation of pipelines would involve open trench methods **for** standard pipeline installation and potential microtunneling **or** jack and bore methods for crossings

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where trenching methods are not feasible or permissible by regulatory agencies (e.g., rivers, wetlands/sloughs).

Open Trench

Trench width for the Import Pipeline installation would be approximately 15 feet with a depth of **12** feet depending on the size of the pipeline being installed. For the ICDS, trench width would be approximately **4** feet with a depth of 7 feet depending on the size of the pipeline being installed. Trenches would be braced using a trench box or speed shoring. The active work area along the open trench would extend about 5 to 10 feet to one side of the trench and **20** to 30 feet to the other side when area is available, allowing for access by trucks and loaders. The minimum construction right-of-way would be approximately 15 feet; the maximum construction easement would be 110 feet wide. On narrower farm roads or where deemed necessary, parking restrictions may be imposed during the construction period to facilitate traffic **flow** around the construction area.

Staging areas during construction would occur along the pipeline alignment and construction equipment and other materials would be located in parking lots, vacant lots, or segments of temporarily closed street lanes. Staging areas would be selected to minimize hauling distances and long-term disruption. Material excavated from trenches would be almost exclusively reused to limit the amount of off-haul material. The amount of excavation material to be off-hauled and the location for the off-haul material will be further refined during the final engineering phases **of** the project.

Jack and Bore

Jack and bore construction techniques may be used for the crossing of busy intersections, wetlands, sloughs, and other environmentally sensitive locations. The jack and bore method involves use **of** a horizontal boring machine or auger to drill a hole and a hydraulic jack to push a casing through the hole. **As** the boring proceeds, a steel casing pipe is jacked into the hole; the pipeline is then installed in the casing. The casing is jacked using a large hydraulic jack in a pit located at one end of the crossing. The jacking pit is approximately 15 feet by 20 feet; the temporary pits are typically excavated to a few feet below pipe depth. If water flows persist within the channels at the time of construction, sheetpile cofferdams would be installed in a portion of the channel and the construction area would be dewatered.

Microtunneling

Microtunneling methods provide the ability to construct pipelines in a cost-effective manner and, at the same time, minimize construction impacts. Microtunneling is a trenchless construction method for installing pipelines simultaneously as soil is excavated and removed. Microtunneling uses a remote controlled boring machine equipped with a guidance system to install pipeline by consecutively pushing pipes and the boring machine through the ground using a jacking system for thrust. During this process, continuous pressure is provided to the face of the excavation to balance groundwater and earth pressures.

7.2 IMPORT PIPELINE

The proposed 22.2-mile Import Pipeline would consist of pipe segments 16 to **18** feet in length. The maximum pipe diameter would he 66 inches; however, pipe diameter may be reduced to **48** inches in areas where accessibility to the site and easement width is constrained (e.g., at Pajaro River crossings near Chittenden Pass). The entire pipeline would be located underground beneath five to 10 feet of cover.

Along most of the alignment, the pipe would be installed in a trench with 2:1 sideslopes, with one foot **of** bedding material below the pipe and five feet of cover material. In general, the pipeline alignment is located in open areas where conventional excavation methods can be used for open-cut (open-trench)pipeline installation. Open-cut installation is typically the least expensive method of installing pipe and is the preferred method for the Import Pipeline. Open-cut construction methods would be employed to construct most of the proposed overland, road, and dry river channel crossings; however, optional methods of installation would be used in some areas where the alignment crosses major roads, the Pajaro River, creeks with flowing water, dense vegetation, or other conditions where surface disturbance needs to be minimized.

The Import Pipeline would cross the Pajaro River twice in Monterey and Santa **Cruz** Counties: once to deliver water to the blending facility on the Monterey County side of the river, and again for delivery of the blended water to Santa Cruz County. Crossing of the river is proposed using a trenchless crossing method, microtunneling, due to the length and depth of the crossing and diameter of the casing pipe. This construction method involves excavating the soil in front of the pipe with an auger or other means, and using a jack to push the pipe sections forward as the soil is removed.

7.3 ICDS

The proposed **ICDS** contains a total of 165,670 linear feet (LF) of pipeline and is divided into two service areas: Santa Cruz and Monterey. 28,530 LF of pipeline has already been constructed as part of the previously authorized Harkins Slough Project, approximately 54,000 LF would be constructed in Santa Cruz County and approximately **84,000 LF** in Monterey County.

7.4 SLOUGHS

The majority of the **ICDS** alignment runs along farm roads, county roads and some private lands, however, portions of the proposed ICDS alignment cross rivers, and environmentally sensitive areas. Although recommended lateral routes minimize the number **and** length of special crossings, the ICDS would cross two sloughs: Hanson **Slough** and McClusky Slough. The crossing of these sloughs would occur via trenchless construction methods (**i.e.** jack and bore, microtunnel).

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8.0 IMPACTS AND MITIGATION

Appendix B summarizes the impacts of the proposed project. For each impact considered to be significant or potentially significant, the table summarizes the recommended mitigations. The discussion of potential impacts can be focused into a few key project elements. The chief element is potential disturbance effects of facility construction and operation (e.g., effect on biological resources, water quality, traffic and circulation). The second element is effects, primarily on biological resources, from water diversions. With the implementation of recommended mitigation measures, most significant impacts would be avoided or substantially lessened to a level that is less than significant.

Appendix B is only intended to provide a summary of the impacts and mitigation measures which are described in detail in <u>The Paiaro Vallev Water Management Agency Local Water Supply and</u> <u>Distribution Environmental Impact Report</u>, May 7, 1999. Chapter 8 of this report gives a detail description of the Environmental Setting, Impacts and Mitigation of the Irrigation Coastal Distribution System.

9.0 OTHER AGENCY APPROVALS

Table 2 lists the permits and approvals required for the project and approving agencies.



Action Requiring Permit/Consultation	Agency/Organization	Permit or Approval		
Federal				
Impacts to wetlands <i>I</i> waters of the United States.	U.S. Army Corps of Engineers	Section 404 Permit		
Construction in wetland and upland areas where federally listed species may be present.	U.S. Fish and Wildlife Service; National Marine Fisheries Service	Consultation and Coordination under Endangered Species Act		
State				
Development of water supplies.	State Water Resources Control Board	Water Rights Permits		
Alteration of streambeds during Construction.	California Department of Fish and Game	1601 Streambed Alteration Agreement		
Projects west of Highway 1.	Coastal Commission	Coastal Development Permits		
Potential for water quality impairment from sediment discharge to waterways during construction.	Regional Water Quality Control Board	401 Certification		
Construction under Highways 1, 25, 101, and 129.	Caltrans	Encroachment Permits		
Change in place of use, purpose of use for CVP water.	State Water Resources Control Board			
Protection of water courses from erosion, sediment, and pollutant discharge during construction.	State Water Resources Control Board	National Pollutant Discharge Elimination System Permit for Construction; Stormwater Pollution Prevention Plan		
Local				
Construction and excavation activities in Monterey County.	Monterey County Planning Department	Grading Permit; Coastal Development Permit; Development Permit (inland areas)		
Construction in County- maintained roadways.	Monterey County Public Works	Encroachment Permit		
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TABLE 2 POTENTIAL PERMITS AND APPROVALS

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TABLE 2 (Continued) POTENTIAL PERMITS AND APPROVALS

Action Requiring Permit/Consultation	Agency/Organization	Permit or Approval		
Construction affecting Pajaro River levees and drainage ditches.	Monterey County Wa 25 Agency Flood Control	Encroachment Permit Approv		
Construction and excavation activities in Santa Cruz County.	Santa Cruz County Planning	Grading Permit; Riparian Exception; Coastal Development Permit		
Construction in County- maintained roadways.	Santa Cruz County Public Works	Encroachment Permit		



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REFERENCES

- Pajaro Valley Water Management Agency (PVWMA), PVWMA Basin Management Plan Drafi EIR, 2001.
- Pajaro Valley Water Management Agency (PVWMA), PVWMA Local Water Supply and Distribution Final EIR, 1999.
- United States Department of Interior, Bureau of Reclamation, *PVWMA Basin Management Plan* Draft EZS, 2003.



APPENDICES

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APPENDIX A

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ASSESSOR PARCEL NUMBERS

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PVWMA Coastal Permit

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APPENDIX B

MITIGATION MEASURES SUMMARY TABLE

Pajaro Valley Water Management Agency Coastal Development Permit Application Package

Environmental Science Associates

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EXHIBIT K



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
4.1 Land Use and Planning – College Lake		_
Impact 4.1.3-1: Construction of the College Lake facilities would result in short-term disturbance of adjacent land uses.	Mitigation Measure 4.1.3-1 (Recommended): The PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas.	Less than significant.
	See also mitigation measures in Sections 4.6.3, Traffic, and 4.7.3, Air Quality, of this EIR.	
Impact 4.1.3-2: The proposed College Lake component would be generally consistent with policies of the Watsonville General Plan and the Santa Cruz County General Plan/LCP.	None rcquircd.	Less than significant.
Impact 4.1.3-3: Development of the College Lake component would result in the permanent loss of up to one-half acre of agricultural lands.	None available.	Significant and unavoidable,
5.1 Land Use and Plannine – Harkins Slough		
Impact 5.1.3-1: Construction of the proposed facilities of the Harkins Slough component could result in short-term disturbance of adjacent land uses	Mitigation Measure 5.1.3-1 (Recommended): Implement Measure 4.1.3-1, above.	Less than significant.
Impact 5.1.3-2: The proposed Harkins Slough component would be generally consistent with the policies of the Santa Cruz County General Plan/LCP.	None required	Less than significant.
Impact 5.1.3-3: Development of the Harkins Slough component would result in the permanent loss of approximately one-half acre of agricultural land.	None available	Significant and unavoidable,

 TABLE 1

 SUMMARY OF IMPACTS AND MITIGATION MEASURES

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TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
6.1 Land Use and Planning – Murphy Crossing			
Impact 6.1.3-1: Construction of the proposed facilities at Murphy Crossing would result in short-term disturbance of adjacent land uses.	Mitigation Measure 6.1.3-1 (Recommended): Implement Measure4.1.3-1. above.	Less than significant.	
Impact 6.1.3-2: Development of the Murphy Crossing component would convert approximately eleven acros of prime farmland to water supply infrastructure uses.	None available.	Significant and unavoidable.	
7.1 Land Use and Planning Watsonville Reclamation			
Impact 7.1.3-1: Construction of the proposed facilities of the Watsonville wastewater reclamation component would result in short-term disturbance of adjacent land uses.	Mitigation Measure 7.1.3-1 (Recommended): Implement Measure 4.1.3-1, above.	Less than significant.	
8.1 Land Use and Planning – Coastal Distribution			
Impact 8.1.3-1: Construction of the proposed coastal distribution system would result in short-term disturbance of adjacent land uses.	Mitigation Measure 8.1.3-1 (Recommended): Implement Measure 4.1.3-1, above.	Less than significant.	
Impact 8.1.3-2: The proposed coastal distribution system would be generally consistent with policies of the Santa Cruz County General Plan/LCP and the Monterey County General Plan, North County Area Plan, and North County LUP/LCP.	None required.	Less than significant.	
9.1 Land Use and Planning – Inland/Murphy Crossing Distribution	ution		
Impact 9.1.3-1: Construction of the inland distribution system and the Connecting Pipeline would result in short-term disturbance of adjacent land uses.	Mitigation Measure 9.1.3-1 (Recommended): Implement Measure 4.1.3-1, above.	Less than significant.	



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
4.2 Geology and Soils Colleee Lake		
Impact 4.2.3-1: Construction of the proposed pipeline and water diversion and treatment facilities would result in accelerated crosion and attendant loss of soil resources and affects on sediment discharges in water courses. The impact	Mitigation Measure 4.2.3-1 a: All grading and construction shall conform to requirements of the Santa Cruz County Grading Ordinance.	Less than significant.
would he significant on slopes over 2 percent and in arcas with soils having moderate or greater erosion hazard.	Mitigation Measure 4.2.3-1b : Site grading and construction work areas shall expose as little new ground surface as possible. Vegetation cover should he left intact to the extent practical.	Less than significant.
	Mitigation Measure 4.2.3-IC : To the extent possible, grading activities in non-cropped areas shall he limited to the period between April 15 and October 31. If dry conditions persist after October 31 , one week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their crosion control and farming practices and construction disturbance.	Less than significant.
	Mitigation Measure 4.2.3-1d: Implement best construction practices at all grading sites, regardless of soil erodibility hazard.	Less than significant.
	Mitigation Measure 4.2.3-le: Upon completion of construction at all sites, loose soils shall be removed or spread and all areas shall be re-soiled and reseeded to ensure that a stable soil cover will remain.	Less than significant.



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFIEK MITIGATION
Impact 4.2.3-1 (cont.)	Mitigation Measure 4.2.3-1f : PVWMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.	Less than significant.
Impact 4.2.3-2: The proposed increase in th c storage capacity of College Lake would expand the lake's inundation area, which could result in exposure of soils to erosion.	Mitigation Measure 4.2.3-2 (Recommended): Periodic inspection of the shoreline area is recommended to identify if soil losses in the expanded inundation area of College Lake are resulting in noticeable soil losses and erosion of the adjacent slopes. If enhanced erosion conditions are identified, corrective actions for slope and soil stabilization would be undertaken.	Less than significant
Impact 4.2.3-3: The project would result in a less than significant loss of prime agricultural soils.	None required.	Less than significant.
Impact 4.2.3-4. Weak, expansive and corrosive soil hazards. Proposed pipelines pass through some areas with weak soils subject to settlement, expansive soils and potentially corrosive soils that could damage the proposed facilities.	Mitigation Measure 4.2.3-4 : Conduct soil engineering investigations of the proposed pipeline alignment and pumping facilities prior to the final design, and implement design recommendations. The investigations will specify hazards related to corrosion, weak soils and settlement, including differential settlement. The recommendations of an engineering geologist shall he incorporated into the design and specifications and shall be implemented by <i>the</i> construction contractor. The construction manager shall conduct inspections and certify that all design criteria have been met. While these measures would not ensure that some damage to the facilities would not occur, it would ensure that design standards have been met and the hazards have been reduced to an acceptable level of risk. Therefore, the impact would be reduced to a less than significant level.	Less than significant.



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		Impact 5.2.3-3: The project would result in a loss of agricultural soils.	Impact 5.2.3-2: As the project would create no change in water levels in Harkins Slough, no impact on soils or erosion of wetlands would occur.	Impact 5.2.3-1: Construction of the proposed pipeline and infiltration facilities would result in accelerated erosion and attendant loss of soil resources and effects on sediment slopes over 2 percent and in areas with soils having moderate or greater erosion hazard, which includes the entire area of the coastal dunes distribution system.	5.2 <u>Geology and Soils - Harkins Slough</u>	Impact 4.2.3-5: Large earthquakes would be expected to	ENVIRONMENTAL
S-10		None required.	None required.	Mitigation Measure 5.2.3-1: Implement Measures 4.2.3-1a through 4.2.3-1f, above.	Mitigation Measure 4.2.3-5: Conduct geologic investigations of the proposed pipeline alignment and pumping, diversion design recommendations. The investigations will specify especially liquefaction. The recommendations of an specifications and shall be incorporated into the design and contractor. The construction manager shall conduct While these measures would not ensure that damage to the have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less than significant level.	MITIGATION	TABLE 1 (Continued) RY OF IMPACTS AND MITICATION MEASURES
EXHIBIT	Less than significant.		Less than significant.	Less than significant.	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
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 Impact 6.2.3-2: The project wound agricultural soils. agricultural soils. Impact 6.2.3-3: The proposed pipelines connecting the infiltration gallery to the groundwater extraction wells and the infiltration gass through technic proposed facilities. some areas with weak soils subject to settlement and expansions that could damage the proposed facilities. Impact 6.2.3-4: Large carthquakes would be expected to damage the proposed facilities, impairing and/or disrupting damage the proposed facilities, impairing and/or disrupting damage the proposed facilities. 	6.2 <u>Geology and Soils Murphy Crossing</u> Impact 6.2.3-1: Construction of the proposed infiltration galleries, pipeline, and recharge basins would result in accelerated erosion and attendant loss of soil resources and effects on sediment discharges in water courses. Almost the entire project area is characterized by soils with slight erosion hazard. The impact would be significant on slopes over 2 bercent.	ENVIRONMENTAL IMPACT Min ENVIRONMENTAL IMPACT Min Impact 5.2.3-4: Proposed pipelines pass through some areas abo with weak soils subject to settlement, and expansive and potentially corrosive soils that could damage the proposed facilities. Impact 5.2.3-5: Large earthquakes would be expected to damage the proposed facilities, impairing and/or disrupting their damage the proposed facilities, impairing and/or disrupting their intended operations.	SUMMARY OF IMI
e above. we witigation Measure 6.2.3-4: Implement Measure 4.2.3-5, above. stheit above. S-11	Mitigation Measure 6.2.3-1: Implement Measures 4.2.: through 4.2.3-1f, above. through available. None available.	tigation Measure 5.2.3-4: Implement iter 4.2.3-5, ove. Mitigation Measure 5.2.3-5: Implement Measure 4.2.3-5, above. above. While these measures would not ensure that damage to the Facilities would not occur, it would ensure that the hazards facilities would not occur, it would ensure that the hazards have been reduced to an acceptable level of risk and, there have been reduced to an acceptable level of risk and there have been reduced to a level of risk and there have been reduced to a level of risk and th	TABLE I (Continued) PACTS AND MITTIGATION MEASURES PACTS AND MITTIGATION MEASURE 4.2.3-4, LE
Less than significant. EXH 317	Significant and unavoidable. Less than significant.	Less than significant.	AFTER MITIGATION Less than significant.

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S 12	 Impact 8.2.3-4: Proposed pipelines on the Pajaro floouplain above. pass through areas with Clear Lake clay soils that are weak soils above. subject to settlement, expansive soils and potentially corrosive soils that could damage the proposed facilities. Impact 8.2.3-5: Large earthquakes would be expected to damage the proposed facilities, impairing and/or disrupting their damage the proposed facilities, impairing and/or disrupting their intended operations. 	the entire area of the costs and the sult in a less than None required. Impact 8.2.3-3: The project would result in a less than significant loss of prime agricultural soils. Mitigation Measure 8.2.3-4: Implement Me	Impact 8.2.3-1: Construction of the proposed pipelines would be significant on slopes over 2 percent and in areas with would be significant on slopes over 2 percent and in areas with soils having moderate or greater erosion hazard, which includes soils having moderate distribution system. Mitigation Measure over through 4.2.3-1f, above.	Impact 7.2.3-3: Large earthquakes would be expected to damage the proposed facilities, impairing and/or disruption their above. intended operations. above. 8.2. Geology and Soils - Coastal Distribution System Sector State S	erosion hazard. Impact 7.2.3-2: The project would result in a temporary loss of None required. prime agricultural soils. Mitigation Measure 7.2.3-3. Implement Measure	 7.2 Geology and Soils - Watsonville Rectamative 7.2 Geology and Soils - Watsonville Rectamative Impact 7.2.3-1: Construction of the proposed reclaimed water pipeline and facilities at the treatment plan could result in accelerated erosion and attendant loss of soil resources. Almost the entire project area is characterized by soils with slight Mitigation Measure 7.2.3-1: Implement Measure accelerated erosion and attendant loss of soil resources. Almost the entire project area is characterized by soils with slight 	ENVIRONMENTAL IMPACT MITIGATION	TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASU
EXHIBIT K	Measurc 4.2.3-5, Less than significa	Jeasure 4.2.3-4, Less than significal	Less than significar	easures 4.2.3-1a Less than significant	sure 4.2.3-4, Less than significant.	sures 4.2.3-1a Less than significant.	AFTER MITIGATION	URES LEVEL OF SIGNIFICANCE

4.3 <u>Hydrology and Water Quality - College Lake</u> Impact 4.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	 Impact yours of areas with weak soils subject to settlement and expansive souls that could damage the proposed facilities. Impact 9.2.3-4: Large earthquakes would be expected to damage the proposed facilities, impairing and/or disrupting their intended operations. 	Impact 9.2.3-2: The proposed pipelines would not result in a permanent loss of prime agricultural soils.	and effects on scdiment discharges in wave consistent and effects on scdiment discharges in wave consistent entire project area is characterized by soils with slight erosion entire project area is characterized by soils with slight erosion hazard. The impact would be significant on slopes over 2 hazard.	9.2 Geology and Soils - Inland/Murphy Crossing Distribution Impact 9.2.3-1: Construction of the proposed pipelines would result in accelerated erosion and attendant loss of soil resources	ENVIRONMENTAL IMPACT	SUMMARY O
Mitigation Measure 4.3.3-1: Employ construction storm water quality management practices.	Mitigation Measure 9.2.3-4: Implement Measure 4.2.3-5, above.	None required. Mitigation Measure 9.2.3-3: Implement Measure 4.2.3-4, above.	Mitigation Measure 9.2.3-1b: Implement Measures 4.2.3-11 through 4.2.3-1f, above.	Mitigation Measure 9.2.3-1a: All grading and construction shall conform to requirements of the Santa Cruz County Grading Ordinance and Monterey County Grading Ordinance	MITIGATION	TABLE 1 (Continued))F IMPACTS AND MITIGATION MEASURES
Less than significant.	Less than significant.	Less than significant.	Less than significant.	Less than significant.	AFTER MITIGATION	
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EXHIBIT K

TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.3.3-2: Construction activities at the proposed project site could result in dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 4.3.3-2: Obtain NPDES permit for construction dcwdtering and implement conditions of the permit. An NPDES permit will he required from the RWQCB for all discharges for construction dcwatering. Discharges must meet water quality objectives specified in the Basin Management Plan as described in Section 3.3. The RWQCB may require certain conditions of the permit, such as treatment of the flows prior to discharge.	Less than significant
Impact 4.3.3-3: Operation of the project will change historical water levels patterns in College Lake and discharges by pumping to Salsipuedes Creek.	None required.	Less than significant.
Impact 4.3.3-4: Raising the level of College Lake may expose people and structures to increased flood hazards.	None required.	Less than significant.
Impact 4.3.3-5: The College Lake project would convey water that normally would flow to the ocean to agricultural lands for irrigation, thereby decreasing the need to pump groundwater.	None required	Beneficial
5.3 Hydrology and Water Quality - Harkins Slough		
Impact 5.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigation Measure 5.3.3-1: Implement Measure 4.3.3-1, above.	Less than significant.
Impact 5.3.3-2: Construction activities at the proposed project site could result in dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 5.3.3-2: Implement Measure 4.3.3-2, abovc.	Less than significant.



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ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 5.3.3-3: Operation of the project will change historical discharges of flood waters in Watsonville and Harkins Sloughs to the Pajaro River.	None required.	Less than significant.
Impact 5.3.3-4: Development at the project site would not cxpose people and structures to flood hazards.	Nonc required.	Less than significant
Impact 5.3.3-5: The Harkins Slough project component would convey water that normally would flow tu the Pajaru River and the ocean, to irrigation users or to groundwater recharge facilities which would reduce groundwater overdraft conditions.	None rcquired.	Beneficial
6.3 Hydrology and Water Ouality – Murphy Crossing		
Impact 6.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigation Measure 6.3.3-1 : Implement Measure 4.3.3-1, above.	Less than significant.
Impact 6.3.3-2: Construction activities at the proposed project site could result in the temporary depletion of groundwater resources and contamination of surface water.	Mitigation Measure 6.3.3-2: Implement Measure 4.3.3-2, above.	Less than significant.
Impact 6.3.3-3: Operation of the project would lower water levels and flow in the Pajaro River and reduce flows to the ocean.	None required.	Less than significant.
Impact 6.3.3-4: Development at the project site may expose people and structures to flood hazards.	None required	Less than significant.



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
Impact <i>6.3.3-5:</i> The project will construct a pipeline adjacent to PVWMA Well No. 54 at the corner of Murphy Road and Riverside Drive / Highway 129. Construction activities could damage the well or block access to the well.	Mitigation Measure 6.3.3-5: Avoid construction impacts to well. The precise well location shall be identified in preconstruction surveys. The pipeline construction trench, material stockpile areas and soil excavation stockpiles shall be designated in the construction plans and specifications to specifically avoid impacting the well and access to the well,	Less than significant.	
Impact 6.3.3-6 : The Murphy Crossing project would convey water that normally would flow to the ocean to groundwater recharge facilities or to irrigation users which would reduce groundwater overdraft conditions.	None required.	Beneficial	
1.3 Hydrology and Water Ouality – Watsonville Reclamation			
Impact 7.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigation Measure 7.3.3-1: Implement Measure 4.3.3-1, above.	Less than significant.	
Impact 7.3.3-2: Construction activities at the proposed project site could result in the dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 7.3.3-2: Implement Measure 4.3.3-2, above.	Less than significant.	
Impact 7.3.3-3 : Development at the project site may expose people and structures to flood hazards.	None required	Lcss than significant,	
Impact 7.3.3-4: The discharge of treated wastewater to agricultural fields may degrade surface or groundwater or may not be suitable for various crops. However, the proposed project would blend reclaimed water with other water sources to achieve acceptable water quality.	None required.	Less than significant.	



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 7.3.3-5: The reclamation project would convey treated wastewater that normally would flow to the ocean to agricultural lands for irrigation, thereby decreasing the need to pump groundwater.	None required.	Beneficial.
8.3 Hydrology and Water Quality – Coastal Distribution		
Impact 8.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigdtiou Measure 8.3.3-1: Implement Measure 4.3.3-1, above.	Less than significant.
Impact 8.3.3-2: Construction activities at the proposed project site could result in dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 8.3.3-2 : Implement Measure 4.3.3-2, above.	Less than significant.
Impact 8.3.3-3: Development at the project site may expose structures to flood hazards. However, after construction, all of the project pipcline will be underground and will not cause a flood hazard.	None required.	Less than significant.
Impact 8.3.3-4: The proposed pipeline would be constructed adjacent to a number of wells. Construction activities could damage the wells or block access to the wells.	Mitigation Measure 8.3.3-4: Implement Measure 6.3.3-5, abovc.	Less than significant.
Impact 8.3.3-5: The coastal distribution system project would convey water to agricultural lands for irrigation, thereby decreasing the need to pump groundwater.	None required	Beneficial.
9.3 Hydrology and Water Quality – Inland/Murphy Crossing 1	Distribution_	
Impact 9.3.3-1: Construction activities would increase soil erosion and may transport other contaminants to downstream receiving waters.	Mitigation Measure 9.3.3-1: Implement Measure 4.3.3-1, above.	Less than significant.



TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 9.3.3-2: Construction activities at the proposed project site could result in dewatering of shallow groundwater resources and contamination of surface water.	Mitigation Measure 9.3.3-2: Implement Measure 4.3.3-2, above.	Less than significant
Impact 9.3.3-3: Development at the project site may expose structures to flood hazards. However, after construction, all of the project pipeline will be underground and will not cause a flood hazard.	None required.	Less than significant
Impact 9.3.3-4: The proposed pipelines would he constructed adjacent to two wells. Construction activities could damage the wells or block access to the wells.	Mitigation Measure 9.3.3-4: Implement Measure 6.3.3-5, above.	Less than significant.
Impact 9.3.3-5: The distribution systems project would convey water to agricultural lands for irrigation, thereby decreasing the need to pump groundwater.	None required	Beneficial.
4.4 Vegetation and Wildlife – Colleee Lake		
Impact 4.4.3-1 <i>Wetlands</i> : Construction of the hcadgate and pipeline crossing could result in temporary impacts of up to 0.7 acres of potential jurisdictional wetlands/waters of the U.S. and streambeds and hanks under the jurisdiction of CDFG. Potential impacts include sedimentation <i>of</i> the channels adjacent to the construction area during trenching activities, and temporary loss of wetland-associated vegetation, stream function as wildlife and fishery habitat, and loss of special status natural communities.	Mitigation Measure 4.4.3-la — Wetlands Avoidance: Crossings of Corpsjurisdictional areas at Corralitos Creek and Salsipuedes Creek for the pipeline shall be avoided by project construction. All facilities and construction activities shall he maintained outside the jurisdictional area. This measure would also avoid impacts to special status species potentially occurring in these water ways (see Impact 4.4.3-2).	Less than significant.
	This mitigation measure would avoid significant impacts at Corralitos Creek. Impacts to waters at Salsipuedes Creek and elsewhere along the pipeline route would be minimized through implementation of the following mitigation.	

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ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.4.3-1 (cont.)	Mitigation Measure 4.4.3-1b—Implement Standard Protective Measures io Maintain Water Qualify and Control Erosion and Sedimentation: Standard measures to maintain water quality and to control erosion and sedimentation are recommended.	
	Mitigation Measure 4.4.3-1 cRevegetation Measures in <i>Riparian Forest:</i> Where adverse impacts to coastal riparian forest occur at Corralitos and Salsipuedes creeks, revegetation measures will be developed as part of a revegetation plan approved by CDFG.	
Impact 4.4.3-2: Construction of facilities in and near wetlands could result in temporary impacts to special status animal species and their habitats. Impacts could occur due to increased sedimentation in streams, dewatering ofpools, habitat loss through vegetation removal, destruction of nests and burrows and construction disturbance.	Mitigation Measure 4.4.3-la— Avoid Disturbance tu Riparian Vegetation: Avoid removal or damage to all riparian vegetation within the project corridor. Erect exclusion fencing during construction along the edge of riparian vegetation where the construction area is within 25 feet of the riparian zone. If complete avoidance is infeasible, implement Measure 4.4.3-2b.	Less than significant.
	The above measure is applicable at crossings of Salsipuedes Creek and Corralitos Creek.	
	Mitigation Measure 4.4.3-2b — <i>Survey, Consultation and</i> <i>Protection Measures for California Red-Legged Frog:</i> Since potential habitat for the California red-legged frog is present at Corralitos and Salsipuedes creeks, informal consultation with USFWS was initiated and a site assessment was carried out as part of the field surveys in 1999. Since red-legged frogs are presumed present, reasonable and prudent protection measures outlined in the programmatic Biological Opinion (FWS, 1999)(required by the Endangered Species Act) will be carried out for this project.	

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TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.4.3-2: (cont.)	Mitigation Measure 4.4.3-2c—Survey and Protection <i>c</i> Raptor and Passerine Nesting Sites: To avoid conflicts with nesting raptors and passerine birds, construction activities within 500 feet of riparian habitat shall begin prior to the nesting season (March to July). The potential occurrence of nesting raptors shall be evaluated and mitigation measures carried out in all areas of suitable habitat near the College Lake headgates, and along Corralitos and Salsipuedes Creek Mitigation Measure 4.4.3-2d—Survey and Protection of Western Pond Turtles: Prior to construction activities a qualified biologist will perform pond turtle surveys of suitable habitat within 300 feet of the waterway where construction activities would remove riparian habitat. Surveys will include nests as well as individuals. The project biologist will be responsible for the survey and for relocating adult turtles which move into the construction zone after construction has begun. Construction will not proceed until the area is determined to be free of turtles or their nests. If a nest is located within a work area, a biologist with the appropriate permits may move the eggs to a suitable facility for incubation,	
	and release hatchlings into the creek system in late fall. Mitigation Measure 4.4.3-2e — <i>Construction Protection</i> <i>Measuresf ir Steelhead:</i> Construction of the headgate/weir structure on Salsipuedes Creek below College Lake shall be limited to June 1 to November 1 to avoid impacts to migrating steelhead.	-


	Mitgati Migrati current I directly remain i diversio are not irrigatio reviewe cutrapu autractid when la	Mitigati Steelhea headgate maintain the press	act 4.4.3-3: Operation of the proposed project would reduceMitigatioamflows for steelhcad passage in Salsipuedes Creek, icularly for down-migrating smolts in the spring months. icularly for down-migrating smolts in the spring months. ing the headgates at College Lake could present a barrier to migrating adult steelhead. Significant. The impact would be migrating adult steelhead. Significant level with mitigation identified migration identifiedMitigatio for Steelh College L ake wat providing	IRONMENTAL IMPACT MITIGA	TA SUMMARY OF IMPA
S-21	tion Measure 4.4.3-3c—Protection of Down- ing Steelhead at College Lake Intake Facilities: The pumping facilities move water out of College Lake and in their traditional stream. With the construction of a on pipeline, the intake structure must assure that smolt entrained, since the diverted water will be used for on or recharge. The intake facilities must then be ed to assure that their design will result in no ment or entrainment of steelhead smolts. In addition, an ion flow of 2 cfs will be maintained over the outlet weir lake water elevations are at 60.2 ft or more.	tion Measure 4.4.3-50— <i>Frotection of OP-rationants</i> ad at College Lake Headgates: The height of the les at College Lake shall be adjustable and will be ned so that upstream passage is no more difficult than sent conditions.	on Measure 4.4.3-3a—Maintenance of Streamflow <i>Head</i> : Impacts to steelhead smolt passage by altering Lake storage and/or reducing the pumping of College tter into Salsipuedes Creek can be avoided by ig minimum bypass flows during the steelhead smolt on period.	ATION	ABLE 1 (Continued) ACTS AND MITIGATION MEASURES
			Less than significant	LEVEL OF SIGNIFICANCE AFTER MITIGATION	

ENVIRONMENTAL IMPACTNITIGATIONLEVEL OF SIGNIFICANCE AFTER MITIGATION5.4 Vegetation and Vibilie - Inachan SharelIntegrets or special statis animal species of dependent on writand in impacts or special statis animal species dependent on writand in impacts or special statis animal species dependent on writand in impacts or special accound not or writand in a special in a similarity in a seturation or writand in a status of the inaction of a status accound not or writand in a status of the inaction of a status and construction distribution.Mitigation Measure 5.4.3.1b – Surrey, Consultation and Protection Measures 5.4.3.1b – Surrey, Consultation and Protection Measure 5.4.3.1b – Surrey, Consultation and Summarizer size operating bacta was initiated status and the Suma or rule status of the California rel-legged frog urans or for health and the california rel-legged frog will occur, requirements under the California tel-legged frog will occur, requirements under the california t	SUMMARY	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES	
 S.4 Vegetation and Wildlife - Itarkins Slough Tarpaet S.4.3-1: Construction and operation of water diversion facilities at Hatchins Slough, venuel result in impacts to special situation in waterways, activation on water diversion is usinitily in Lower Vetasooutile Slough, vegetation removes, destruction disturbance. Milgation Messure S.4.3-1m - Implement Measure 4.4.3-2a, above. Milgation Messure S.4.3-1m - Implement Measure 4.4.3-2a, above. Milgation Messure S.4.3-1m - Survey, Consolution and Protection Messure S.4.3-1m - Survey, Consolution and Suid Crac Long-Long Collipornia Tiger Sultamender and Suid Crac Long-Long Coll	ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 5.1.1: Construction and operation of water diversion facilities at Harkins Slough would result in impacts to special status animal species dependent on wetland labitats. Impact to cover Watsouville Slough, vegetation removal, destruction of nests and burrows and construction disturbance.Mitigation Measure 5.4.3-1a—Implement Measure 4.4.3-2a, above.Less than significant above.Interest of pools, habitat loss through changes in salinity in 	5.4 Vegetation and Wildlife – Harkins Slough		
Mitgation Measure 5.4.3-1b—Survey, Consultation and Protection Measures for California Real-legged Frog. California Tege Salamander and Santa Cruz Long-toed Santa Cruz long-toed salamander as part of the habitat assessment, informal consultation with USFWS was initiated. If the Corps determines that potential impacts to habitat for the California red-legged frog will occur, requirements under the programmatic Biological Opinion for this species will be carried out. Impact 5.4.3-2: Construction of pipeline facilities could result in impacts to special status plant species. None required. Less than significant.	Impact 5.4.3-1: Construction and operation of water diversion facilities at Harkins Slough would result in impacts to special status animal species dependent on wetland habitats. Impacts could occur due to increased sedimentation in waterways, dewatering of pools, habitat loss through changes in salinity in Lower Watsonville Slough, vegetation removal, destruction of nests and burrows and construction disturbance.	Mitigation Measure 5.4.3-1 a—Implement Measure 4.4.3-2a, abovc.	Less than significant
Impact 5.4.3-2: Construction of pipeline facilities could result None required. In impacts to special status plant species.		Mitigation Measure 5.4.3-1b—Survey, Consultation and Protection Measures for California Red-legged Frog, California Tiger Salamander and Santa Cruz Long-toed Salamander: Since potential habitat was identified at Watsonville Slough for the California red-legged frog and the Santa Cruz long-toed salamander as part of the habitat assessment, informal consultation with USFWS was initiated. If the Corps determines that potential impacts to habitat for the California red-legged frog will occur, requirements under the programmatic Biological Opinion for this species will be carried out.	
	Impact 5.4.3-2: Construction of pipeline facilities could result in impacts to special status plant species.	None required.	Less than significant.

EXHIBIT K

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ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
6.4 Vegetation and Wildlife – Murphy Crossing		
Impact 6.4.3-1: Construction of the proposed project could result in disruption to special status wildlife species that breed in the riparian habitat of the Pajaro River.	Mitigation Measure 6.4.3-1— <i>Timing of Construction</i> <i>Activity neur the Pajaro River to Protect Passerines, Raptors,</i> <i>Steelhead, Reptiles and Amphibians:</i> To avoid conflicts with raptors, yellow warblers, steelhead, California red-legged frogs and western pond turtles, construction activities within riparian habitat on the Pajaro River shall be limited to August 1 to November 1. All applicable reasonable and prudent measures in the programmatic Biological Opinion for the California red-legged frog shall be fully implemented for both the shallow vertical well site and for the infiltration gallery.	Less than significant.
	Mitigation Measure 6.4.3-1b—Restoration of Tree Cover, Pajaro River: Habitat for California red-legged frogs, western pond turtles, yellow warblers and steelhead trout shall be enhanced by planting woody vegetation. At the shallow vertical wells site, woody vegetation is well established and is in good condition. Moreover, no woody vegetation will be removed in connection with the project. At this site, woody vegetation will be enhanced by interplanting woody vegetation in a 1:1 ratio. At the Murphy Crossing site, all woody trees and shrubs removed as part of the construction will be replaced with similar species in a 3:1 ratio.	
Impact 6.4.3-2: Construction and operation of water diversion facilities at Murphy Crossing could result in adverse impacts to Central Coast steelhead by reducing flow necessary for migration.	Mitigation Measure 6.4.3-2—Maintenance of Flow for Steelhead Migration: The impact to steelhead passage by diversion of Pajaro River water near Murphy's Crossing can be avoided by providing minimum bypass flows during the steelhead migration period.	Less than sigeincam

TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITICATION	AFTER MITIGATION	
7.4 Vegetation and Wildlife – Watsonville Reclamation			
Impact 7.4.3-1: Construction of the proposed project component would result in temporary impacts to up to 0.6 acre of potentially jurisdictional wetlands/waters of the U.S. and streambed and at the Pajaro River crossing near Highway 1. Potential impacts could occur due to sedimentation of the channels outside of the construction area during trenching activities, and loss of riparian vegetation and stream function as wildlife and fishery habitat.	Mitigation Measure 7.4.3-1a— <i>Wetlands Avoidance</i> : Wetlands at the Highway 1 crossing of the Pajaro River may be avoided entirely by using bore and jack construction. Alternatively, the riparian wetland habitat will be avoided if the pipeline is suspended beneath the Highway 1 bridge. If complete avoidance is infeasible, implement Measures 7.4.3-1b and 7.4.3-1c.	Less than significant	
	Mitigation Measure 7.4.3-1b—Implement Standard Protective Measures to Maintain Water Quality and Control Erosion and Sedimentation: Standard measures to maintain water quality and to control erosion and sedimentation shall be implemented, as described in Mitigation Measure 4.4.3-1b. These measures include timing construction to take place during low flow periods, maintaining bypass flow areas outside the zone of construction, as appropriate, placing sediment curtains around construction, placing spoils sites outside the levees, developing a spill prevention plan, storing equipment and materials outside the river levees, maintaining vehicles and equipment to avoid spills, and developing a revegetation plan for disturbed habitats.		180
Impact 7.4.3-1 (cont.)	Mittgation Measure 7.4.3-1c— <i>Minimize Overall Loss of</i> <i>Wetlands by Constructing Parallel Pipeline Elements</i> <i>Concurrently Within the Same Construction Zone</i> : Other project elements (Coastal Distribution Pipeline) also include construction of a pipeline across the Pajaro River near the Highway 1 crossing. If both project elements are implemented, they shall be constructed concurrently and in the same construction zone, potentially reducing loss of wetlands by as much as 0.6 acre.		

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TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Mitigatinn Measure 7.4.3-Id — Restore <i>Pajaro</i> River <i>Riparian</i> Forest: The revegetation plan for the project shall include restoration of riparian forest impacted by construction. Revegetation shall include installation of locally obtained, locally indigenous species of trees and shrubs in a ratio of 3:1 to replace lost vegetation, specifications for the after- installation care, weed control, and monitoring for a three year period following installation.	
Impact 7.4.3-2: Construction <i>of</i> facilities <i>at</i> the Pajaro River crossing near Highway 1 would result in temporary impacts to up to 0.6 acre of habitat for special status animal species. Impacts could occur due to risk of increased scdimentation in streams, dewatering of pools, habitat loss through vegetation removal, destruction of nests and burrows and construction disturbance.	Mitigation Measure 7.4.3-2a—Avoidance <i>d</i> Habitat: Avoid removal or damage to riparian vegetation within the levees of the Pajaro River. Construct the pipeline across the Pajaro River under the Highway 1 bridge or by using the bore and jack method. If complete avoidance is infeasible, implement Measure 7.4.3-2b.	Less than significant.
	Mitigation Measure 7.4.3-2b — Minimize Habitat Loss: If complete avoidance of the riparian areas is not possible, by bridging or bore and jack for example, then the river crossing shall be designed to cross the Pajaro River on the east side of Highway 1 where the riparian vegetation has already been largely removed.	





Impact 7.4.3-3: Construction of facilities at the Highway 1 None 1 crossing would not impact special status plant species.	Mitigs Habit by carr when s migrat	Mitigs Wester 300 fe levees	Mitigs Nestin constri be cut preced	Impact 7.4.3-2 (cont.) Mitigs Protection Since 1 Since 1 known red-leg reason Califo Biolog U.S. A is like goby r and Bi Endan Endan	ENVIRONMENTAL IMPACT MITTO
equired.	 ition Measure 7.4.3-2f—Protection of Steelhead impacts to steelhead smolt passage will be minimized ying out construction in the Pajaro River after June 1, molt are assumed to have completed their spring 	ttion Measure 7.4.3-2e—Survey and Protection of rn Pond Turtles: Prior to construction activities a ed biologist will perform pond turtle surveys within et of the construction area within the Pajaro River See Mitigation Measure 4.4.3-2d.	tion Measure 7.4.3-2d — <i>Survey and Protection of</i> g Raptors: To prevent raptors nesting in trees within the action zone in the Pajaro River floodway, trees that must down for the project shall be felled in the summer or fall ing construction. See Mitigation Measure 4.4.3-2c.	tion Measure 7.4.3-2c—Survey, Consultation, and tion Measures for Special Status Wildlife Species: the Central Coast steelhead and tidewater goby are to be present and potential habitat for the California gged frog was found as part of the site assessment, able and prudent measures for protection of the mia red-legged frog contained in the Programmatic ical Opinion for this species shall be implemented if the rmy Corps of Engineers finds that impact to this species ry. If impacts to the Central Coast steelhead or tidewater nay occur as a part of this project, a formal consultation ological Opinion must be prepared for FWS under the gcred Species Act.	GATION
Less than significant.					LEVEL OF SIGNIFICANCE AFTER MITIGATION
			182	-	

	8.4.3-1 — <i>Wetlands</i> : Construction of the proposed could result in temporary impacts of up to 1.4 acres of 1 jurisdictional wetlands/waters of the U.S. and eds and banks. Potential impacts could occur due to lation of the channels outside of the construction area enching activities, loss of riparian vegetation and stream as wildlifc and fishery habitat, and loss of special status ommunities	CONMENTAL IMPACT
<i>Erosion and Sedimentation:</i> Standard measures to maintain water quality and to control erosion and sedimentation are includes trenching across wetlands during low flow periods, excluding water from construction by diversions as feasible, preparing and implementing a spill prevention plan, storing impacted wetland vegetation according to a detailed revegetation plan approved by the Corps and/or CDFG.	 Mitigation Measure 8.4.3-1a—Avoidance of Wetlands: The crossings of jurisdictional areas at the Pajaro River, McClusky feasible by project construction, maintaining all facilities vegetation. Bore and jack, tunneling and directional drill channels, and culverts. Trenching shall be limited to existing filled or developed areas, to the extent possible. This measure occurring in the waterways (see Impact 8.4.3-2). If complete avoidance is infeasible, implement Measure 8.4.3-1b. Mitigation Measure 8.4.3-1b—Implement Standard 	MITIGATION
	Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION

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	Impact 8.4.3-1 (cont.) Impact 8.4.3-2: Construction of facilities in and near wetlands could result in temporary loss of up to 1.4 acres of habitat for special status animal species. Impacts could occur due to increased sedimentation in streams, dewatering of pools, habitat loss through vegetation removal, destruction of nests and burrows and construction disturbance.	ENVIRONMENTAL IMPACT	SUMMARY
S-28	 Mitigation Measure 8.4.3-1cRestore Pajaro River riparian forest, McClusky Slough wetlands and Watsonville Slough vetlands: The revegetation plan for the project shall include restoration of riparian forest and wetlands that may have been impacted by construction (i.e. bore and jack staging). Revegetation shall include installation of trees and shrubs in a ratio of 3:1 to replace lost vegetation, specifications for after- installation care, weed control, and monitoring for a three year period following installation. Wetland restoration shall include salvage of sod and soil, maintenance during construction, reinstallation following the completion of construction, weed control, and monitoring, performance criteria and replacement measures, as needed. Revegetation materials shall consist of locally obtained, locally indigenous species. Mitigation Measure 8.4.3-2a-Avoid Loss of Ripurian and Wetland Habitat: Avoid removal or damage to all riparian and wetland vegetation within the project corridor using bore and jack and/or directional drilling techniques or remaining entirely within existing developed or filled areas to avoid all impacts to McClusky Slough and to the lower crossing of Watsonville Slough, resulting in a potential reduction of 0.8 acres of sensitive wildlife habitat. Mitigation Measure 8.4.3-2b-Protect Riparian and Wetlan Habitat: Erect exclusion fencing during construction along the edge of riparian and wetland vegetation where the construction area is within 25 feet of the riparian zone. If construction area is within 25 feet of the riparian zone. If 	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
FXHIBIT	Hess than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	
×	184		

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 8.4.3-2 (cont.)	Mitigation Measure 8.4.3-2c–Survey, Consultation and Protection Measures for special status wildlife species: As part of the habitat assessment, potential habitat for the California red-legged frog was found to be present at Watsonville Slough. Potential habitat may also be present for Santa Cruz long-toed salamander. Central Coast steelhead, and tidewater goby are present at the Pajaro River, and potential habitat for California red-legged frog was identified here as well. As a result, PVWMA will initiate formal consultation with USFWS and CDFG if these areas will be impacted.	
	Mitigation Measure 8.4.3-2dProtection of Nesting Special Status Birds: To avoid conflicts with nesting raptors, yellow warblers and tricolored blackbirds, construction activities within 500 feet of Valley Foothill Riparian or Fresh Emergent Wetland habitat shall begin prior to or after the nesting season (March to July).	
	Mitigation Measure 8.4.3-2eProtection of Steelhead Migration Habitat: Impacts to steelhead smolt passage shall be reduced by avoiding construction in the Pajaro River until after June 1, when smolt are assumed to have completed their migration.	
	Mitigation Measure 8.4.3-2f— <i>Protection of Santa Cruz</i> <i>long-toed salamander Habitat at McClusky Slough:</i> Since McClusky Slough is known to support a population of Santa Cruz long-toed salamanders, the special protection measures shall be carried out there (see Section 8.4.3 for details).	

SUMMARY	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES	
ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Mitigation Measure 8.4.3-3—Protection of Special Status Plants: Prior to construction of the coastal distribution pipeline, preconstruction surveys for the robust spineflower and Monterey spineflower shall be carried out during the appropriate flowering period of these species. If any populations are found, they will be flagged and avoided during construction.	Less than significant
9.4 Vegetation and Wildlife – Inland/Murphy Crossing Distribu	tion	
Impact 9.4.3-1: Construction of the proposed project would result in temporary impacts to potentially jurisdictional wetlands/waters of the U.S. and streambed and bank at the crossing of the Pajaro River at Murphy Crossing, at the crossing of the Pajaro River one mile east of Watsonville, and at the Coward Creek crossing, a total of 1.4 acres of potential jurisdictional wetlands. Potential impacts could occur due to sedimentation of the channels outside of the construction area during trenching activities, and loss of riparian vegetation and stream function as wildlife and fishery habitat.	Mitigation Measure 9.4.3-1a—Implement Standard Protective Measures to Maintain Water Quality and Control Erosion and Sedimentation: Standard measures to maintain water quality and to control erosion and sedimentation shall be implemented, as described in Mitigation Measure 4.4.3-1b. These measures include timing construction to take place during low flow periods, maintaining bypass flow areas outside the zonc of construction, as appropriate, placing sediment curtains around construction, placing spoils sites outside the levees, developing a spill prevention plan, storing equipment and materials outside the river levees, maintaining vehicles and equipment to avoid spills, and developing a revegetation plan for disturbed habitats.	Less than significant.

Impact 9.4.3-2 (cont.)		Impact 9.4.3-2: Construction of facilities at the Pajaro River crossing near Highway 1 would result in temporary impacts to up to 1.4 acres of habitat for special status animal species. Impacts include risk of increased sedimentation in streams, dewatering of pools, habitat loss through vegetation removal, determined of pools.	Impact 9.4.3-1 (cont.)	ENVIRONMENTAL IMPACT	SUMMARY
Mitigation Measure 9.4.3-2c—Survey, Consultation, and Protection Measures for Special Status Wildlife Species: As part of the habitat assessment, potential habitat for the California red-legged frog was found to be present in the Pajaro River. Central Coast steelhead are known to be present as well. As a result, formal consultation with USFWS and CDFG must be initiated by PVWMA if habitat for these species will be impacted. Protection measures will be consistent with the Programmatic Biological Opinion for the California red-legged frog (FWS, 1999).	Mitigation Measure 9.4.3-2b— <i>Minimize Habitat Loss</i> : If complete avoidance of the riparian areas is not possible, by bridging or bore and jack for example, then cross the river in the center of the old road crossing at Murphy Crossing where the riparian vegetation has already been largely removed.	Mitigation Measure 9.4.3-2a—Avoidance of Habitat: Avoid removal or damage to riparian vcgetation within the levees of the Pajaro River. Construct the pipeline under the Pajaro River using the bore and jack or directional drilling method. If complete avoidance is infeasible, implement Measure 7.4.3-2b.	Mitigation Measure 9.4.3-1b: Where unavoidable temporary impacts to coastal riparian forest habitat will occur, revegetation measures will be developed as part of a revegetation plan approved by CDFG and/or the Corps. It will include specific plans for the revegetation of impacted vegetation, and for restoration of nearby creek riparian habitat, as appropriate. Revegetation will include the use of locally obtained plant materials, a detailed description of installation methods, after-installation care, weed control measures, success criteria, and corrective measures if the success criteria are not met.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
		Less than significant.		LEVEL OF SIGNIFICANCE AFTER MITIGATION	
		187	2		

Impact 4.5.3-1: Construction activities associated with the proposed College Lake Lateral alignment and associated provide the facilities may result in the alteration or destruction of identified cultural resources.	4.5 Cultural Resources - College Lake	S S S	* 79 × 0° > 3	ENVIRONMENTAL IMPACT	SUMMARY OF
Mitigation Measure 4.5.3-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from hese identified important cultural resource sites. A qualified sultural resource specialist shall be retained to assist in dentifying the areal extent of important cultural resource sites to be avoided, which may include the preparation of detailed sultural resource evaluation reports and consultation with ocal, state, and federal agencies as well as the local Native American Commission.		Mitigation Measure 9.4.3-2e — Protection of Steelhead Tabitat: Impacts to steelhead smolt passage will be minimized by carrying out construction in the Pajaro River after June I, when smolt are assumed to have completed their pring migration.	Aitigation Measure 9.4.3-2d —Survey and Protection of Vesting Raptors: To avoid conflicts with nesting raptors, construction activities within 500 feet of riparian habitat shall eegin prior to the nesting season (March to July). See Aitigation Measure 4.4.3-2c for further details of mitigation. Preconstruction survey for nesting raptors will determine Preconstruction survey for nesting raptors will determine whether this protection measure is necessary.	AFTIGATION	TABLE 1 (Continued) MPACTS AND MITIGATION MEASURES
Less than significant.				LEVEL OF SIGNIFICANCE AFTER MITIGATION	

EXHIBIT K

Impact 4.5.3-2 (cont.)	Impact 4.5.3-2: Construction activities associated with the proposed water diversion and filtration facilities and additional College Lake inundation may result in the alteration or destruction of identified cultural resources.		ENVIRONMENTAL IMPACT	SUMMARY
Mitigation Measure 4.5.3-2b: Implement Measure 4.5.3-1b, above.	Mitigation Measure 4.5.3-2a: Final College Lake facility plans shall locate new facilities away from these identified important cultural resource sites, as well as avoid inundation of significant cultural resource sites. A qualified cultural resource specialist shall be retained to assist in identifying the extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American Commission.	Mitigation Measure 4.5.3-1b: If important cultural resource sites cannot be avoided, the Pajaro Water Management Agency will enter into a Programmatic Agreement with the U.S. Army Corps of Engineers, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation to develop an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, recovery and relocation, or stabilization of the resource.	MITIGATION	TABLE 1 (Continued) OF IMPACTS AND MITIGATION MEASURES
	Less than significant,		LEVEL OF SIGNIFICANCE AFTER MITIGATION	
	189			

VVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICAN AFTER MITIGATION
pact 4.5.3-3: Ground-disturbing activities associated with the posed pipelines and facilities could reveal previously known buried or otherwise obscured significant prehistoric 1 historic cultural resources.	Mitigation Measure 4.5.3-3: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources.	Less than significant.
	In addition, pursuant to Sections 5097.107 and 5097.108 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	
act 4.5.3-4: Potential indirect impacts to cultural resources, parily vandalism, could result from the increased access to use of the general area during construction. Such urbance could result in the loss of integrity of important	Mitigation Measure 4.5.3-4a: The resource boundaries shall be marked as exclusion zones both on the ground and on construction maps.	Less than significant.
arai resources.	Mitigation Measure 4.5.3-4b: Construction supervisory personnel shall be notified of the existence of these resources and required to keep personnel and equipment away from these arcas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	

EXHIBIT K

TABLE 1 (Continued) SUMMAKY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.5.3-4 (cont.)	Mitigation Measure 4.5.3-4c: Monthly monitoring of cultural resources to be avoided shall be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities If damage is detected, a guard will be posted to patrol the site and adjacent important resources (such as gravestones and churches).	
5.5 <u>Cultural Resources – Harkins Sloughs</u>		
Impact 5.5.3-1: Construction activities associated with the proposed diversion and filtration facilities and pipcline connections for the Harkins Slough component may result in the alteration or destruction of identified cultural resources.	Mitigatinn Measure 5.5.3-1 : Implement Measures 4.5.3-la and 4.5.3-lb, above	Less than significant.
Impact 5.5.3-2: Ground-disturbing activities associated with the proposed pipelines and facilities could reveal previously unknown buried or otherwise obscured significant prehistoric and historic cultural resources.	Mitigation Measure 5.5.3-2: Implement Measure 4.5.3-3, above.	Less than significant.
Impact 5.5.3-3: Potential indirect impacts to cultural resources, primarily vandalism, could result from the increased access to and use of the general area during construction. Such disturbance could result in the loss of integrity of important cultural resources.	Mitigation Measure 5.5.3-3 : Implement Measures 4.5.3-4a through 4.5.3-4c, above.	Less than significant.
6.5 <u>Cultural Resources – Murphy Crossing</u>		
Impact 6.5.3-1: Ground-disturbing activitics associated with the proposed pipelines and facilities could reveal unknown buried or otherwise obscured significant prehistoric and historic cultural resources	Mitigatinn Measure 6.5.3-1: Implement Measure 4.5.3-3, above.	Less than significant.



TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 6.5.3-2 : Potential indirect impacts to cultural resources, primarily vandalism, could result from the increased access io and use of the general area during construction. Such disturbance could result in the loss of integrity of important cultural resources.	Mitigation Measure 6.5.3-2: Implement Measures 4.5.3-4a through 4.5.3-4c.	Less than significant.
1.5 Cultural Resources – Watsonville Reclamation		
Impact 7.5.3-1: Ground-disturbing activities associated with the proposed pipelines and facilities could reveal unknown buried or otherwise obscured significant prehistoric and historic cultural resources.	Mitigatiun Measure 7.5.3-1: Implement Measure 4.5.3-3, abovc.	Less than significant.
8.5 <u>Cultural Resources – Coastal Distribution</u>		
Impact 8.5.3-1: Construction activities associated with the proposed coastal distribution system may result in the alteration or destruction of identified cultural resources.	Mitigation Measure 8.5.3-1: Implement Measures 4.5.3-la and 4.5.3-lb, above.	Less than significant.
Impact 8.5.3-2 : Ground-disturbing activities associated with the proposed coastal distribution system could reveal previously unknown buried or otherwise obscured significant prehistoric and historic cultural resources.	Mitigation Measure 8.5.3-2 : Implement Measure 4.5.3-3, above.	Less than significant.
Impact 8.5.3-3: Potential indirect impacts to cultural resources, primarily vandalism, could result from the increased access to and use of the general area during construction. Such disturbance could result in the loss of integrity of important cultural resources.	Mitigatiuu Measure 8.5.3-3 : Implement Measures 4.5.3-4a through 4.5.3-4c, above.	Less than significant.



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
9.5 <u>Cultural Resources – Inland/Murphy Crossing Distribution</u>		
Impact 9.5.3-1: Ground-disturbing activities associated with the proposed Inland/Murphy Crossing distribution systems and Connecting Pipeline could reveal unknown buried or otherwise obscured significant prehistoric and historic cultural resources.	Mitigation Measure 9.5.3-1; Implement Measure 4.5.3-3, above.	Less than significant.
Impact 9.5.3-2: Potential indirect impacts to cultural resources, primarily vandalism, could result from the increased access to and use of the general area during construction. Such disturbance could result in the loss of integrity of important cultural resources.	Mitigation Measure 9.5.3-2: Implement Measures 4.5.3-4a through 4.5.3-4c, above.	Less than significant.
4.6 Traffic and Circulation – College Lake		
Impact 4.6.3-1: Traffic on area roadways would temporarily increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities	Mitigation Measure 4.6.3-la (Recommended): Schedule truck trips outside of peak commute hours.	Less than significant.
construction workers and construction voltedate deuvities.	Mitigation Measure 4.6.3-1b (Recommended): Use haul routes that minimize truck trafficon local roadways to the extent possible.	
Impact 4.6.3-2 : Project construction would increase traffic delays for vehicles traveling past the construction zone.	Mitigation Measure 4.6.3-2a: Limit construction hours to off-peak traffic periods on commute streets.	Less than significant.
	Mitigation Measure 4.6.3-2h: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would he used to minimize impacts to traffic flow and operations. The traffic control plan shall bc reviewed for appropriateness, and approved hy Caltrans and the governing Public Works Departments.	



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.6.3-3 : Project construction would affect access to adjacent land uses for both general and emcrgcncy access.	Mitigation Measure 4.6.3-3a: Construction trenches shall be covered by steel trench plates to allow access to driveways.	Less than significant.
	Mitigation Measure 4.6.3-3b: To minimize disruption of emergency vehicle access, contractors will work with affected jurirdictions (Santa Cruz or Monterey County or City of Watsonville) to identify detours during construction.	
	Mitigation Measure 4.6.3-3c: Police, fire, and emergency services shall he notified of the timing, location, and duration of construction activities and the locations of detours and lane closures.	
Impact 4.6.3-4: Project construction would increase wear-and- tear on area roadways used by construction vehicles.	Mitigation Measure 4.6.3-4: Conduct a preconstruction survey of road conditions on key access routes to the project site. The pavement conditions of local streets and designate roads judged to he in good condition for use by heavy truck traffic will be monitored. Roads damaged by construction shall be repaired to a condition equal to, or better than, that which existed prior to construction activity.	Less than significant.
Impact 4.6.3-5 : Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 4.6.3-5a : The traffic control plans prepared by the contractor (see Mitigation Measure 4.6.3-2b) shall include detours for bicyclists.	Less than significant.
	Mitigation Measure 4.6.3-5b: The contractor shall provide advanced public notification of construction activity and roadwayiaccess closures.	
Impact 4.6.3-6 Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant.



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.6 Traffic and Circulation Harkins Slough		
Impact 5.6.3-1: Traffic on area roadways would temporarily increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities.	Mitigation Measure 5.6.3-1 (Recommended): Implement Measure 4.6.3-1, above.	Less than significant.
Impact 5.6.3-2: Project construction would increase traffic delays for vehicles traveling past the construction zonc.	Mitigation Measure 5.6.3-2: Implement Measure 4.6.3-2, above.	Less than significant.
Impact 5.6.3-3: Project construction would affect access to adjacent land uses for both general and emergency access.	Mitigation Measure 5.6.3-3: Implement Measure 4.6.3-3, above	Less than significant
Impact 5.6.3-4: Project construction would increase wear-and- tear on area roadways used by construction vehicles.	Mitigation Measure 5.6.3-4: Implement Measure 4.6.3-4, above.	Less than significant.
Impact 5.6.3-5: Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 5.6.3-5: Implement Measure 4.6.3-5, above.	Less than significant.
Impact 5.6.3-6: Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant.
6.6 Traffic and Circulation – Murphy Crossing		
Impact 6.6.3-1: Traffic on area roadways would temporarily increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities.	Mitigation Measure 6.6.3-1 (Recommended): Implement Measure 4.6.3-1, above.	⊾⇔s than significant.
Impact 6.6.3-2: Project construction would increase traffic delays for vehicles traveling past the construction zone.	Mitigation Measure 6.6.3-2: Implement Measure 4.6.3-2, above.	Less than significant.
Impact 6.6.3-3: Project construction would affect access to adjacent land uses for both general and emergency access.	Mitigation Measure 6.6.3-3: Implement Measure 4.6.3-3, above.	Les than significant.

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 6.6.3-4: Project construction would increase wear-and- tear on area roadways used by construction vehicles.	Mitigation Measure 6.6.3-4: Implement Measure 4.6.3-4, above.	Less than significant.
Impact 6.6.3-5: Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 6.6.3-5: Implement Measure 4.6.3-5, above.	Less than significant.
Impact 6.6.3-6: Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant.
7.6 Traffic and Circulation Watsonville Reclamation		
Impact 7.6.3-1: Traffic on area roadways would temporarily increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities.	Mitigation Measure 7.6.3-1 (Recommended): Implemet Measure 4.6.3-1, abovc.	Less than significant.
Impact 7.6.3-2: Project construction would increase traffic delays for vehicles traveling past the construction zone.	None required.	Less than significant.
Impact 7.6.3-3: Project construction would affect access to adjacent land uses for both general and emergency access.	None required.	Less than significant.
Impact 7.6.3-4: Project construction would increase wear-and-tear on area roadways used by construction vehicles.	Mitigation Measure 7.6.3-4: Implement Measure 4.6.3-4, above.	Less than significant
Impact 7.6.3-5: Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 7.6.3-5: Implement Measure 4.6.3-5, above.	Less than significant
Impact 7.6.3-6: Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTEK MITIGATION
8.6 Traffic and Circulation – Coastal Distribution		
Impact 8.6.3-1: Traffic on area roadways would increase as a result of project-generatedvehicle trips by construction workers and construction vehicular activities.	Mitigation Measure 8.6.3-1 (Recommended): Implement Measure 4.6.3-1, above.	Less than significant.
Impact 8.6.3-2: Project construction would increase traffic delays for vehicles traveling past the construction zone.	Mitigation Measure 8.6.3-2 : Jmplement Measure 4.6.3-2, above.	Less than significant.
Impact 8.6.3-3: Project construction would affect access to adjacent land uses for both general and emergency access.	Mitigation Measure 8.6.3-3: Implement Measure 4.6.3-3, above.	Less than significant.
Impact 8.6.3-4 ; Project construction would increase wear-and- tear on area roadways used by construction vehicles.	Mitigation Measure 8.6.3-4 : Implement Measure 4 .6.3-4, above.	Less than significant.
Impact 8.6.3-5: Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 8.6.3-5 : Implement Measure 4.6.3-5, above.	Less than significant.
Impact 8.6.3-6: Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant.
9.6 <u>Traffic and Circulation – Inland/Murphy Crossine Distrib</u>	ution	
Impact 9.6.3-1: Traffic on area roadways would temporarily increase as a result of project-generated vehicle trips by construction workers and construction vehicular activities.	Mitigation Measure 9.6.3-1 (Recommended): Implement Measure 4.6.3-1 , above.	Less than significant.
Impact 9.6.3-2: Project construction would increase traffic delays for vchicles traveling past the construction zone.	Mitigation Measure 9.6.3-2: Implement Measure 4.6.3-2, above.	Less than significant.
Impact 9.6.3-3: Project construction would affect access to adjacent land uses for both general and emergency access.	Mitigation Measure 9.6.3-3: Implement Measure 4.6.3-3, above.	Less than significant.



TABLE 1(Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 9.6.3-4: Project construction would increase wear-and-tear on area roadways used by construction vehicles.	Mitigation Measure 9.6.3-4 : Implement Measure 4.6.3-4, above.	Less than significant
Impact 9.6.3-5 : Project construction would increase potential traffic safety hazards for vehicles and pedestrians in the construction area.	Mitigation Measure 9.6.3-5: Implement Measure 4 .6.3-5, abovc.	Less than significant.
Impact 9.6.3-6: Project construction would generate a demand for parking spaces for construction worker vehicles.	None required.	Less than significant
4.7 Air Ouality - College Lake		
Impact 4.7.3-1: Construction of the College Lake project components would temporarily generate ctitcria air pollutants, particularly PM ₁₀ , over the duration of the construction period.	Mitigation Measure 4.7.3-1 : The construction contractor shall implement a dust control program that includes the following elements:	Less than significant
	• Water all active construction sites at least twice daily.	
	• Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.	
•	• Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	
	 Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites. 	
	• Sweep streets daily (with water sweepcrs) if visible soil material is carried onto adjacent public streets.	

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.7.3-1 (cont.)	• Hydroseed or apply (non-toxic) soil binders to inactive construction arcas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower.	
	• Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).	
	• Limit traffic on unpaved roads to 15 mph.	
	 Install sandbags or other erosion control measures to prevent silt runoff to public roadways. 	
	• Replant vegetation in disturbed areas as quickly as possible.	
Impact 4.7.3-2 : Lane closures and detours necessitated by construction of the project could temporarily increase vehicular emissions.	None required.	Less than significant.
Impact 4.7.3-3: Vehicle trips resulting from operation and maintenance of the various components of the project would generate emissions of criteria airpollutants.	Nonc required	Less than significant.
Impacts 5.7 through 9.7 : Temporary construction impacts described in Section 4.7 , with minor changes also describe impacts that would be expected under all other project components.	Implementation of the Mitigation Measures described in Section 4.7 would further reduce these less than significant impacts.	Less than significant
48 <u>Socioeconomics and Public Utilities – Colleee Lake</u>		
Impact 4.8.2-1: Pipeline and/or facility construction could result in temporary, planned or accidental disruption to utility services provided by underground lines.	Mitigation Measure 4.8.2-1: A detailed study identifying utilities along the proposed alignment will be done during the pre-design stages of the project.	Less than significant.





TABLE 1 (Continued) SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.8.2-2: Pipeline construction could temporarily impede vehicle access to emergency services as well as to collection and delivery services. This impact could affect Counties' Sheriffs Departments, fire departments, emergency services (e.g. ambulance companies), delivery and collection services.	Mitigation Measure 4.8.2-2: Implement Mitigation Measures 4.6.3-3a, b, c.	Less than significant.
Impact 4.8.2-3: Construction activities for all facilities could require short-termpolice and fire protection services to assist in traffic management or respond to construction accidents and other service requests.	None required.	Less than significant.
Impact 4.8.2-4 : The proposed project would increase water augmentation fees required to support the costs of the project and will cause Pajaro Valley growers' crop production costs to rise and increase production costs would lower their net return per unit of production. This could result in Substantial adverse economic impacts on some small, economically marginal farming operations and force them out of business. However, cost increases attributable to the project would he less than two percent to net returns. In addition the increase in irrigation water fees will tend to be mitigated by better management practices and increased conservation and for the market forces to lower land rents to reflect the lower net returns for growers.	None rcquired.	Less than significant
Impact 4.8.2-5: During the construction phase of the proposed project, the farmlands within construction access easements, the required distribution system easements would not be in production for one growing season.	Mitigation Measure 4.8.2-5: The PVWMA will establish a procedure to compensate growers for the financial losses that they incur as a result of the impacts caused by the excavation and construction activities that occur in the easements for the placement of the local distribution system. The growers will receive compensation based upon the total amount of farmland dismpted, the amount of time of the disruption, the historical type of crop planted on the land and the current year unit market price for the unplanted crop.	Less than significant



ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impacts 5.8 through 9.8: The discussion of impacts presented in Section 4.8 also applies to these project components.	Mitigation Measures described in Section 4.8 will also apply to these project components	Less than significant
4.9 Visual/Aesthetic and Recreational Resources - College Lake		
Impact 4.9.3-1: Development of the pumping and filtration facilities of the College Lake component would alter the visual character of the project area.	Mitigation Measure 4.9.3-1a: The PVWMA will use design elements and landscaping to enhance visual integration of thc pumping and filtration facilities with their surroundings. Proposed facilities will be painted low-glare earth-tone colors that blend closely with the surrounding terrain. Vegetation will be planted at proposed facilities to provide screening from views of the facilities from Highway 152.	Less than significant.
	Mitigation Measure 4.9.3-1b: The PVWMA will revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	
· · · ·	Mitigation Measure 4.9.3-1c: The PVWMA will ensure that its contractors restore the topography of disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long- term visual impacts.	

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ENVIRONMENTAL IMPACT	MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 4.9.3-2: Development of the College Lake component would introduce new sources of light onto the project site and increase ambient light in the project area.	Mitigation Measure 4.9.3-2 (Recommended): The PVWMA shall ensure that all exterior lighting is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessary, landscaping shall be provided around proposed	Less than significant.
	necessary, landscaping shall be provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	
Impact 4.9.3-3: Development of the College Lake component would temporarily disrupt designated recreational bikeways in the project area.	None required.	Less than significant.
5.9 Visual/Aesthetic and Recreational Resources – Harkins Slov		
Impact 5.9.3-1: Development of the pumping and diversion facilities of the Harkins Slough component would alter the visual character of the project area.	Mitigation Measure 5.9.3-1 (Recommended): The PVWMA will plant vegetation at the proposed facilities to provide screening.	Less than significant.
Impact 5.9.3-2: Development of the Harkins Slough component would temporarily disrupt designated recreational bikeways in the project area.	None required.	Less than significant.
6.9 <u>Visual/Aesthetic and Recreational Resources – Murphy Cro</u>	ssing	
Impact 6.9.3-1: Development of groundwater extraction wells, infiltration gallery, pipeline and recharge basins of the Murphy Crossing component would alter the visual character of the project area.	Mitigation Measure 6.9.3-1: Implement Measures 4.9.3-1a, 4.9.3-1b, and 4.9.3-1c, above.	Less than significant.

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Impact 6.3.2: Development of the Murphy Crossing inghovery 12:, a designated bickwey in cereational kesources – <u>Wasonville Reclamation</u> (restruct facilities of the yamping and tertiary (restruct facilities of the Walsonville water columnion) (restruct facilities of the visual darabeter of the proyect area component would after the visual darabeter of the proyect area component would after the visual darabeter of the proyect area component would after the visual distribution system indered 8.9.3:1: Including and tertiary (restruct facilities of the constal distribution system restruct facilities of the constal distribution system regetation, which would temporarily discupt recentational loss badrog component would emporarily discupt recentational sets along component would emporarily discupt recentational sets along containes, and that decours 9.3.1: Implementation of the initianal distribution system indered recensional bicycle main in Santa Cruz and Montery Coanties. Mitigation Measure 8.9.3.1: Implementation of the restruct discust brain factors would be reparted by revealed for bicyclist damaged recensional bicycle main in Santa Cruz and Montery Coanties. Less than significant. 99 Yanal/Asethetic and Recreational Jeson Measures 9.9.3-1a: Implement Measures 4.9.3-1b designated recensional bicycle main in Santa Cruz and Montery Coanties. Mitigation Measures 9.9.3-1a: Implement Measures 4.9.3-1b and 4.9.3-1c, above. Less than significant.			
INVIRONMENTAL IMPACT MITIGATION MITIGATION APTER MITICATION Impact 6.9.3.2: Development of the Murphy Crossing component would temporarily disrupt recreational uses along component would temporarily disrupt recreational test and regetation file. None required. Less than significant. 7.9 <u>Visual/Asthetic and Recreational Resources - Watcouville Reclamation</u> treatment facilities of the Vationrylle watcwater reclamation component would alter the visual character of the project area. Mitigation Measure 7.9.1-1: Implement Measures 4.9.3-1b and 4.9.3-1c, above. Less than significant. 8.9 Visual/Asthetic and Recreational Resources - Coastal Distribution propert would temporarily alter the visual and scripe component would temporarily alter the visual and scripe and 4.9.3-1c, above. Mitigation Measure 8.9.3-1: Implement Measures 4.9.3-1b and 4.9.3-1.c, above. Less than significant. Impact 8.9.3.2: Development of the coastal distribution system lateral lines would temporarily alter the visual and scripe. Mitigation Measure 8.9.3-1: Implement Measures 4.9.3-1b and 4.9.3-1.c, above. Less than significant. Impact 8.9.3.2: Development of the coastal distribution system designated recreational biscycle trails in Stata Cruz and Montersy designated recreational biscycle trails in Stata Cruz and Montersy and motorists during the construction period. Less than significant.	Less than significant.	phy Crossing Distribution Mitigation Measure 9.9.3-1a: Implement Measures 4.9.3-1b and 4.9.3-1c, above.	9.9 <u>Visual/Aesthetic and Recreational Resources – Inland/Mur</u> Impact 9.9.3-1: Installation of the inland distribution system lateral lines and the Connecting Pipeline would disturb lands within the alignments, which would temporarily alter the visual landscape.
MITIGATION MITIGATION MITIGATION AFTER MITIGATION Impact 6.9.3.2: Development of the Murphy Crossing component would temporarily disrupt recreational tess along component would blocway in Santa Cruz County. Highway 129, a designated blocway in Santa Cruz County. Highway 129, a designated blocway in Santa Cruz County. None required. Less than significant. 7.9 Visual/Aesthetic and Recreational Resources – Watsonville Reclamation treatment facilities of the Watsonville wastewater reclamation treatment facilities of the Watsonville wastewater reclamation treatment facilities of the Watsonville wastewater reclamation treatment facilities of the visual character of the project area. component would alter the visual character of the project area. component would alter the visual character of the project area. component would alter the visual character of the project area. and 4.9.3-1c, above. Less than significant. 8.9 Visual/Aesthetic and Recreational Resources – Coastal Distribution tateral ines would disturb void wasta distribution system tateral ines would disturb would temporarily alter the visual landscape. Mitigation Measure 8.9.3-1: Implement Measures 4.9.3-1b and 4.9.3-1c, above. Less than significant.		Mitigation Measure 8.9.3-2: Implementation on Measures 4.6.3-4, 4.6.3-5a and 4.6.3-5b would ensure that damaged roads would be repaired to pre-construction conditions, and that detours would be provided for bicyclists and motorists during the construction period.	Impact 8.9.3-2: Development of the coastal distribution system component would temporarily disrupt recreational uses along designated recreational bicycle trails in Santa Cruz and Monterey Counties.
NVIRONMENTAL IMPACT MITICATION MITICATION AFTER MITICATION impact 6.9.3-2: Development of the Murphy Crossing component would temporarily disrupt recreational uses along component would temporarily disrupt recreational uses along component would alter the visual character of the project area. None required. Less than significant. 7.9 Visual/Aesthetic and Recreational Resources – Watsonville Reclamation treatment facilities of the Watsonville wastewater reclamation treatment facilities of the Watsonville wastewater reclamation component would alter the visual character of the project area. Mitigation Measure 7.9.1-1: Implement Measures 4.9.3-1b Less than significant.	Less than significant. Less than significant.	Thuttion Mitigation Measure 8.9.3-1: Implement Measures 4.9.3-1b and 4.9.3-1c, above.	8.9 <u>Visual/Aesthetic and Recreational Resources - Coastal Distractions 2007</u> Impact 8.9.3-1: Installation of the coastal distribution system lateral lines would disturb roadways and remove crops and vegetation, which would temporarily alter the visual landscape.
Invironment of the Murphy Crossing component would temporarily disrupt recreational uses along component would temporarily disrupt recreation device device	Less than significant.	<u>Reclamation</u> Mitigation Measure 7.9.1-1: Implement Measures 4.9.3-1b and 4.9.3-1c, above.	7.9 <u>Visual/Aesthetic and Recreational Resources - Watsonville F</u> Impact 7.9.3-1: Development of the pumping and tertiary treatment facilities of the Watsonville wastewater reclamation component would alter the visual character of the project area.
INVIRONMENTAL IMPACT MITIGATION AFTER MITIGATION	Less man significant	None required.	Impact 6.9.3-2: Development of the Murphy Crossing component would temporarily disrupt recreational uses along Highway 129, a designated bikeway in Santa Cruz County.
	AFTER MITIGATION	MITIGATION	ENVIRONMENTAL IMPACT

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EXHIBIT K

Impact 9.9.3-2: Development of the inland and Murphy Crossing distribution system and the Connecting Pipeline component would temporarily disrupt recreational uses along Highway 129, a designated bikeway in Santa Cruz County.	ENVIRONMENTAL IMPACT	SUMMAR
Mitigation Measure 9.9.3-2: Implementation of Measures 4.6.3-5a and 4.6.3-5b would ensure that damaged roads would be repaired to pre-construction conditions, and that detours would be provided for bicyclists and motorists during the construction period.	MITIGATION	TABLE 1 (Continued) Y OF IMPACTS AND MITIGATION MEASURES
Less than significant.	LEVEL OF SIGNIFICANCE AFTER MITIGATION	

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United States Department of the Interior

⁴ FISH AND WILDLIFE SERVICE Ventura Fish and Wildlife Office 2493 Portola Road. Suite B Ventura, California 93003

In Reply, Refer To: PAS 289.298.373

March 19, 2004

EXHIBIT L

Memorandum

To: Environmental Protection Specialist, South-Central California Area Office, Bureau of Reclamation, Fresno, California From: Field Supervisor, Ventural fish and Wildlife Office, Ventura, California Lamons Surfield Biological and Conference Opinion for the Pajaro Valley Water Management Subject: Agency's Revised Basin Management Plan Projects (SCC-416, ENV-7.00), San Benito, Santa Cruz, Santa Clara, and Monterey Counties, California (1-8-03-F-44)

This document transmits the **U.S.** Fish and Wildlife Service's (Service) biological and conference opinion based on our review of the proposed Pajaro Valley Water Management Agency's (PVWMA) revised basin management plan projects and their effects on the federally endangered least Bell's vireo (*Vireobellii pusillus*), San Joaquin **kit** fox (*Vulpes macrotis mutica*), Santa Cruz long-toed salamander (*Ambystoma macrodactylurn croceum*), tidewater goby (*Eucyclogobius newberryi*), Conservancy fairy shrimp (*Branchinecta conservatio*), and longhorn fairy shrimp (*Branchinecta longiantenna*), the threatened California red-legged frog (*Rana aurora draytonii*) and vernal pool fairy shrimp (*Branchinecta* lynchi), and the proposed threatened California tiger salamander (*Ambystoma californiense*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16U.S.C. 1531 et seq.). Your February 10,2003 request for formal consultation was received on February 12, 2003.

This biological opinion is based on information which accompanied your February 10, 7003 request for consultation, including the biological assessment (Environmental Science Associates (ESA)2003), the environmental impact report (EIR) for the revised basin management plan (ESA 2001), the EIR for the local water supply and distribution (ESA 1998), discussions between our staff and your consultants, and information contained in our files. A complete administrative record of this consultation is on file in the Ventura Fish and Wildlife Office.

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Environmental Protection Specialist

CONSULTATION HISTORY

We have coordinated with the Bureau of Reclamation (Reclamation), the PVWMA, and ESA for many years regarding the development of the basin management plan. **Or** earlier involvement in the project primarily consisted of providing basic information on the Act, identification of listed species in the proposed project area, and review of a habitat assessment for California redlegged frogs that was conducted in 1997.

More recently, our agencies, the National Marine Fisheries Service, and the PVWMA met on January 15,2002, to discuss the details of the recommended project for the revised basin management plan. The purpose and need and an overview of the recommended project, the biological resources issues, the mitigation approaches, the project schedule, and the next steps in the process were all discussed at that meeting.

We met again with Reclamation and the PVWMA on March 20,2003, to discuss the section 7 consultation process. At this meeting, the effects to listed species were discussed in greater detail and we provided input on points that needed clarification to proceed with the formal consultation process for the basin management plan projects. We also discussed the possibility of Reclamation requesting a Fish and Wildlife Coordination Act (FWCA) report for the proposed projects.

On April 10,2003, we met to follow-up on the unresolved issues from earlier meetings related to the section **7** consultation. **Although** we requested more information to complete the consultation, including the jack and bore and frac-out plans, we agreed to confirm the start of the formal consultation process on **the** day we received **your** request for consultation. We agreed to initiate consultation in an attempt to accommodate the proposed schedule for the project, which included issuance of the final **environmental** impact statement (EIS) in September 2003. Further discussions with Reclamation staff confirméed that November or December 2003 **was** a more realistic date for issuing the final EIS for the proposed projects.

AAer the April 10,2003, meeting, the PVWMA's consultants provided the information we needed to proceed with drafting the biological opinion. Subsequent discussions and brief meetings continued regarding details of the proposed projects and the timeline for the consultation based on the projected issuance of the EIS. In correspondence dated June 16,2003, you provided us additional information on the trenchless construction plan, revegetation plan, and additional modifications to measures in the biological assessment. During this period, you also agreed with our recommendation that a FWCA report was not necessary for the proposed projects.

We provided a draft biological and conference opinion to you on November 21,2003 and received your comments on December 19,2003. In addition, ESA provided editorial comments on December 8,2003.

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BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

Project Background and Objective

In 1984, the PVWMA was formed and given the responsibility of protecting the Pajaro Valley water supply. The geographic boundaries of the PVWMA correspond approximately to the topographic and hydrologic boundaries of the Pajaro Valley. The PVWMA service area encompasses approximately 70,000 acres of irrigated agricultural lands and native and non-irrigated lands in the hillside areas, the city of Watsonville, and the communities of Pajaro, Freedom, Corralitos, and Aromas. Agriculture is the most important economic industry in the valley and groundwater is the principal source of water.

The objective of the proposed project is to augment water supplies to address problems of groundwater overdraft and seawater intrusion. These concerns were first documented by the 1953 Santa Cruz-Monterey Counties investigations of the State Water Board (Bulletin **5**). A 1964 San Felipe Unit feasibility study prepared by Reclamation also confirmed overdraft and seawater intrusion problems in the PVWMA service area (ESA 2001).

Overdraft occurs when the amount of groundwater withdrawn from a basin exceeds the amount of water replenishing the basin. In the Pajaro Valley **basin**, groundwater levels have declined as the groundwater pumping rate **has** exceeded the rate of natural replenishment. These overdraft conditions result in increased pumping costs and land subsidence that, in turn, can cause building settlement and increased flooding. In the coastal areas, overdraft conditions have caused groundwater levels to drop below sea level, creating **a** landward pressure gradient that causes seawater to move inland, displacing fresh groundwater. The density difference between seawater **and** freshwater causes the freshwater to stratify above the seawater. **As** seawater encroaches into the fresh groundwater basin, water quality degrades, limiting its utility for irrigation and domestic use, and eventually wells have to be abandoned. These conditions are not expected to improve without development and delivery of alternative water supplies and balancing existing groundwater use with recharge.

Current water demand for agricultural and urban uses within the PVWMA service area is approximately 71,500 acre-feet per year (afy). Groundwater provides over 95 percent of the water that is used. Modeling results indicate that, under current basin-wide pumping conditions, groundwater pumping would have to be reduced by 45,000 afy (65 percent) to eliminate seawater intrusion throughout the coastal area. The PVWMA has identified an array of projects to bring water demand into balance with supply, including conservation and development of new water supplies. The import water project and recycled water Project seek to alleviate the seawater intrusion problem by providing 17,400 afy of water for agricultural irrigation and a concomitant reduction in groundwater pumping along the coast. Although, the PVWMA forecasts demands to year 2040, the water quantities associated with the proposed project are for existing demand.



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Environmental Protection Specialist

After 2007, the PVWMA will reassess future demand characteristics and develop future supply sources accordingly. Eventually, as part of its overall Water Supply Project, the PVWMA will seek an additional 9,000 afy to meet projected water demand in year 2040.

Project Description

The components of the projects addressed in this biological and conference opinion include:

- 1. Import Pipeline (13,400 afy). Includes a 22.2-mile long pipeline to import Central Valley Project (CVP) water and potentially water from other sources into the Pajaro Valley. The pipeline would be approximately **54** inches in diameter on average, with some reaches of a larger diameter due to system hydraulic requirements. The entire pipeline would be located underground beneath **5** to 10 feet of cover.
- 2. Recycled Water Facility (4,000 afy). Includes construction of tertiary treatment facilities adjacent to the Watsonville Wastewater Treatment Plant **to** produce recycled water.
- 3. Supplemental wells. Includes **up** to six wells to produce blending water for the recycled water.
- 4. Integrated Coastal Distribution System. Includes 165,670 linear feet of pipcline to deliver water to growers in the Pajaro Valley.

The goal of developing these facilities is to assist in bringing the groundwater basin into balance with existing and future water demand. Each component is described below.

1. Import Pipeline Project

Water Supply

The water supply imported to the Pajaro Valley would be made up of CVP water **from** the Mercy Springs Water District (MSWD) contract assignment and additional water sufficient to meet the project's objectives of effectively managing the groundwater basin (13,400 afy firm supply). Additional sources have not yet been determined and could include assignments purchased from other CVP contractors or water purchases from other non-CVP sources.

This biological and conference opinion addresses the use of CVP (and potentially non-CVP) water in the Pajaro Valley. Third-party impacts (impacts that could occur in water districts that sell water to the PVWMA) are evaluated programmatically in the revised basin management projects EIS and will be addressed in separate biological and conference opinions.

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mport Pipeline

The 22-mile-long import pipeline would supply surface water to the coastal distribution system serving approximately 8,960 acres of irrigated agricultural lands in the Pajaro Valley. The pipeline would extend from the existing Watsonville turnout on the Santa Clara Conduit of the CVP San Felipe Division across portions of **San** Benito, Santa Clara, Santa Cruz and Monterey counties and would connect with the proposed distribution system near Highway 1. Except for the connection to the Santa Clara Conduit, no construction or physical modification to CVP facilities is proposed.

Pipeline Construction

The **PVWMA** would obtain a permanent easement up to 60 feet wide along most of the pipeline alignment. In drainage channels or other sensitive habitat, the permanent easement would be 30 feet wide. Near the Graniterock **quarry**, where the alignment would be limited by existing terrain, roads and railroad tracks, the permanent easement would be only 25 feet wide. **A** temporary construction easement ranging from 15 to 110 feet would be acquired. The maximum width **for** the project constructionright-of-way would be **140** feet in open country; near the Graniterock **quarry** property, the right-of-way would be 40 feet wide.

Construction is expected to begin in early 2005, with delivery of imported water supply beginning in 2007. Up to 100 linear feet of pipe may be installed each work day, on average. Assuming that construction would occur 7 days a week, as is planned, the pipeline would be completed in approximately 3 years. Use of multiple starting points and pipe installation crews could reduce the construction time to 18 months or less.

Along most of the pipeline alignment, the pipe would be installed in a trench with 2:1 sideslopes, with 1 foot of bedding material **below the pipe** and 5 feet of cover material. In general, the pipeline alignment is located in open areas where, conventional excavation methods can be used for open cut (open trench) pipeline installation: In open areas, including croplands, excavated topsoil would be stockpiled during construction and replaced following pipeline installation. The amount of topsoil that would be stockpiled would be determined in the final design phase by a soils engineer. Alternative methods of pipeline installation would be used in some **areas** where **the** alignment crosses major roads, creeks with flowing water, **dense** vegetation, or other conditions where surface disturbance may need to be minimized.

The PVWMA would select **the** final alignment within the preferred corridor based **on** local landforms and potential slope failure areas, the ongoing operations of the Union Pacific Railroad (UPRR) and Graniterock **quarry**, highway and focalroadway traffic patterns, and sensitive resource areas.

The proposed pipeline alignment includes open trench crossings of the **Pajaro River** near the Graniterock quarry property, Pescadero Creek, Sargent Creek, two unnamed tributaries to the



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Pajaro River near Pescadero Creek, an unnamed drainage east of Soda Lake, and a small channelized drainage west of Aromas. All river and stream crossings are proposed to occur during the dry season. If water flows persist within the channels at the time of construction, sheet pile cofferdams would be used in a portion of the channel and the construction area would be dewatered.

Two crossings of the Pajaro River (just west of Highway 101 and just west of Highway 1) and a crossing of Millers Canal will be constructed using trenchless methods. Bore-and-jack construction or directional drilling would be used for these crossings. This construction method involves excavating the soil in front of the pipe with **an** auger or other means and using a jack to push the pipe sections forward **as** the soil is removed.

The pipeline alignment includes crossings of three major roadways: **U.S.**101, Highway 123, and Highway **25**. Tunneling or bore-and-jack techniques would be used at these crossings to prevent disruption of traffic flow.

Construction access roads have not been identified. The construction contractor would likely access the site from existing roadways and by moving equipment and materials within the construction easement. Temporary construction access may be required where the alignment is located within open fields. The contractor would likely access the construction easement using the shortest possible route from existing roadways. Access to these sites, if different than that shown on the final design drawings, will be addressed in the traffic control plan to be prepared by the contractor **and** submitted to the appropriate county and state regulatory agencies. The project specifications would prohibit the construction easement areas. Wherever possible, identified sensitive habitat or environmental areas. Wherever possible, identified sensitive areas within the construction easement would be mapped in the project plans or addressed in the project specifications.

The PVMWA has not determined the location of storage sites for soils removed from the trench. They may be side-cast to areas adjacent to the pipeline alignment and within the construction easement. **A** qualified biologist will survey all potential staging areas and storage areas prior to construction. The project specifications would prohibit the use of sensitive environmental areas, roadways, and farmed lands outside of the construction easement for materials and equipment storage, unless the contractor receives approval from the appropriate regulatory agencies for sensitive environmental areas and the property owner for farmed lands or roadways.

A qualified biologist would also survey areas proposed for pipe and materials storage. These areas would comply with the project specifications that will prohibit the use of sensitive environmental areas, roadways, and farmed lands outside of the construction easement for materials and equipment storage, unless the contractor receives approval from the appropriate regulatory agencies sensitive environmental areas and the property owner for farmed lands or roadways.

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The use of groundwater for blending would require up to six groundwater extraction wells, referred to herein as the supplemental wells, with lateral pipelines connecting the main pipeline to the blending facilities in agricultural habitat near the intersection of Highway 1 and the Pajaro **River.** These wells also would be used to supply groundwater to irrigators during the dry-year periods.

Up to six wells to produce blending water would be sited in the area east of the WWTF bounded by Highway 1 on the west, the city of Watsonville on the north, Bolsa De San Cayetano on the south, and the area south of the Pajaro River and south of the eastern extent of the city of Watsonville on the east. Wells would be spaced approximately 2,000 feet apart, within a boundary extending 1,000 feet on each side of the Import Pipeline, extending 4 miles east from Highway 1. The total area anticipated for each well would be approximately 30 feet by 40 feet. Lateral pipelines would connect the wells to the Import Pipeline. Some existing wells may be convened to this purpose, and some new wells would be constructed. New wells most likely would be sited in areas currently used for agricultural production as would the pipeline FXHIBIT L
connecting the wells to the **Import** Pipeline, although other land uses exist within the siting area. New wells would be sited so as not to affect nearby wells that are expected to remain in operation.

4. Integrated Coastal Distribution System

The purpose of the Integrated Coastal Distribution System (ICDS) is to deliver water to growers in the area roughly bounded by Monterey Bay to the West, Highway 1 to the East, Elkhorn Slough to the South, and Buena Vista Drive and Harkins Slough Road to the north. Growers in this area would then take their wells out of service, thereby reducing the groundwater pumping rate. The ICDS consists of facilities required to provide complete irrigation with imported water supplies to 10,000 acres, 8,500 acres of which is farmable. Facilities include:

- pipelines,
- pump stations,
- turnouts, and
- crossings.

In addition to blended recycled water and imported water, the ICDS receives water **from** the Harkins Slough diversion project. The Harkins Slough project was constructed in 2000 and 2001 and, with it segments of the **ICDS**, to deliver water to nearby growers.

Operation and Location

The proposed **ICDS** contains **a** total of 165,670 feet of pipeline and is divided to provide service to areas in Santa Cruz and Monterey Counties, Approximately 28,530 feet of pipeline has already been constructed as part of **the Harkins** Slough project.

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During field surveys conducted by ESA in 1999, a small population of the federally threatened Monterey spineflower (*Chorizanthe pungens* var. *pungens*) was identified in an old sand pit between Trafton and Bluff roads. The pipeline route does not cross this area and construction activities will not take place within 100 feet of suitable habitat for this species.

The ICDS contains **127 turnouts**. These turnouts are located at sites along the ICDS laterals and at the terminus of each sub-lateral in agricultural habitat.

Pump Stations

Results of hydraulic modeling showed that minimum pressures in the Monterey Service Area would be adequate and a pump **station** would not be required. Minimum pressures anticipated in the Santa Cruz Service Area may **require** the addition of a pump station. Assuming worst-case conditions, a North Plateau Pump Station would be required near the intersection of Sunset Beach Road and San Andreas Road in agricultural habitat. *Any* necessary booster pumps would

be located in agricultural habitat and would be similar to those currently used at many wells in the area, consisting of a horizontal centrifugal pump connected to a turnout, with a bypass line for taking water at line pressure.

Crossings

The proposed ICDS alignment crosses roads, railroads, rivers, and environmentally sensitive areas (i.e., sloughs). Recommended lateral routes minimize the number and length of special crossings. Trenchless crossing methods include conventional jacking, horizontal boring, directional drilling, and microtunneling.

Import Pipeline and ICDS Trenchless Crossings

Trenchless construction techniques are expected to be utilized at roads and railroads and six locations along the following drainages: Pajaro River, Hanson Slough, and McClusky Slough

Pajaro River (15+001) - microtunnel/horizontal directional drilling: At this location, two adjacent trenchless crossings of the Pajaro River would be constructed. One crossing of the river would bring water from the Import Pipeline to the Recycled Water Facility. The other crossing of the river would briny water to the ICDS southern service area. Staging areas for this drainage crossing will be located outside the levees or the river. These areas support row crops and do not provide habitat for special status species.

Hanson Slough - bore and jack or microtunnel: The ICDS would cross Hanson Slough once. Hanson Slough is surrounded by **row** crops. The staging areas for the pipeline crossing would be located within row crops outside the limits of any vegetation associated with the slough. These proposed staging areas do not provide habitat for special status species.

McClusky Slough - bore and jack or microtunnel: The ICDS would cross McClusky Slough once. McClusky **Slough** is surrounded by row crops at the proposed crossing location. The staging areas for the pipeline crossing would be located within row crops outside the limits of any vegetation associated with the **slough**. These proposed staging areas do not provide habitat for special status species.

Measures Proposed to Minimize Effects to Listed and Proposed Species

Least Bell's Vireo

The following measures will be implemented to minimize the effects to least Bell's vireos:

a. The construction corridor width will be confined **to** 40 feet or less in riparian or wetland habitat. In most cases, the crossings will be located in previously disturbed areas or **areas** with little **riparian** canopy cover. All wetland and riparian habitat removed during

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construction will be replaced at a ratio acceptable to the California Department of Fish and Game (CDFG) and the Service through the implementation of a revegetation and monitoring plan.

b. Additional protection measures for least Bell's vireos are dependent **on** the construction timing. Construction activities in the vicinity of riparian vegetation may begin prior to March 1 or after July 15 without limitation. If construction begins during the March-July breeding period, pre-construction surveys for sensitive nesting birds will be carried **out**. If no least Bell's vireos or other passerines are breeding within 500 feet of the construction area, construction may proceed during this period without limitation. If least Bell's vireos or other passerines are nesting within 500 feet, either construction must be delayed until the young have fledged or suitable avoidance measures would be developed in coordination with the Service and CDFG. Current CDFG avoidance guidelines require a minimum 250-foot buffer zone around the nests of non-raptor birds.

San Joaquin Kit Fox

The following measures are derived from the Service's *Standardized Recommendations for Protection of the Sun Joaquin* Kif *Fox* (Service 1939). These measures will be implemented for construction areas in grassland habitats east of Highway 101 and adjacent to the easternmost 1,500 feet of the import pipeline:

- a. During construction, project related vehicles will observe a 20 miles-per-hour speed limit in habitat areas, except as posted on county roads and State and Federal highways. To the extent possible. nighttime construction is prohibited on UPRR right-of-way and will be minimized elsewhere. Off-road traffic outside the designated project area will be prohibited.
- b. To prevent inadvertent entrapment of **San** Joaquin kit foxes or other animals during construction, all excavated or deep-walled holes or trenches greater than 2 feet will be covered at the end of each work day by plywood or similar materials or provided with escape routes constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If trapped animals are discovered, the procedures under measure i of this section will be implemented.
- c. San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipe and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at construction sites for one or more overnight periods will be thoroughly inspected for **San** Joaquin kit foxes before the pipe is subsequently buried, capped, or other wise used or moved in any way. Other pipes or casings located in the trench will be inspected each morning prior to construction. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe will not be moved until a qualified biologist has been consulted. If necessary, and under the

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direct supervision of a qualified biologist, the pipe may be moved once to remove it from the path of constructionactivity, until the San Joaquin kit fox has escaped.

- d. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a week from the project site.
- e. No firearms will be allowed on the project site.
- f. To prevent disturbance and mortality of San Joaquin kit foxes or destruction of dens by dogs or cats, no pets will be allowed on project sites.
- **g.** An employee education program will be conducted for the project to explain San Joaquin kit fox concerns to contractors, their employees, and agency personnel involved in the project. The program will consist of a brief presentation by a person knowledgeable in San Joaquin kit fox biology and legislative protection and would include the following: a description of the San Joaquin kit fox and its habitat needs; the occurrence of the species in the project area; status of the species and its protection under the Federal and State Endangered Species Acts; legal penalties for violating the provisions of the Act; and measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information will be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.
- h. After construction, all areas subject to temporary ground disturbances, including storage and staging areas, temporary **roads**, and pipeline comdors will be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. "Appropriate methods and plant species used to revegetate such areas will be determined **on a site-specific** basis in consultation with the Service, **CDFG**, and revegetation experts..
- i. In the case of trapped animals, escape ramps or structures will be installed immediately to allow the animal(s) to escape.
- j. Within no less than 14 days and no more than 30 days prior to the commencement of construction activities, a qualified biologist shall survey all construction areas within San Joaquin kit fox habitat. During these **surveys**, dens likely to be inhabited by San Joaquin kit foxes will be flagged for avoidance. Disturbance to all known San Joaquin kit fox dens will be avoided to the maximum extent possible. Limited destruction of dens may be allowed if avoidance is not a reasonable option, provided measures I and m are implemented.

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- Occupied natal or pupping dens will not be destroyed until the pups and adults have k. vacated and then only after consultation with the Service.
- 1. Flagged dens occumng within the construction area shall be monitored for 3 days with tracking medium or **an** infra-red beam camera to determine current usage. If no San Joaquin kit fox activity is observed during this period, the den will be destroyed immediately to preclude subsequent use. If San Joaquin kit fox activity is observed, the den will be monitored for at least 5 consecutive days from the time of observation to allow any resident San Joaquin kit fox to move to another den. Use of the den can be discouraged during this period by partially plugging its entrance(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of a qualified biologist. If the San Joaquin kit fox is still present after 5 or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a qualified biologist, it is temporarily vacant (e.g., during normal foraging period). Hand excavation is the preferred method; however, excavating equipment may be required due to soil conditions.

Destruction of the San Joaquin kit fox den will be accomplished by careful excavation until the absence of San Joaquin kit foxes is confirmed. The den will be fully excavated and filled with dirt and compacted to ensure that San Joaquin kit foxes cannot reenter or use the den during the construction period. If a San Joaquin kit fox is observed to reenter an excavated den, construction activity in the vicinity will cease and monitoring activities as described above will be implemented until the biologist has determined that the San Joaquin kit fox has escaped.

Santa Cruz Long-toed Salamander

Construction activities will avoid aquatic and upland habitat for the Santa Cruz long-toed salamander through bore and jack and other trenchless methods. In addition, the measures proposed to minimize effects to California red-legged frogs will also minimize effects to the Santa Cruz long-toed salamander.

Tidewater Goby

The following measures will be implemented to minimize the potential for impacts to tidewater gobies resulting from underground construction at the Pajaro River west of Highway 1:

All underground construction activities in the vicinity of potential tidewater goby a. occurrences will be restricted to the low-flow period of June 15 through November 1. If the channel is dry. construction can occur prior to June 15. Restricting construction activities to this work window will minimize potential impacts to tidewater gobies resulting from bentonite releases.



b. A qualified biological monitor will be on site during all underground pipeline construction activities in the vicinity of potential tidewater goby occurrences. In the event of a contaminant release, the biological monitor will have the authority to halt construction until the source of contamination is controlled.

Longhorn Fairy Shrimp, Conservancy Fairy Shrimp, and Vernal Pool Fairy Shrimp

Measures designed to prevent impacts to the California red-legged **frog** will also ensure that impacts to vernal pool invertebrates will not occur. In addition, the following measures will be applied to construction activities within 100 feet of the vernal pool **just** east of Highway 101:

- **a** Runoff from the adjacent upland construction site will be either retained in the defined work area or directed away from the identified vernal pool.
- b. Construction exclusion fencing will be erected to keep project vehicles and activities within the defined work area.
- c. A qualified biologist will conduct training sessions for all construction personnel before activities begin.
- **d.** A qualified biologist will monitor construction activities that have potential to affect the identified habitat.

California Red-legged **Frog**

Prior to and during construction, the following actions will be performed to minimize adverse effects to California red-legged frogs:

- **a** The name and credentials of a biologist qualified to act as construction monitor will be submitted to the Service for approval at least 15 days prior to commencement of work.
- A Service-approved biologist will survey the work sites 2 weeks before the onset of construction activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist will contact the Service to determine if moving any of these life-stages is appropriate. If the Service approves moving the animals, the approved biologist will be allowed sufficient time to move California red-legged frogs from the work sites before work activities begin. If California red-legzed frogs are not detected, construction may proceed at these sites.
- c. All work activities within or adjacent to potential California red-legged frog aquatic habitat will be completed between May 1 and November 1 (except where construction will take place outside an established habitat boundary such **as** a levee).

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- d. Exclusionary fencing (i.e., silt fences) will be installed around all construction areas that are within 100 feet of α adjacent to potential California red-legged frog habitat.
- e. A Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California redlegged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California redlegged frog as they relate to the project, and the boundaries within which the project may be accomplished.
- f. A Service-approvedbiologist will be present at the active work sites until such time that the removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this individual receives training outlined above in measure e and in the identification of California red-legged frogs.
- g. During work activities, all trash that may attract predators will be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris will be removed from **work** areas.
- h. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least *66* feet from any riparian habitat or water body. Reclamation and the PVWMA **will** ensure contamination of habitat does not occur during such operations. Prior to the onset of **work**, Reclamation will ensure that the PVWMA has prepared a plan to allow a prompt and effective response to any accidental spills.
- 1. Project sites will be **revegetated** with an appropriate assemblage of native upland vegetation, and if necessary, ripartan and wetland vegetation, suitable for the area. A plan describing pre-project conditio&, restoration and monitoring success criteria will be prepared prior to construction.

In addition to the measures previously described, the following measures from the California redlegged frog programmatic consultation issued to the U.S. Army Corps of Engineers (Corps) (Service 1999b) will be implemented at all project areas that provide potential breeding and upland habitat for California red-legged frogs and as needed in construction areas that border potential Californiared-legged frog habitat:

j. A Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. When practicable, invasive exotic plants in the project areas will be removed.

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- **k.** Stream contours will be returned to their original condition at the end of project activities, unless consultation with the Service has determined that it is not beneficial to the species or feasible.
- 1. The number *of* access routes, number and size of staging **areas**, and the total area of the activity **will** be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas. Where impacts occur in these staging areas and access routes, restoration will occur as identified in measures i **and k**.
- m. To control erosion during and after project implementation, the PVWMA will implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
- **n.** If **a work** site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream **flows** during construction. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow **flow** to resume with the least disturbance to the substrate.
- **o.** A Service-approved biologist will permanently iemove, from within the project area, any individuals *of* exotic species, such as bullfrogs (*Rana catesbeiana*), crayfish, and centrarchid fishes, to the maximum extent possible. The **PVWMA** is responsible to ensure that its activities are in compliance with the California Fish and Game Code.

California Tiger Salamander

In addition to measures described for the California red-legged frog, the following measures will further minimize adverse effects to the California tiger salamander:

- a. At the two sites which provide aquatic habitat and grassland estivation habitat (the vernal **pool** and the drainage east of Soda Lake), aquatic and nocturnal surveys will be performed prior to construction by a qualified biologist according to the CDFG protocol (1998). Surveys will include standard aquatic surveys in 2 consecutive years with **one** standard nocturnal survey during the second year survey. If the surveys result in a negative finding, no further action is required.
- b. If protocol level surveys indicate the presence of California tiger salamanders within aquatic or estivation habitat at these two sites, a pre-construction survey will be conducted at the site to identify suitable burrow estivation areas. Estivation habitat will be defined as the presence of two or more small mammal **burrows** greater than one-inch diameter within a 10-foot diameter area and within 10 feet of proposed construction sites

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(i.e., the presence of a single isolated gopher hole would not be considered habitat). As feasible within the context of the work area, estivation areas will be temporarily fenced and avoided.

- c. Fencing will consist of silt fence material strung between temporary stakes, with the lower edge set in a 6-inch deep trench and back-filled. Fencing will be monitored daily for gaps or undermining burrows and will be maintained in good condition. Following construction, all fencing materials will be removed.
- **d.** At locations where estivation burrows are identified and cannot be avoided, estivation burrows will be excavated by hand prior to construction and individual animals moved to natural burrows or artificial burrows constructed of PVC pipe within 0.25 mile of the construction site.
- e. To ensure compliance with these measures and minimize adverse effects to California tiger salamanders, **a** qualified biological monitor will be present during all construction operations at locations with suitable estivation burrows.
- f. Following removal of individuals, construction areas will be fenced with temporary silt fencing as described previously in this section.

Trenchless Construction Measures

Staging and storage areas for equipment, materials, fuels, lubricants, and solvents will be located outside of the stream channel and banks at least 50 feet from waterways, but within the pipeline right-of-way. Prior to construction, a biological monitor will survey the proposed staging area to ensure that it is located outside of riparian vegetation or other sensitive habitat. Stationary equipment such as motors, pumps, generators, and compressors located within or adjacent to the stream that may leak materials deleterious to aquatic life will be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily, to prevent leaks of materials. Vehicles will be moved away from the stream prior to refueling and lubrication. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least *60* feet from any riparian habitat or water body. No trash or debris will be stored or deposited within 100 feet of streams or wetlands.

Prior to construction, the biological monitor will survey proposed staging areas to ensure that they are not located within sensitive habitat and resources, perform any required preconstruction surveys, and conduct an environmental training session for the construction crew. During construction of the drainage crossings, the biological monitor will patrol the staging areas and bore entry and exit pits and monitor the drilling fluid returns to ensure that no fluid is escaping during trenchless construction. In addition, the biological monitor will regularly search the drainage, including upstream and downstream reaches from the construction sire, and surrounding areas to identify frac-outs or fluid release into the stream or adjacent habitat.

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Bentonite will be specified to contain a non-toxic purple dye that aids in the identification of drilling fluid seepage within turbid waters.

The contractor will provide a trained site inspector with experience in trenchless construction techniques to monitor drilling fluid **returns** at the site. If the biological monitor or site inspector identifies seepage of drilling fluid, the monitor will have the authority to halt construction until the source of contamination is controlled and corrective action taken. The biological monitor will be responsible for reporting any drilling fluid seepage or spill in the daily monitoring report and notifying the appropriate agencies as discussed below.

Spill Prevention and Containment Measures

Protective measures (a) **through** (g) will be applied individually or in combination based on sound field observation at each trenchless construction site, to prevent drilling fluids from affecting **streams**, wetlands, riparian vegetation or other sensitive habitat:

- a. A dike/berm will be constructed around the bore pit to entrap all boring fluids:
 - The dike will extend around the boring equipment as necessary to contain all drilling **fluids** around equipment and the bore;
 - The bore pit will be sized to fully contain the return flow of drilling fluids;
 - A receiving pit will be excavated on the far side of the bore to collect any cutting fluid that may **exit** the bore;
 - Drilling fluid flow controls will be available to quickly seal any leakage that may occur and spill containing materials shall be on site;
 - A similar dike/berm will be constructed at the exit point to contain all drilling fluid around equipment and the bore;
 - A straw barrier (certified weed free) and/or silt fence will be installed between the bore pit dike/berm and flowing stream or wetland. (This protection is meant to prevent seepage occumng outside the primary dike/berm from reaching the stream or wetland, as needed);
- b. **An** 800-gallon or larger vacuum truck will be on site to periodically remove drilling fluids from the boring pit and around equipment;
- c. **A** 3,000-gallon or larger vacuum truck will be available on call in case a spill or seep occurs;

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- d. Should rain be forecasted, additional protection measures may be suggested and implemented at the discretion of the Biological Monitors on site or as required by the permit conditions set by the regulatory agencies;
- e. The contractor will be required to route any natural runoff or drainage away from or **around** the bore entry and exit pits;
- **f.** Water entering the bore entry or exit pits, either by means of precipitation or groundwater inflow, may be contaminated by residue on boring/drilling equipment and will be discharged in accordance with the appropriate stormwater or dewatering discharge permits; and
- g. Excess supplies of containment materials (i.e., weed-free straw **bales**, silt fence, shovels) will be available for use as needed.

A biological monitor will be present on site during all trenchless construction activities. The biological monitor will ensure that the following spill prevention and containment equipment is available at the site at all times. Construction activities shall not commence without on site spill prevention and containment equipment. At a minimum, the following equipment must be available at the site:

- Heavy weight plastic gravel filled and sealed bags (at least 40 bags each at 30 to S0 pounds);
- A splash board with 3 layers of a heavy weight plastic;
- Several S gallon hard plastic pails;
- One wide, heavy-duty push broom;
- Three flat blade shovels;
- Silt fence and T-posts;
- Chicken wire or connecting material to tie off the perimeter of a dewatering structure;
- Two bundles of absorbent pads to use with plastic sheeting for placement beneath motorized equipment while in operation in a riparian/stream zone;
- A minimum of two IO-foot rolls of straw logs (wattles or fiber rolls);

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- A floating silt barrier of sufficient length to reach from the water's surface to the river bed to contain any frac-out in flowing drainage; and
- A minimum of 100 feet of hose and sump pump that will be available for clean up.

If seepage of drilling fluid occurs:

- Directional boring will stop immediately.
- The bore stem will be pulled back to relieve pressure on the seep.
- Existing berms, barriers, or silt fences will be strengthened to contain drilling fluids.
- If the frac-out occurs within a flowing stream, floating silt barriers will be deployed in a semi-circle around the frac-out, downstream of the discharge.
- An 800-gallon or larger vacuum truck will begin recovering drilling fluid immediately. Trucks will be staged from the top of the bank rather than within the stream.

Actions will be taken to divert drilling fluid from entering **a** stream or wetland.

A 3,000-gallon or larger vacuum truck will be called to the site, if necessary, to accommodate the amount or location of the spill or seepage.

The collected mud recovered from the stream will be disposed of properly at **an** approved and permitted disposal location outside of sensitive habitat.

In the event that drilling fluids adversely affect wetlands or streams, the Biological Monitor will notify the appropriate agencies (the Service, CDFG, the *Corps*, and Regional Water Quality Control Board) and consult on proper cleanup and implementation of mitigation measures,

 Mitigation measures for habitat restoration (as described in the Streambed Alteration Agreement or other consultation document produced by CDFG in coordination with the applicant) will be implemented immediately following completion of the work on a particular segment or in the first rainy season following completion of work. whichever comes first.

Site-specific containment measures

As discussed in the biological assessment (ESA 2002), underground crossings of the Pajaro River and Millers Canal will occur between June 15 and November 1 during the low-flow period for the drainages to minimize disturbance to the federally threatened steelhead (*Oncorhynchus mykiss*). To minimize impacts to Santa Cruz long-toed salamander, underground crossings of Hanson Slough and McClusky **Slough** will occur between August 1 and October **3**1. During these months, reaches of the Pajaro River, Hanson Slough, and McClusky Slough may be *dry*, depending on rainfall and other conditions that vary annually. Some reaches of the Pajaro River and Millers Canal have the potential to contain some water throughout the year. Prior to construction, the contractor will evaluate hydrologic conditions at each underground drainage crossing location to determine which spill prevention measures are appropriate and most effective for the site.

STATUS OF THE SPECIES

Least Bell's Vireo

The least Bell's vireo was listed **as** endangered by the Service on May 2, 1986 (51 *Federal Register* 16474). Critical habitat was designated for the least Bell's vireo on February 2, 1994 (59 *FR* 4845). A draft recovery plan has been published (Service 1998a). Additional information on the least Bell's vireo may be found in Wilbur (1980), Garrett and Durn (1981), Miner (1989), Pike and Hays (1992), and Zembal et al. (1985).

The least Bell's **vireo** is a small, olive-grey migratory songbird that nests and forages almost exclusively in riparian woodland'habitats. Bell's vireos as a group are highly territorial and are almost exclusively insectivorous.

Least Bell's vireo nesting habitat typically consists of well-developed overstories and understories, and low densities of aquatic arid herbaceous cover. The understory frequently contains dense subshrub or shrub thickets. These thickets are often dominated by sandbar willow (*Salix hindsiana*), mule fat (*Baccharis salicifolia*), young individuals of other willow species such as arroyo willow (*S. lasiolepis*) or black willow (*S. gooddingii*), and one or more herbaceous species. Important overstory species include mature arroyo willows and black willows. Occasional cottonwoods (*Populus* spp.) and western sycamores (*Platanus racemosa*) occur in some habitats and coast live oaks (*Quercus agrifolia*) may be locally important in the overstory.

Least Bell's vireos generally begin to arrive **from** their wintering range in southem Baja California and establish breeding territories by mid-March to late March. Most breeding least Bell's vireos apparently **depart** their breeding grounds by the third week of September and only a very few individuals are found wintering in California or the United States. Following pair formation, it takes approximately 5 to 7 days for least Bell's vireos to finish nest construction and

egg-laying. Young typically fledge within 20 to 24 days after eggs **are** laid. The egg-laying and incubation periods are critical to the nesting success as disturbance at this point may result in abandonment of the nest. Once young are fledged, they wander widely throughout the parents' territory.

Although least Bell's vireos occupy home ranges that typically range in size from 0.5 to 7.5 acres, a few may be as large as 10 acres. In general, areas containing relatively high proportions of degraded habitat seem to have lower productivity (hatching success) than areas that contain high quality riparian woodland.

As much as 90 percent of the original extent of riparian woodland in California has been eliminated, and most of the remaining 10 percent is in a degraded condition (Smith 1977). Oberbauer (1990) reported a 61 percent loss of riparian habitat for San Diego County. It appears that least Bell's vireos nesting in areas containing a high proportion of degraded habitat have lower productivity (e.g., hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992). Additionally, widespread habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in **part** by increasing incidence of nest predation and parasitism (Whitcomb et al. 1981, Small and Hunter 1988).

Least Bell's vireos are sensitive to many forms of human disturbance including noise, night lighting, and consistent human presence in **an** area. Excessive noise can cause vireos to abandon an area Greaves (1989) hypothesized that the lack of breeding vireos in apparently suitable habitat was due to human disturbances (e.g., bulldozers, off-highway vehicles, and hiker travel). He further suggested that buffer zones between natural areas and surrounding degraded and disturbed areas could be used to increase the suitability of some least Bell's vireo habitat.

The features or elements of habitat that are essential to the conservation of the least Bell's vireo can be described **as** riparian woodland vegetation that generally contains both canopy **and** shrub layers, and includes some associated upland habitats. General activities that could cause destruction or adverse modification of least Bell's vireo habitat include the following: I) removal or destruction of riparian vegetation, **2**) thinning of riparian growth, especially near ground level, 3) removal or destruction of adjacent upland habitats used for foraging, and 4) increases in human-associated or human-induced disturbances. Specific actions that could adversely affect least Bell's vireo critical habitat include stream channelization, water impoundment or extraction, water diversion, intensive recreation, and development.

Historically described as common to abundant in the appropriate **riparian** habitats from as far north **æ** Tehama County, California to northern Baja California, Mexico, the least Bell's vireo currently occupies a small fraction of its former range. Widespread habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations. The decline of this species is attributed, in part, to the combined, perhaps synergistic effects of

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the widespread loss of riparian habitats and brood-parasitism by the brown-headed cowbird *(Molothrus ater)*. The final listing rule estimated the number of pairs in southern California at 330. By 1996, the estimated number of pairs had increased to 1,346, possibly due to the trapping of brown-headed cowbirds and habitat conservation and restoration (Service 1998).

San Joaquin Kit Fox

The San Joaquin kit fox was federally listed as endangered on March 11,1967 (32 Federal **Register 4001)**, and state listed as threatened on June 27, 1971. Critical habitat has not been proposed. Information in the following species account was obtained primarily from the recovery plan for upland species of the San Joaquin Valley (Service 1998b), Morrell (1972), and Egoscue (1956).

The San Joaquin kit fox is the smallest canid in North America with a length of approximately 30 inches including the tail. It is a nocturnal animal but can be active during daylight hours in late spring and early **summer**. The diet of San Joaquin kit foxes varies geographically, seasonally, and annually based on variation in abundance of potential prey. They feed primarily on kangaroo rats (*Dipodomys* sp.), ground squirrels, mice, and lagomorphs. San Joaquin kit foxes will also eat insects, birds, and vegetation.

San Joaquin kit foxes use dens for temperature regulation, shelter from adverse environmental conditions, reproduction, and escape from predators. They may change dens four or five times during summer months and change natal dens one or two times per month. During September and October, adults begin to prepare natal and pupping dens, usually selecting sites with multiple openings. Mating takes place between late December and March. Litters of two to six pups are usually born between February and late March. Pups emerge from dens at slightly more than one month old and begin to disperse about four to five months later. Reproductive success of kit foxes is correlated with prey abundance. Success decreases when the density of prey species drops because of drought, too much rainfall, or other circumstances. Home ranges of approximately one to 12 square miles have been reported.

The San Joaquin kit **fox** historically was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. The current range of the San Joaquin kit fox is divided into two areas, the northern range centering around Contra Costa County and the southern range in the San Joaquin Valley and neighboring valleys. They also occur in interior coastal ranges and watersheds from Monterey County to Ventura County. Throughout their range, San Joaquin kit foxes **are** currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys **and** plains. The largest extant populations of San Joaquin kit foxes are in the **Elk** Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the Canizo Plain Natural Area in San Luis Obispo County. In the southern San Joaquin Valley, San Joaquin kit foxes also appear to make extensive use of habitat fragments in an urbanizing environment.

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Intensive agriculture, urbanization, and other land-modifying actions have eliminated extensive portions of habitat and are the most significant causes of **this** species' endangerment. Such habitat losses contribute to San Joaquin kit fox decline **through** displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations. The coyote (*Canislatrans*) and the introduced red fox (*Vulpes vulpes*) compete for food resources with the smaller San Joaquin kit fox and are known to prey upon San Joaquin kit foxes as well. Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control **programs**, and vehicle strikes contribute substantially to the vulnerability of this species.

A primary recovery strategy in the recovery plan is to establish a viable complex of San Joaquin kit fox populations (i.e., a viable rnetapopulation) on private and public lands throughout its geographic range. The recovery plan recommends protecting the Carrizo Plain Natural Area, western Kern County, and the Ciervo-Panoche Natural Area as core populations while reducing their isolation by managing populations on connecting private and public lands through conservation agreements. The recovery plan for upland species also recommends enhancing natural connections between populations to help reduce the harmful effects of habitat loss and fragmentation. Natural connections exist between the Salinas-Pajaro Region and the Carrizo Plain Natural Area. Three occurrences of San Joaquin kit fox movement have been documented between Salinas-Pajaro Region and the Carrizo Plain Natural Area and the area east of Paso Robles: (1) one San Joaquin kit fox was documented to move from the Canizo Plain Natural Area to Camp Roberts military installation along the Monterey/San Luis Obispo County line; and, (2) two kit foxes were recently documented to move from Camp Roberts to areas south of Shandon and Cholome, San Luis Obispo County, respectively. Although the total movement of San Joaquin kit faxes between these areas is unknown, land development along the natural movement corridors between the Carrizo Plain Natural Area and the Salinas Valley as well as development Within the Salinas Valley itself has probably reduced immigration of San Joaquin kit foxes into the Salinas Valley, possibly contributing to their decline. Data from Camp Roberts show that the number of San Joaquin kif foxes trapped annually ranged from 17 and 52 individuals during 1989 to 1994 and dropped to a range of 5 to 9 individuals during 1995 and 1996, respectively (California Army Natidnal Guard 1997).

Although the causes of the decline at Camp Roberts are unknown, it has been attributed to a combination of potential factors that include an increase in the number of predators, such as coyotes and bobcats (*Felis rufus*); displacement by the red **fax;** a decrease in prey populations, such as lagomorphs and ground squirrels; flooding of dens during the pupping season during storm events in 1995; rabies and distemper, and reductions in grazing and burning associated with changes in land use practices at Camp Roberts (California Army National Guard 1997). However, in contrast to the Camp Roberts population, the San Joaquin kit **fox** population at the **Carrizo** Plain Natural Area reversed the decline and reached a record high by the mid-1990s. Even though numbers decreased slightly again in 1997 and 1998, the Carrizo Plain population is within normal bounds, considered to be stable, and has expanded its range northward in *the* last **year**. The abundance of San Joaquin kit foxes at the Carrizo Plain Natural Area appears tied **closely** to the abundance of their prey species, kangaroo rats and lagomorphs (R. Stafford,

Associate Wildlife Biologist, CDFG, pers. comm. 2000). However, we do not know if a low prey base is the driving factor in the low number of observations of **San** Joaquin kit foxes in Monterey County. The role that natural connections between the **Salinas** Valley and the Carrizo Plain Natural Area may play in maintaining the vigor and ensuring the survival of the metapopulation is complex and yet to be characterized, especially given the difference in population dynamics between the two population units.

Santa Cruz Long-toed Salamander

The Santa Cruz long-toed salamander was federally listed as endangered on March 11, 1967 (32 *Federal Register* 4001). A recovery plan was approved in 1977 (Service 1977) and revised in 1985 (Service 1985). Critical habitat has not been proposed. Information obtained in this account was obtained primarily from Anderson (1960, 1961, 1964, 1967, 1968, 1972), Hayes and Miyamoto (1984), Hayes and Tennant (1985), Hayes and Kremples (1986), Hayes and Jennings (1988), Reed (1979, 1981), **Rth** (1988a, 1988b), and Ruth and Tollestrup (1973).

Santa **Cruz** long-toed salamanders are small, dark colored salamanders with a series of discrete, irregular **dull** orange or metallic-yellow dorsal markings. Head markings are small scattered dots and **are** often absent anterior to the eyes. The ventral surface is sooty black. They are thought to be long-lived creatures, possibly living for a decade or more. The Santa Cruz long-toed salamander is a subspecies of the long-toed salamander that is isolated by 150 miles **from** the nearest other subspecies.

Santa Cruz long-toed salamanders are known from at least 14 locations in Santa Cruz and Monterey Counties. They spend most of their lives underground in small mammal burrows and along the root systems of plants in upland chaparral and woodland areas of coast live oak $\boldsymbol{\alpha}$ Monterey pine (Pinus radiata) and riparian strips of arroyo willows and other species. These areas are desirable because they are protected from the heat and drying rays of the sun. The soil is usually a sandy loam, the result of old marine terraces. The breeding ponds are usually shallow, ephemeral, freshwater ponds. In Santa Cruz County, breeding has been documented at Valencia Lagoon, and at Buena Vista, Calabasas, Ellicott, Green's, Millsap, Rancho Road, Seascape, and Tucker ponds (Service 1999a, Dana Bland and Associates 2002). In Monterey County, breeding has been documented at Bennett Slough, McClusky Slough, Elkhorn Slough, Moro Cojo Slough, and McClusky vernal pool (Service 1999a). However, many of these sites have not been surveyed recently and may no longer support breeding populations. The breeding ponds at the Buena Vista, Calabasas, Millsap, Rancho Road, Seascape, Tucker, and Valencia sites are man-made or human modified. The extent of the upland habitat adjacent to the ponds varies from a narrow ring of riparian vegetation on the perimeter of the pond to as far as a mile or more out from the pond. Although no adult Santa Cruz long-toed salamanders have been observed to move more than about 0.6 mile (straight-line distance) from a breeding site where they were originally marked, few, if any studies have looked for them beyond that distance. The distance between known breeding, and estivation locations varies greatly from site to site and apparently depends largely upon soil type, vegetation presence (or absence), vegetation structure

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or composition, slope, aspect, and size of the breeding pond (MarkJennings, U.S. Geological Survey, Biological Resources Division, pers. ob., 1996). Juvenile Santa Cruz long-toed salamandershave also been found at several other sites in Santa Cruz and Monterey Counties. Whether any of these juveniles represent undiscovered breeding populations or merely wandering individuals from marginal or currently identified breeding habitats is unknown. Further discovery of new breeding sites is likely given the amount of privately owned habitat in the region that has not been surveyed for Santa Cruz long-toed salamanders.

Adult Santa Cruz long-toed salamanders leave their upland chaparral and woodland summer retreats with the onset of the rainy season in mid- to late-November or December and begin their **annual** nocturnal migration to the breeding ponds. They often forage for inveitebrates, especially isopods, on the surface in and around breeding sites during the rainy season. All adult Santa Cruz long-toed salamanders migrate primarily on nights of rain, mist, or heavy fog. They arrive at the breeding ponds from November through March, with most arriving in January and February. Peak breeding occurs during January and February because earlier rains are usually insufficient to fill the breeding ponds. Adults may skip breeding for one or more seasons if no surface water is present during drier years (Russell and Anderson 1956). As individuals enter the pond, they pair up, court, and breed. Males apparently remain in ponds twice as long (1 to 5 weeks) as females and may successfully breed with more than one female each season. Female Santa Cruz long-toed salamandershave specialized and selective egg-laying habits. Eggs are laid singly on submerged stalks of spike rush (Eleocharis sp.) or other vegetation about 2 to 3 centimeters apart. Free floating, unattached, and clustered eggs have also been observed. Each female lays approximately 300 (range 215 to **41**1) eggs per year. After courtship and egg laying, most adults leave the pond in March or April and return to the same general areas where they spent the previous summer, often foraging for food while en route. Some adults may remain in the vicinity of the breeding site for a year or more before returning to more distant terrestrial retreats. The eggs and the subsequent larvae are left unattended by the adults.

According to Reed (1979,1981) and Ruth (1988a), eggs usually hatch 15 to 30 days into the aquatic larval stage. The exact amount of time for development depends on water temperature. The larvae, which subsists largely on aquatic invertebrates, such as worms and mosquito larvae, and other larval amphibians, such as Pacific treefrogs (*Hyla regilla*) and conspecifics, remain in the pond environment for 90 to 145 days until they reach a minimum size of about 1.25 inches snout to vent length. Once this general size is reached, the larvae may metamorphose in a relatively short period of time if the pond environment becomes unsuitable (i.e., dries up) for continued larval growth. However, a complex set of factors determines the timing of metamorphosis in ambystomatid salamanders. Metamorphosis typically occurs fiom early May to mid-August. In the closely related mole salamander (*Ambystoma talpoideum*), metamorphosis can be induced in the laboratory by starvation, water pollution, increased water temperatures, or drying of the aquatic habitat (Shoop 1960). If water is available to the larvae for a longer period of time, remaining in the pond may be advantageous for the juveniles. A larger body size at metamorphosis increases resistance to desiccation, makes the individual less vulnerable to predation, and increases the size range of food items that can be eaten (Werner 1986). As the



pond begins to *dry*, the juveniles move at night and seek underground refuge at or near the pond. During the next rainy season, these recently metamorphosed juveniles disperse further away from the pond, not returning until they reach sexual maturity at 2 to **3** years.

Santa **Cruz** long-toed salamanders are vulnerable to several predators. Predators of juvenile Santa Cruz long-toed salamanders include introduced Virginia opossums (*Didelphis virginiana*), striped skunks (Mephitis mephitis), and ringneck snakes (Diadophis punctatus) (Reed 1979). Adults are probably preved upon by these animals as well as raccoons (*Procyon lotor*). Large California tiger salamanders, coast garter snakes (Thamnophis atratus), western terrestrial garter snakes (T. elegans), and common garter snakes (T. sirtalis) have been observed to prey on larvae, juveniles and adults when the opportunity presents itself. Larval Santa Cruz long-toed salamanders are eaten by conspecifics (Blau 1972), a number of predacious aquatic insects, and a few bird species including mallard ducks (Anas platyrhynchos). Larval Santa Cruz long-toed salamanders are parasitized by a digenetic trematode (Plagiochiidae) which causes the creation of supernumerary limbs as well as other limb deformities (Sessions and **Ruth** 1990). Burrowing mammals, such as moles (Scapanus spp.) and shrew-moles (Neurotrichus gibbsii), apparently avoid Santa Cruz long-toed salamanders because of toxic skin secretions. Predation on adults by herons (Ardea herodius, Butorides striatus, Egretta spp.), belted kingfishers (Ceryle alcyon), owls (Tyto alba, Bubo virginianus, Megascops kennicotti), blackbirds (Agelaius spp.), and grebes (*Podilymbus podiceps* and *Podiceps* spp.) is probably minimized because of the secretive and primarily nocturnal activities of mature Santa Cruz long-toed salamanders above ground and the availability of sufficient cover.

The Santa **Cruz** long-toed salamander is vulnerable to contaminants found in its aquatic breeding habitat. The eggs, larvae, juveniles, and adults of the Santa Cruz long-toed salamander may directly absorb contaminants contained in the water; larvae, juveniles, and adults may directly ingest contaminants by eating contaminated aquatic animals.

The Santa **Cruz** long-toed salamander is currently known from more locations than when it was listed. However, only four are currently managed by public agencies, with a fifth site currently under acquisition. A sixth site is on a preserve as part of mitigation for a habitat conservation plan for a residential development. The remaining locations continue to be threatened by the direct or indirect effects of human and natural events. The principal threats to its continued existence include degradation of existing breeding ponds by siltation, growth of excessive aquatic vegetation, destruction of upland and breeding habitat by land use practices such as urbanization and highway construction, vehicles, saltwater intrusion, weather conditions, runoff from adjacent agricultural and urban areas, and predation by introduced and native organisms. The very restricted and disjunct distribution of the Santa Cruz long-toed salamander populations has made the species particularly susceptible to population declines.

EXHIBIT L-

Tidewater Goby

The tidewater goby was listed as endangered on March 7,1994 (59 *Federal Register* 5494). Critical habitat was designated on November 20,2000 (65 *Federal Register* 69693). On June 24, 1999, we published a proposed rule to remove the northern populations of the tidewater goby, including those in Monterey and Santa Cruz Counties, from the list of species protected by the Act. A final rule for **this** action **has** not been published nor has a recovery plan. Detailed information on the biology of the tidewater goby can be found in Wang (1982), Irwin and Soltz (1984), Swift *et al.* (1989), Worcester (1992), and Swenson (1995); much of the information from this account was taken from these sources.

The tidewater goby is a small, elongate, grey-brown fish with dusky **firs** not exceeding 1.91 inches standard length (SL). **The** species, which is endemic to California, is typically found in coastal lagoons, estuaries, and marshes with relatively low salinities (approximately ten parts per thousand). **Its** habitat is characterized by brackish shallow lagoons and lower stream reaches where the water is fairly still but not stagnant. However, tidewater gobies can withstand a range of habitat conditions; they have been documented in waters with salinity levels from 0 to 42 parts per thousand, temperatures from 8 to 25° Celsius, depths from 10 to 80 inches, and dissolved oxygen levels of less than one milligram per liter.

Tidewater gobies may range upstream into fresh water, up to 1.24 miles from the **estuary**. In San Antonio Creek and **the** Santa Ynez River, Santa Barbara County, tidewater gobies are often collected 3 to **5 miles** upstream of the tidal or lagoonal areas, sometimes in sections of streams impounded by beavers (*Castor canadensis*). Conversely, tidewater gobies enter marine environments if sandbars are breached during storm events. The species' tolerance of high salinities (up to 60 parts per thousand for shorter time periods) likely enables it to withstand the marine environment, allowing it to colonize or re-establish in lagoons and estuaries following flood events.

The tidewater goby is primarily an annual species in central and southem California, although some variation has been observed. If reproductive output during a single **season** fails, few if any tidewater gobies survive into the nextyear. For this reason, populations **are** exceedingly sensitive to short-term adverse environmental conditions. In one notable case, a population estimated at between 10,000 and 30,000 individuals was extirpated after **a** single construction project (Swift and Holland 1998). However, recent research suggests that tidewater gobies have adapted to climatically dynamic conditions and **are** adept at recolonizing sites from which they have been extirpated (Lafferty et al. 1999a).

Reproduction peaks from late April or May to **July** and can continue into November or December depending on the seasonal temperature and rainfall. Males begin the breeding ritual by digging burrows (3 to 4 inches deep) in clean course sand. Females then deposit eggs into the burrows, an average of 400 eggs per spawning effort (Swenson 1999). Males remain in the burrows to guard the eggs. Males frequently forgo feeding during this period, possibly contributing to the

mid-summer mortality noted in some populations. Within 9 to 10 days, larvae emerge at approximately 0.2 to 0.3 inch SL. The larvae live in vegetated areas within the lagoon until they are 0.6 to 0.7 inch SL, when they become substrate oriented, spending the majority of time on the bottom rather than in the water column. Both males and females can breed more than once in a season, with a lifetime reproductive potential of 3 to 12 spawning events.

Tidewater gobies feed on small invertebrates, usually mysids, amphipods, ostracods, snails, and aquatic insect larvae, particularly dipterans. Small tidewater gobies (0.15 to 0.3 inch SL) probably feed on unicellular phytoplankton or zooplankton similar to many other early stage larval fishes (Swenson and McCray 1996).

Historically, the tidewater goby occurred in at least 110 California coastal lagoons from Tillas Slough near the Oregon border to Agua Hedionda Lagoon in northern San Diego County. The southern extent of its distribution has been reduced by approximately eight miles. The species is currently known to occur in about 85 locations, although the number of sites fluctuates with climatic conditions. Today, the most stable populations are in lagoons and estuaries of intermediate sizes (5 to 124 acres) that have remained relatively unaffected by human activities. These populations have probably provided colonists for the smaller ephemeral sites (Swift et al. 1997, Lafferty et al. 1999b).

The tidewater goby can be adversely affected by urban, agricultural and industrial development in and surrounding the coastal wetlands and alteration of habitats from seasonally closed lagoons to tidal bays and harbors. Some extirpations are believed to be related to pollution, upstream water diversions, and the introduction of exotic fish species (most notably sunfishes and black bass [Centrarchidae]). These threats continue to affect some of the remaining populations of tidewater gobies. Tidewater gobies have been extirpated from several water bodies that are impaired by degraded water quality (e.g., Mugu Lagoon, Ventura County), but still occur in others (e.g., Santa Clara River, Ventura County).

Longhorn Fairy Shrimp, Conservancy Fairy Shrimp, and Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp was listed as threatened and the conservancy and longhorn fairy shrimp were listed **as** endangered on September 19,1994 (59 FR 48136). **A** recovery plan for vernal pool species, including the vernal pool fairy shrimp, is being prepared (E. Cypher, Research Ecologist, San Joaquin Valley Endangered Species Recovery Program, Fresno, California, pers. comm. 2000). Most of the information in this species account was taken **frcm** the draft San Joaquin County Multi-Species Conservation and Open Space Plan, available from the Service's Sacramento Fish and Wildlife Office. Additional information on the life history and ecology of these species may be found in the final rule (59 FR 48136), Eng et al. (1990), Simovichet al. (1992), and Helm (1998).

Fairy shrimp are translucent, slender crustaceans that eat algae and plankton by scraping **and** straining them from vegetation or other surfaces within the vernal pool. Fairy shrimp have

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delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wave-like anterior to posterior direction.

Fairy shrimp are restricted to vernal pools or swales, an ephemeral freshwater habitat that **forms** in areas where slight depressions become seasonally saturated or inundated following fall and winter rains. Due to local topography and geology, the pools are usually clustered into pool complexes. In southern California, these pools or swales typically form on mesa tops or valley floors and are surrounded by very low hills, usually referred to **as** mima mounds. None of these listed branchiopods are known to occur in permanent bodies of water, riverine waters, or marine waters. If habitat conditions are appropriate, these species can occur in depressions formed as a result of human activities, such as large ruts in roads. Water remains in these pools or swales for a few months at a time, due to **an** impervious layer such as hardpan, claypan, or basalt beneath the soil surface. Water chemistry is one of the most important factors in determining the distribution of fairy shrimp (Branchiopod Research Group 1996).

The Conservancy fairy shrimp inhabits vernal pools with highly turbid water. The longhorn fairy shrimp inhabits clear to turbid grass-bottomed vernal pools in grasslands and clear-water pools in sandstone depressions. The vernal pool fairy shrimp inhabits alkaline pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stock ponds, vernal pools, vernal swales, and other seasonal wetlands. Occupied habitats range in size from rock outcrop pools **as** small as one square yard to large vernal pools up to 11 acres; the potential ponding depth of occupied habitat ranges from 1.2 inches to 48 inches.

Fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus. The females carry eggs in **an** oval or elongate ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The "resting" or "summer" eggs are known as cysts and are capable of withstanding heat, cold, **and** prolonged desiccation. When the pools fill in the same or subsequent seasons, some, but not all, of the eggs may hatch. The egg bank in the soil **may** consist of eggs from several years of breeding (Donald 1983). The eggs hatch when the vernal pools fill with rainwater. The early stages of the fairy shrimp develop rapidly into adults. These non-dormant populations often disappear early in the season long before the vernal pools *dry* up.

The primary historic dispersal method for the fairy shrimp likely was large-scale flooding resulting **from** winter and spring rains which allowed the animals to colonize different individual vernal pools and other vernal pool complexes. This mechanism of dispersal likely does not exist currently due to the construction of dams, levees, and other flood control measures and widespread urbanization and other development within substantial portions of the ranges of these species. Waterfowl and shorebirds likely are **now** the primary dispersal agents for **fairy** shrimp. The eggs of these crustaceans can be ingested or adhere to the legs and feathers and be transported to new habitats.

The vernal pool fairy shrimp has been collected from early December to early May. Vernal pool fairy shrimp develop rapidly and may become sexually mature within 2 weeks after hatching. Such quick maturation permits vernal pool fairy shrimp populations to persist in short-lived, shallow bodies of water.

The longhorn fairy shrimp is known only from four disjunct populations along the eastern margin of the central coast range from Concord, Contra Costa County south to Soda Lake in San Luis Obispo County: the Kellogg Creek watershed, the Altamont **Pass** area, the western and northern boundaries of Soda Lake on the Camzo Plain, and Kesterson National Wildlife Refuge in the San Joaquin Valley.

All known populations of vernal pool fairy shrimp inhabit sites in California or southern Oregon. The geographic range of this species encompasses most of (and particularly the eastern side **of**) the Central Valley **from** Shasta County to **Tulare Gounty** and the central coast range from northern Solano County to Santa Barbara County, **California**; additional disjunct populations have been identified in western Riverside County, **California**, and in Jackson County, Oregon near the city of Medford. A number of occurrences of fairy shrimp species have been documented within Monterey County and-adjacent counties.

Conservancy fairy shrimp are known only from **six** disjunct populations: V i a Plains, north of Chico, Tehama County; south of Chico, Butte County; Jepson Prairie, Solano County; Sacramento National Wildlife Refuge, Glenn County; near Haystack Mountain northeast of Merced in Merced County; and the Lockwood Valley of northern Ventura County.

Approximately two thirds of the grasslands that once supported vernal pools in **the** Central Valley had been destroyed by **1973** with an associated loss of nearly 90 percent of vernal pool habitat. Habitat loss resulted from direct destruction and modification of pools and modification of surrounding uplands which altered the watersheds of the vernal pools. In subsequent years, a substantial amount of the remaining habitat for vernal pool crustaceans has been destroyed with estimates of habitat loss ranging from two to three percent per year. Current data indicate vernal pool grasslands are being lost in the southern San Joaquin Valley at a rate of approximately one percent per year. Other activities which adversely affect these species include **off-road** vehicle use, certain mosquito abatement measures, and pesticide/herbicide use, alterations of vernal pool hydrology, fertilizer and pesticide contamination, activity, invasions of aggressive non-native plants, gravel mining, and contaminated stormwater runoff. Although developmental pressures continue, only a small fraction of vernal pool habitat is protected from the threat of destruction.

California Red-legged Frog

The California red-legged frog was federally listed **as** threatened on May **23,1996** (61 *Federal* **Register** 25813). A recovery plan has been published [Service **2002**). Critical habitat for the California red-legged frog was designated on March **13,2001** (66 *Federal Register* **14625**). On November **6,2002**, the United States District Court for the District of Columbia set aside the

designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the California red-legged frog (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al.* Civil Action No. 01-1291 (RJL) U.S. District court, District of Columbia.) Consequently, critical habitat will not be discussed further in this biological opinion.

Detailed information on the biology of California red-legged frogs can be found in Storer (1925), Stebbins (2003), and Jennings et al. (1992). This species is the largest native frog in the western United States, ranging from **1.5** to 5.1 inches in length. The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers, and dorsolateral folds are prominent on the back. Tadpoles range from 0.6 to 3.1 inches in length and are dark brown and yellow with dark spots.

California red-legged frogs spend most of their lives in and near sheltered backwaters of ponds, marshes, springs, streams, and reservoirs. Deep pools with dense stands of overhanging willows and an intermixed fringe of cattails are considered optimal habitat. Eggs, larvae, transformed juveniles, and adults also have been found in ephemeral creeks and drainages and in ponds that do not have riparian vegetation. Accessability to sheltering habitat is essential for the survival of California red-legged *frogs* within a watershed, and can be **a** factor limiting population numbers and distribution. Some California red-legged frogs have moved long distances **over** land between water sources during winter rains. Adult California red-legged frogs have been documented to move more than 2 miles in northern Santa Cruz County "without apparent regard to topography, vegetation type, or riparian comdors" (Bulger et al., 2003). Most of these overland movements occur at night.

California red-legged frogs breed from November through March with earlier breeding records occurring in southern localities. California red-legged frogs are often prolific breeders, typically laying their eggs during or shortly after large rainfall events in **late** winter and early spring. Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float **on** the surface of the water. Egg masses contain about 2,000 to 5,000 moderate-sized (2.0 to 28 millimeters) in diameter, dark reddish brown eggs. Embryos hatch 6 to **14** days after fertilization and larvae require 3.5 to **7** months to attain metamorphosis. Tadpoles probably experience the highest mortality rates of all life stages, with less than 1 percent of eggs laid reaching metamorphosis. **Sexual** maturity normally is reached at 3 to 4 years of age; California red-legged **frogs** may live 8 to10 **years**. Juveniles have been observed to be active diurnally and nocturnally, whereas adults are mainly nocturnal.

The diet of California red-legged frogs is highly variable. Invertebrates are the most common food items for adults, **although** vertebrates such **as** Pacific treefrogs and California mice (*Peromyscus californicus*) can constitute over half of **the** prey mass eaten by larger **frogs** (Hayes and Tennant 1985). Larvae likely eat **algae**.

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The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former ranee. Historically, this species was found throughout the Central Valley and Sierra Nevada foothills. At present, California red-legged frogs are known to occur in 243 streams or drainages from 22 counties, primarily in central coastal California. The most secure aggregations of California red-legged frogs are found in aquatic sites that support substantial riparian and aquatic vegetation and lack non-native predators. Over-harvesting, habitat loss, non-native species introduction, and urban encroachment are the primary factors that have negatively affected the California red-legged frog throughout its range (Jennings and Hayes 1985, Hayes and Jennings 1988). Ongoing causes of decline include direct habitat loss due to stream alteration and disturbance to wetland areas, indirect effects of expanding urbanization, and competition or predation from non-native species.

California Tiger Salamander

The California tiger salamander was federally proposed as threatened on May 23,2003 (68 *Federal Register* 28648). Critical habitat has not been proposed. No recovery activities have been completed to date, although the California tiger salamander is included in the developing draft Recovery Plan for Vernal Pool Species and may benefit to some degree from recovery actions specified in the plan.

The California tiger salamander is a lowland species wholly endemic to central California. They persist in disjunct remnant vernal pool complexes in Sonoma County and Santa Barbara County, in vernal pool complexes and isolated ponds scattered along a narrow strip of rangeland on the fringes of the Central Valley From southern Colusa County south to northern Kern County, and in sag ponds and human-maintained stock ponds in the coast ranges from the San Francisco Bay Area south to the Temblor Range. The California tiger salamander has been eliminated from **an** estimated 55 to 58 percent of its documented historic breeding sites. Currently, approximately 150 known local populations of California tiger salamanders remain. Only one vernal **pool** complex where California tiger salamanders exist is presently protected (Jepson Prairie Natural Preserve).

The California tiger salamander is restricted to grasslands and low-elevation foothill regions in California (generally under 1,500 feet), where it uses seasonal aquatic habitats for breeding. California tiger salamanders breed in natural ephemeral **pools**, or ponds that mimic ephemeral pools (stock ponds that go dty), and occupy substantial **areas** surrounding the breeding pool as adults. Among salamanders, California tiger salamanders require a relatively short period to complete development of the aquatic larvae, and may breed successfully in waters that last for more than 2 months. In colder weather, the development restricts California tiger salamander breeding to deeper vernal pools, vernal playas, large sag ponds, and artificial ponds with adequate periods of inundation. However, California tiger salamander larvae are vulnerable to the predators that commonly occur in permanent waters, and the species is rarely found in permanent ponds, streams, or rivers. **A** typical breeding population in a pond can fluctuate due to



random natural processes, in some years to fewer than 20 adults plus juveniles, making these populations prone to extinction. California tiger salamanders therefore require large contiguous **areas** of vernal pools (vernal pool complexes) containing multiple breeding ponds to ensure that recolonization occurs at individual pond sites.

California tiger salamander larvae obtain oxygen through gills and through the skin. The larvae feed largely on invertebrates, including a variety of aquatic insects and crustaceans. The frequent Occurrence of midge larvae (Chironomidae) in their **guts** suggests a tendency to feed at or near surficial bottom sediments (Steve Morey, Service, pers. comm., 1997). Larvae may also feed on other larval amphibians. The larvae probably rest in contact with pond bottom muds during part of the day, and are known to bury themselves in the mud when pursued. At metamorphosis, the gills are resorbed, and the animal transitions to a primarily terrestrial lifestyle. After metamorphosing and emerging from breeding pools as juvdniles, California tiger salamanders spend **most** of their time in the grasslands surrounding breeding pools. The **skin** remains moist in both the juvenile and adult stages; consequently, California tiger salamanders can only survive brief periods in low humidity conditions, especially at higher temperatures. They survive hot, dry summers by estivating (going through a dormant period) in refugia, such as burrows created by ground squirrels and other mammals and deep cracks or holes in the ground, where the soil atmosphere remains near the water saturation point. During wet periods, California tiger salamanders may emerge from refugia and feed in the surrounding grasslands. The adults' diet is not well known but may include insects, isopods, and worms.

Mass migrations of adults to breeding ponds occur annually with the onset of reliable, poolfilling rains, typically between December and March- Juveniles do not participate in these breeding migrations. Individual adults spend only limited amounts of time in the breeding pool (a few days to a week or **two**), where they mate and lay eggs. The females lay their eggs singly or occasionally in clusters of two to four, attached to plant stems in the water column. Adults do not feed intensively during the breeding period (Morey, pers. comm. 1997). Little is known about whether juveniles may disperse from their natal pool in search of other breeding habitat, although dispersing juvenile California tiger salamanders have been found to travel as far as 0.93 miles away from breeding sites (Austin and Shaffer 1992, Jennings and Hayes 1994). California tiger salamanders may live up to several years in the wild.

The primary causes of the decline of California tiger salamander populations are the loss and fragmentation of habitat from human activities and the encroachment of nonnative predators. The California tiger salamander has lost **an** estimated 75 percent of its habitat due to human activities including uplands and sites that were likely habitat but never sampled. All of the estimated seven genetic populations of **this** species have been reduced substantially because of urban and agricultural development, land conversion, and other human-caused factors. Development threatens to reduce the amount of grassland and ground squirrel habitat available to California tiger salamanders and to destroy natural ephemeral water bodies **they** require. Automobiles and off-road vehicles kill a substantial number of migrating or estivating California tiger salamanders each year.

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A strong negative association between bullfrogs and California tiger salamanders has been documented. Although bullfrogs are unable to establish permanent breeding populations in vernal pools, dispersing immature bullfrogs can take up residence and prey on California tiger salamanders in ephemeral pools if **a** permanent water source is located within 2 miles. Louisiana swamp crayfish (*Procambarus clarkii*), mosquitofish (*Gambusia affinis*), green sunfish (*Lepomis cyanellus*) and other introduced fishes also prey on the California tiger salamanders.

Ground squirrel control programs, carried out on more than 10 million acres in California, are likely have an adverse effect on the California tiger salamander. Poison typically used on ground squirrels (fumigants) is likely to adversely affect California tiger salamanders, which **are** smaller and have more permeable skins. Use of insecticides, such as methoprene, in mosquito abatement may have an indirect adverse effect on the California tiger salamander by reducing the availability of prey. Contaminated runoff from roads, urban areas, and agriculture may also adversely affect the breeding, survival, or development of California tiger salamanders.

Deformities caused by **a** trematode infection have affected pond-breeding amphibians in California at known California tiger salamander breeding sites; this infection has become widespread among amphibian populations in Minnesota and poses the threat of becoming widespread in California. In addition, tiger salamanders have been known to be locally extirpated by a pathogenic, chytrid fungus (*Batrachochytrium dendrobatidis*) at stock tanks in Arizona (Davidson et al., 2003).

Various non-native subspecies of the tiger salamander within the *Ambystoma tigrinum* complex have been imported into California for use as fish bait. The introduced tiger salamanders may competitively exclude California tiger salamander, or interbreed with the natives to create hybrids that may be less adapted to the local climate, or are not reproductively viable past the first or second generations.

ENVIRONMENTAL BASELINE

An analysis of known and potential occurrence of sensitive plants and animals was carried out for the entire **PVWMA** Local Water Supply and Distribution study area. This analysis included a review **of** several sources of information: 1) previous studies conducted within project area concerning the presence of sensitive plant and animal species (**ESA** 1998, 1999; HRG, 1997; PVWMA, 1993); 2) consultation with the CNDDB (CNDDB 2002) and the Service; 3) a review of the CNPS inventory (Skinner and Pavlik 1994); and **4**) reconnaissance and habitat surveys. Following this review, **a** list of sensitive plant and animal species known or with **a** potential to occur in the project area was compiled and checked for completeness and accuracy. From this list and a review of known occurrences and ecological associations, no sensitive plant species and 12 sensitive animals were identified as having at least a moderate potential of being affected by the proposed project.

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Habitat quality was defined for these sensitive species, and a "likelihood of occurrence" determination made, during a field habitat inventory and classification process. A habitat assessment was completed for all areas of project impact. Using habitat classifications developed for the Wildlife Habitat Relationships (WHR) program, biologists rated habitat requirements for sensitive species against the vegetation and landscape attributes of the habitat as it exists in the project area. High quality habitat was considered capable of supporting all listed species associated with that habitat type, in all species' life stages for which the habitat was used. A lower category (medium or moderate) was used to categorize habitat below optimum due to ecological factors (such as succession); **low** quality habitats were degraded by current or adjacent use.

The main pipeline and distribution system travel primarily through agricultural habitats. Natural upland habitats crossed by the Import Pipeline include coastal *oak* woodland, coastal scrub, and annual grassland. Most of the drainages crossed by the pipelines are agricultural ditches either lacking vegetation or supporting ruderal freshwater emergent wetland. Natural vegetation in the vicinity of Highway 1 and the Pajaro River consists of valley foothill riparian habitat that has been somewhat degraded due to agriculture and river channeling activities.

In addition to agricultural ditches, the Import Pipeline crosses the following larger drainages, some of which support valley foothill riparian vegetation and habitat for the species considered in this biological and conference opinion: Pajaro River and two tributaries, Pescadero Creek, Sargent Creek, Millers Canal, Watsonville Slough, Hanson Slough, McClusky Slough, an unnamed drainage east of Soda Lake, and a small channelized drainage west of Aromas. A vernal pool is also located adjacent to the Import Pipeline project alignment.

Least Bell's Vireo

Potential habitat for the least Bell's vireo exists along some portions of the Pajaro River riparian comdor and tributaries. A pair of least Bell's vireos nested north of the project area along Llagas Creek between Highway **152** and its confluence with the Pajaro River east of Gilroy in 1997 (Doug Padley, Santa Clara Valley Water District, pers. comm., 2001). Surveys in subsequent years did not detect least Bell's vireos there again until 2 or **3** singing males were observed in May 2001 (D. Padley pers. comm., 2001). These observations, and a singing male near the mouth of the Pajaro River in May 1996 (David Suddjian, Santa Cruz Bird Club, pers. comm., 2001), are the only recent records of the species north of its current breeding range along the coast. Although least Bell's vireos are mostly found in southern California, individuals of the species may be present in riparian habitats at the river and stream crossings of the pipeline alignment in the eastern portion of the project area. Critical habitat has been designated for the least Bell's vireo, but none occurs within or near the action area.

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San Joaquin Kit **Fox**

Grassland habitat and fallow fields suitable for the San Joaquin kit fox are located adjacent to the project pipeline alignment east of Highway 101. The CNDDB contains a record of a San Joaquin kit fox occurrence on the Tres Pinos **USGS** 7.5 minute quadrangle. This occurrence **is** over 10 miles &om the project alignment. However, the occurrence is described **as** the area surrounding Hollister north to Gilroy and south to Paicines and represented by a polygon encompassing suitable habitat in ten quadrangles. The eastern end of the project alignment is located approximately **3** miles from this polygon. Grassland habitat suitable for the **San** Joaquin kit fox **is** also located 0.5 mile from the eastern end of the project alignment along the northern side of Highway **152**.

The Recovery Plan for Upland Species of the San Joaquin Valley, California includes recorded occurrences of the San Joaquin kit fox in the San Felipe Valley. These locations are approximately 5 miles east of the first mile' of the Import Pipeline (Service 1998b). Within the project region, populations of San Joaquin kit foxes are known from San Benito County. The species is also known from eastern Santa Clara County in the Pajaro River watershed (Service 1998b).

A site assessment using the Service's San Joaquin Kit Fox Habitat Evaluation Form **was** conducted by **ESA** in February and March 2002 to identify potential habitat within the project area. Grassland habitat adjacent to the project alignmentjust east of Highway 101 and at the eastern end of the alignment were determined to be potential San Joaquin kit fox habitat. Transect surveys were not completed to identify the presence or absence of potential dens. Grassland habitat is continuous to the south of the route at the foot of Lomerias Muertas. The rest of the project alignment east of Highway 101 is within the **known** range of the species. Though intensively maintained row crops isolate much of the alignment in this area, 1,500 feet of the eastern end of the Import Pipeline alignment is surrounded by fallow agricultural fields which contain ground squirrel burrows. Aerial photos **from** 1997 show this area as intensive agriculture and these fields are likely not **left** fallow very long. If San Joaquin kit foxes **are** present in grassland or pastures in the project area, they may forage within these fallow fields, If left fallow long enough, a low potential exists for San Joaquin kit fox dens to be located within these fields.

Santa Cruz Long-toed Salamander

The CNDDB (2002) reports Santa Cruz long-toed salamander occurrences 0.5 mile west of **San** Andreas **Road** and Highway 1, 0.8 mile south of the Rob Roy Junction, 0.6 mile east of the intersection of White Road and Freedom Boulevard, at the **Santa** Cruz long-toed salamander Ecological Reserve and Ellicott Slough National Wildlife Reserve, **3.2 miles** northwest of Watsonville Municipal **Airport**, the San Hernandez Reservoir, Calabasas Pond, Moro Cojo Slough, and in the vicinity of Corralitos. Potentially suitable habitat was observed within the project zone of influence at a pond located approximately 750 feet north east of the eastern . terminus of the proposed Import Pipeline alignment, **Hanson** Slough, Bennett **Slough**, McClusky

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Slough, and an irrigation poind 500 feet west of Jensen Road during the February-July 2002 site assessment. Santa Cruz long-toed salamanders have been documented breeding at Bennett Slough and McClusky Slough.

Tidewater Goby

Tidewater gobies are known to occur in the Pajaro Lagoon (Moyle et al. 1995 and CNDDB 2002), which appears to support a large and secure population of the species (Moyle et al. 1995). Tidewater gobies have been observed up to one mile upstream of the mouth of the Pajaro River (CNDDB 2002). Tidewater gobies do not extend as far upstream as the terminus of the Import Pipeline and therefore do not occur in the immediate vicinity of the Import Pipeline alignment. Critical habitat has been designated for the tidewater goby, **but** none occurs within or near the action area.

A sand bar forms across the mouth of the Pajaro River in most years. Sand bar formation usually occurs in mid to late summer. The sand bar is important for providing the calmer lagoon conditions favored by tidewater gobies, but the salinity of the lagoon is generally not important to goby viability (Habitat Restoration Group 1997). After partial sand bar formation in late spring and summer, the lagoon surface elevation increases, backing brackish water upstream to above Highway I. Depending on environmental conditions, tidewater gobies may inhabit areas up to a mile or more upstream of the mouth of the Pajaro River. However, in years of heavy winter floods, this species is probably confined to the downstream portion of the Pajaro River estuary and to Watsonville Slough (Smith, unpublished). Tidewater gobies are assumed to be present at the Pajaro River crossing west of Highway 1.

Longhorn Fairy Shrimp, Conservancy Fairy Shrimp, and Vernal Pool Fairy Shrimp

The degraded vernal pool north of the project alignment just east of Highway 101 has a low potential to support listed fairy shrimp species. Critical habitat has been designated for the Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp, but none occurs within or near the action area.

California Red-legged Frog

The California red-legged frog occurs in the vicinity of permanent water bordered with vegetation. This species has been reported along the Pajaro River between Highway 101 and Betabel Road and upstream (Mike Westphal, Service, **pers**. comm. 1997). Habitat assessments carried out as part of this study showed that suitable habitat is present along much of the Pajaro River and its major tributaries. Variations in streambed and vegetation attributes may allow these animals *to* occupy habitats along the entire length of the Pajaro River; all such habitat is considered potential habitat for this species. In addition, all agricultural ponds and reservoirs may be suitable habitat for the California red-legged frog.

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The CNDDB (2002) reports 21 Occurrences of California red-legged frogs within 5 miles of the project area, including occurrences on the Pajaro River between Highway 101 and the Highway 25 overpass and in the east branch of Hanson Slough. Various other sightings are discussed in the California red-legged frog site assessment conducted for the proposed project.

The site assessment, conducted in February, March, June, and July 2002, identified several areas within the Pajaro Valley that may provide habitat for California red-legged frogs. Other tributaries to these rivers and streams may provide movement corridors for the California redlegged frog; however, most tributaries are ephemeral and would not provide breeding habitat. These sloughs and lakes are freshwater to brackish, which, if permanent, would provide the necessary breeding and upland estivation sites. Several larger irrigation reservoirs may provide habitat for the species if emergent vegetation is allowed to remain annually. Within the project areas, California red-legged frogs are presumed to be present in areas of suitable habitat in the Pajaro River west of Highway 1, unnamed drainage east of Soda Lake, Miller's Canal at the Pajaro River, former blue-line drainage west of Aromas, Pescadero Creek, Sargent Creek, vernal pool 700 feet east of Highway 101, Hanson Slough, the unnamed drainage south of Trafton Road, the Pajaro River near Graniterock quarry, Bennett Slough at Struve Slough Road, and McClusky Slough 1000 feet north of Struve Slough Road. The imgation ponds 3,000 feet east of San Andreas Road, 2,000 feet south of Sunset Beach Road, adjacent to the east side of Salinas Road, adjacent to Salinas Road, and 500 feet west of Jensen Road are also presumed to be occupied by California red-legged frogs. In addition, dispersing California red-legged frogs may use low quality habitat at 17 impation ditches and sloughs and drainages within the project area that have been modified for agricultural imgation, and habitat in three seasonal tributaries to the Pajaro River within the project area.

California Tiger Salamander

The CNDDB (2002) reports 21 records for California tiger salamanders from the four-quadrangle study area. A degraded vernal pool, the unnamed drainage east of Soda Lake, and a pond 750 feet from the eastern terminus of the proposed Import Pipeline alignment provide potential breeding habitat for this species. Grassland habitat surrounding these potential breeding ponds provides estivation habitat if small mammal burrows are present. Other potentially suitable habitat was observed within the project zone of influence at Hanson Slough, Bennett Slough, McClusky Slough, the vernal pool 700 feet east of Highway 101, and an irrigation pond 500 feet west of Jensen Road during the site assessment.

EFFECTS OF THE ACTION

Noise Disturbance

Work-related noise and activities may flush least Bell's vireos and induce nest abandonment or provoke temporary or permanent emigration. Flushing individual least Bell's vireos also could alert predators to the location of eggs or young, making them more vulnerable to predators. We

anticipate that such effects would be minimal because least Bell's vireos are unlikely to occur within the project area, project activities will occur outside of the breeding season if least Bell's vireos or other passerines are nesting with 500 feet of construction **areas**, and construction corridors within riparian habitat will be confined and located in previously disturbed areas where possible. Work-related noise and activities may flush Least Bell's vireos from foraging and roosting habitat, provoking temporary or permanent emigration and increasing vulnerability to predation.

Noise and other project-related activities could disturb San Joaquin kit foxes to the extent that foraging and burrowing behavior could be altered, breeding or burrowing activity could be delayed, and change hunting patterns could change. These alterations in behavior could cause San Joaquin kit foxes to become more susceptible to predation and other forms of mortality or injury. San Joaquin kit foxes could also be displaced to otherlocations due to temporary loss of habitat.

Work activities, including noise and vibration, may cause California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders to leave work areas, increasing potential for predation and desiccation. Relocating California red-legged frogs and California tiger salamanders found during surveys would reduce the likelihood of such effects, and may further minimize injury or mortality. Furthermore, minimizing the area disturbed by project activities would reduce the potential for dispersal resulting fiom the action.

Tidewater gobies upstream and downstream of crossing sites may be disturbed by noise and vibration associated with boring and other equipment and would likely move from the area when disturbed in this manner. Conducting activities during low-flow periods of the Pajaro River would eliminate this effect.

Destruction of Burrows and Dens

Vehicles associated with installation, repair, and maintenance activities could kill or injure any listed species within the project area by crushing **or** striking them. Species that use or dig burrows (San Joaquin kit foxes, California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders) could also be killed or injured by increased vehicle use of new or existing roads and off-road areas which contain appropriate substrates that may provide burrows to collapse and entrap animals. Conducting preconstruction surveys for San Joaquin kit fox dens and taking appropriate follow-up measures including exclusion zones around active dens, closing inactive dens, and covering excavated holes or trenches at the end of each workday would minimize these effects. Avoiding and temporarily fencing California tiger salamander estivation habitat, or excavating and removing California tiger salamanders where burrows cannot be avoided, would minimize the potential for crushing this species while it occupies burrows.

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Direct Mortality or Injury - •

San Joaquin kit foxes may be injured or killed by construction activities related to installation of the proposed pipeline. Trenching and other excavations, grading, and filling during construction may kill or injure San Joaquin kit foxes by trapping or crushing them in underground dens or by inadvertently trapping them in open trenches. Direct injury and mortality to San Joaquin kit foxes may also result from inadvertent trapping in uncapped pipes and culvens. Such effects to San Joaquin kit foxes would be reduced by covering trenches at the close of each working day, providing escape ramps in trenches and excavations, and implementing other measures to prevent entrapment of San Joaquin kit foxes in trenches or stored pipes and culverts.

Vehicle traffic associated with the transportation of workers and construction materials could result in vehicles striking San Joaquin kit foxes. Because San Joaquin kit foxes are primarily nocturnal, conducting construction activities at night would increase the chances of project-related injury or death of San Joaquin kit foxes. Such effects to San Joaquin kit foxes would be reduced by the proposed measures to establish a speed limit of 20 miles per hour and to minimize nighttime construction activities.

Vehicular and foot traffic by workers associated with construction activities, biological surveys, and restoration activities could also kill or injure California red-legged frogs, Santa Cruz long-toed salamanders, California tiger salamanders, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp. Workers could crush step on listed amphibians and fairy shrimp during any life stage in aquatic habitat. California red-legged **frogs**, Santa **Cruz** long-toed salamanders, and California tiger salamanders found in upland habitats (i.e., chaparral, woodlands, grasslands) could also be crushed. The potential for any listed species to be killed or injured during these activities would be greatest within appropriate habitats when workers are concentrated in those areas.

Reducing the size of and clearly demarcating the boundaries of work areas and equipment access routes and locating staging areas at least 66 feet outside of riparian areas or other water bodies should reduce the chance of crushing California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders. In addition, relocating individual California red-legged frogs and California tiger salamanders may further reduce injury or mortality. However, California red-legged frogs that are removed and relocated to a different site may attempt to return to the work **area** from which they were removed. This attempt to return to the project site may subject California red-legged frogs and California tiger salamanders to dessication or being crushed by work activities. The use of a biological monitor regularly checking the work area will reduce mortality of these species attempting to re-enter the project site. Additionally, translocated California red-legged frogs, Santa **Cruz** long-toed salamanders, and California tiger salamanders may be required to compete for food and living space with animals in adjacent areas.

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Least Bell's vireo eggs may be destroyed or nestlings killed during construction activities that would be conducted in breeding habitat. This effect would be reduced by conducting construction activities outside the breeding season of the least Bell's vireo.

The capture and handling of California red-legged frogs and California tiger salamanders to move them **From** a work area could cause injury or mortality. Transport of individuals or releasing them into unsuitable habitat (e.g., where exotic predators are present) may cause injury or mortality. Improper handling, containment, or transport of individuals will be reduced or prevented by use of a Service-approved biologist.

Clearing of vegetation associated with the proposed project may disturb, injure, or kill California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders through contact with tools or machinery. Clearing of vegetation will remove cover or shelter, thereby subjecting California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders to higher predation and reduce available prey. Preconstruction surveys by a Service-approved biologist and the subsequent relocation of California red-legged frogs and California tiger salamanders will reduce these effects as will minimizing the areas disturbed by project activities.

Direct effects to tidewater gobies during construction activities could include injury or mortality from being crushed by construction equipment and vehicles, falling debris, and worker foot traffic during construction and installation of rock slope protection. These impacts would be reduced by minimizing and clearly demarcating project areas, conducting pre-project briefings to alert construction personnel of the presence of the tidewater goby, and conducting construction activities while the stream channel is dry.

The use of pumps to dewater work areas may trap California red-legged frog tadpoles and tidewater gobies in the pump intakes and cause mortality. Screening pump intakes with wire with no greater than five millimeter mesh size should reduce the potential that California red-legged frog tadpoles greater than 8 weeks old and tidewater gobies would be caught in the inflow.

Trash left during or after project activities could attract predators to work sites, which could, in **turn**, disturb or prey on the listed species. For example, raccoons are attracted to trash and also prey opportunistically on the California red-legged frog. **This** potential impact can be reduced or avoided by careful control of waste products at all work sites.

Removal of exotic species from a project site may result in lower mortality to resident California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders. However, individuals of the listed species may be accidentally caught, injured, or killed during exotic species removal (e.g., bullfrogs). The effects of this activity will be reduced by ensuring eradication activities are conducted by a biologist who is familiar with the identification of native and exotic amphibians.



The development of the pipeline may cause long-term effects to the species discussed in this consultation and their habitat due to the high probability that it is likely to require maintenance. For example, the pipeline may burst or leak and may require excavating the line with earth-moving equipment to make necessary repairs. However, because a large portion of the pipelines are not located in sensitive habitat, these impacts are not likely to be substantial.

The potential exists for uninformed workers to intentionally or unintentionally disturb, injure, or kill least Bell's vireos, San Joaquin kit foxes, Santa Cruz long-toed salamanders, tidewater gobies, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, California red-legged frogs, and California tiger salamanders. The potential for this impact will be greatly reduced by informing workers of the presence and protected status of these species and the measures that are being implemented to protect them **during** project activities.

Habitat Degradation

Disturbance of riparian habitat and vernal pools may cause the spread or establishment of nonnative invasive species, such as giant reed (*Arundo donax*), salt cedar (*Tamarix* spp.), or other species that are not valuable for wildlife. Invasion of brushy or nonnative plant species into vernal pools can degrade water quality and alter the natural cycles of filling and drying of pools. Avoiding areas with established native vegetation, controlling and preventing the spread or introduction of non-native invasive species, restoring disturbed **areas** with native species, and post-project monitoring may reduce or eliminate this effect.

Listed fairy shrimp could be adversely affected as a result of **runoff** and sedimentation into vernal pools fkom project activities within the drainage area **Runoff** and sedimentation can be particularly damaging when pools contain water and individuals of the listed species. Excessive sedimentation can **fill** vernal pools and result in changes in the drainage patterns of the site, affecting the timing and duration of inundation of the habitat of the listed fairy shrimp.

Grading and filling within the riparian comdors may affect surface flow dynamics or increase erosion and deposition of sediments, resulting in alterations of habitat onsite and downstream of the project. **Loss** of sediments from the streambed may result in down-cutting downstream of the project, which could further degrade the stability of banks, and functions of the **riparian** ecosystem. Sedimentation in pools where California red-legged frogs breed could suffocate California red-legged frog egg masses and alter the quality of the habitat to **an** extent that use by individuals of the species is precluded. Tidewater gobies downstream of the project area could be affected by increased sedimentation which could bury eggs and disrupt normal breeding and feeding activities. Conversely, changes in flow dynamics and sediment deposition could result in positive changes to the riparian habitat downstream by increasing sinuosity, which would increase the habitat available to California red-legged frogs. Implementingbest management practices and reducing the area to be disturbed to the minimum necessary should assist in reducing the amount of sediment that is washed downstream as a result of project activities.

Contaminant Spills

The pipeline crossing of the Pajaro River west of Highway 1 will be constructed using underground construction methods (horizontal directional drilling or microtunneling). Although underground pipeline construction avoids the potential impacts associated with open trench construction, tidewater gobies may nevertheless be affected by potential releases of construction materials, particularly bentonite, into the watercourse. The release of bentonite or other construction materials onto channel substrate or into water would result in effects to water quality that may be deleterious to tidewater gobies. Conducting underground construction activities during the low-flow period or when the channel is completely dry, monitoring .underground pipeline construction activities for contaminant releases, and implementing the spill prevention and containment measures described earlier will reduce the potential for adverse effects to tidewater gobies during these construction activities.

Accidental spills of hazardous materials, potential releases of bentonite or other construction materials during trenchless crossing of drainages, and careless fueling or oiling of vehicles or equipment could degrade water quality or upland habitat to a degree where tidewater gobies, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, California red-legged frogs. Santa Cruz long-toed salamanders, and California tiger salamanders are adversely affected or killed. The potential for this impact to occur can he reduced by thoroughly informing workers of the importance of preventing hazardous materials from entering the environment, locating staging and fueling areas a minimum of **66** feet (20 meters) from riparian areas or other water bodies, and by having **an** effective spill response plan in place.

Habitat Loss

The project will temporarily affect a linear corridor through grassland habitat for the San Joaquin kit fox. This corridor is approximately 10 feet wide and 5,500 feet long (roughly 13.9 acres). The project will also temporarily affect a linear corridor through **3.8** acres of fallow agricultural habitat (110 feet wide and 1,500 feet long). Thus, the project will temporarily affect 17.7 total acres of grassland and fallow habitat which may support San Joaquin kit foxes.

The temporary loss of 1.6 acres of riparian nesting habitat for the least Bell's vireo may occur at riparian **stream** and river crossings that will be trenched. Breeding, foraging, and roosting habitat may be destroyed by removal of vegetation or degraded by the invasion of exotic vegetation into areas disturbed by construction activities. These effects would be reduced by confining the width of the construction corridor in riparian habitats to **40** feet or less, locating the pipeline crossings in previously disturbed areas with little riparian canopy cover where possible, and replacing wetland and riparian habitat removed as a result of the project. The use of bore and jack or directional drilling construction methods at select river and stream crossings will avoid the potential loss of riparian habitat in those areas. All wetland and riparian habitat removed during construction will be replaced at a ratio acceptable to CDFG and the Service **through** the implementation of a revegetation and monitoring plan.


Most of the project area is cultivated and provides limited natural habitat for the California redlegged frog. The proposed project will result in the temporary loss of **up** to 0.47 acre of potential aquatic and streamside habitat for the California red-legged frog along the pipeline route. This acreage estimate includes the habitat identified as suitable as well as habitat in three seasonal tributaries to the Pajaro River and habitat in Watsonville Slough. Low quality habitat at the remaining disturbed irrigation ditch sites identified earlier as potential dispersal corridors is not included in this acreage estimate. The proposed minimization measures will be applied to construction activities at these sites to prevent adverse effects to dispersing California red-legged **frogs.** Potential estivation habitat surrounding two sites (the **unnamed** drainage east of Soda Lake and the vernal pool) will also be temporarily affected. **All** California red-legged **frog** potential habitat will be restored to pre-project conditions and monitored to ensure adequate revegetation. With implementation of these measures, fhe project is not expected to degrade habitat over the long term within the proposed project area for the California red-legged **frog**.

The potential project construction impacts **to** Santa **Ctoz** long-toed salamanders and California tiger salamanders are very similar to those described for California red-legged frogs although no permanent loss of habitat is anticipated for either of these species. Construction activities will avoid aquatic and estivation habitat for the Santa Cruz long-toed salamander through bore and jack or other trenchless methods; therefore, no direct loss of habitat for the Santa Cruz long-toed salamander is expected. Project construction would cause a short-term disturbance of potential aquatic habitat for California tiger salamanders at the drainage east of Soda Lake. Potential grassland estivation habitat surrounding this site and surrounding the vernal pool east of Highway 101 will also be disturbed. This habitat disturbed during construction would be returned to a condition with essentially the same characteristics that existed before construction. Construction activities will avoid all other sites which provide potential aquatic habitat for California tiger salamander through bore and jack or other trenchless construction methods. These other sites are surrounded by agriculture and do not provide grassland estivation habitat.

CUMULATJYE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section **7** of the Act. At this time, we are unaware of any non-federal actions that are reasonably certain to occur in the action **areas**.

CONCLUSION

We have reviewed the current **status** of the least Bell's vireo, San Joaquin kit **fox**, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, California red-legged **frog**, vernal pool fairy shrimp, and California tiger salamander, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects during the preparation of the biological and conference opinion. It is the Service's



biological opinion that the revised basin management plan projects for the Pajaro Valley, as proposed, are not likely to jeopardize the continued existence of the least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, California red-legged frog, and vernal pool **fairy** shrimp. It is the Service's conference opinion that the revised basin management plan projects for the Pajaro Valley, as proposed, are not likely to jeopardize the continued existence of the California tiger salamander. We base these conclusions on the following:

- 1. Adverse effects to the species are expected to be minimal because relatively few of these species have been observed in the project area to date;
- 2. Small portions of the ranges of some of the species would be affected by the proposed action.
 - a. The 17.7 acres of habitat for the San Joaquin kit fox that would be temporarily affected is of marginal quality.
 - b. The proposed projects will result in no permanent loss and only 1.6 acres of temporary disturbance of riparian habitat suitable for the least Bell's vireo:
 - c. Only 0.47 acre of potential aquatic and streamside habitat for the California redlegged frog will be temporarily disturbed;
- 3. The vernal pool within the project area will be avoided and therefore the likelihood of adverse effects to the Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp is low;
- 4. No loss of California tiger salamander habitat will occur;
- 5. Underground trenching will avoid most effects to Santa Cruz long-toed salamanders and tidewater gobies;
- 6. If California red-legged frogs and California tiger salamanders are found in the project area and are at risk, they will be relocated to nearby, suitable habitat; and
- 7. Reclamation and the **PVWMA** have proposed measures to reduce adverse effects of the projects on the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and **Federal** regulation pursuant to section 4(d) of the Act 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 the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, 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 Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and Reclamation must make them binding conditions of any grant or permit issued to the **PVWMA**, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a **continuing** duty to regulate the activity covered by this incidental take statement. If Reclamation fails to **require** the PVWMA to adhere to the terms and conditions of the incidental take statement **through** enforceable terms that are added to the permit or grant document, the protective **coverage** of section 7(o)(2) may lapse. To monitor the impact of incidental take, Reclamation or the PVWMA must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR \$402.14(i)(3)].

The prohibitions against taking the species found in section 9 of the Act do not apply until the species is listed. However, the Service advises Reclamation to consider implementing the reasonable and prudent measures for the California **tiger** salamander. If this conference opinion for the California tiger salamander is adopted **as** a biological opinion following a listing, these measures, with their implementing terms and conditions, will be non-discretionary.

This biological and conference opinion anticipates the following forms of take **as** are sult of implementing the revised basin management plan projects within the proposed project **areas**.

Least Bell's vireo: Harassment of an unknown number of least Bell's vireos could result **from** construction activities that interfere with the breeding and foraging of **this** species on *or* near the site. Mortality of eggs, nestlings, or juveniles may occur if least Bell's vireos establish nests in areas adjacent to the project site. Noise or other project activities could disturb these nesting individuals to the point that the brood is not successfully reared. Harm to an unknown number of least Bell's vireos could also occur from the temporary loss of **1.6** acres of riparian habitat within the project area. Loss of this riparian habitat could result in the loss of breeding, feeding, or sheltering. We do not expect adult least Bell's vireos to be directly killed or injured by project activities because they can fly away from harmful situations, although they could be displaced into less suitable habitat. The actual number of least **Bell's** vireos that might be taken cannot be accurately predicted because of their difficulty of detection, the patchy distribution of suitable habitat, and other environmental factors. However, we do not expect take leading to the injury or

death of these birds to exceed the eggs, nestlings, or juveniles from one nest of the least Bell's vireo over the entire duration of the project and throughout the entire area affected by project activities, because of the small amount of habitat that would be affected, the proposed protective measures, and the low likelihood that least Bell's vireo will nest in the project area in the near future.

San Joaquin kit fox: We anticipate that few San Joaquin kit foxes will be taken through injury or mortality during the proposed activities analyzed in this document. The amount of incidental take of San Joaquin kit foxes that may occur during construction will be difficult to quantify because of **a** lack of information on movement patterns of San Joaquin kit foxes in the eastern half of the proposed project area where the species may occur. However, based on previous records, habitat conditions, and proposed measures, we expect the amount of incidental take of San Joaquin kit foxes to be very low and do not expect take leading to the injury or death of San Joaquin kit foxes to exceed one San Joaquin kit fox.

<u>Tidewater goby</u>: Some tidewater gobies may be killed during dewatering the creek and pipeline installation. The exact number of tidewater gobies that could be affected cannot be predicted because of the natural fluctuations in numbers that this species experiences and the difficulty in determining how many individuals are present at any given time. However, we expect that few tidewater gobies will be killed or injured because of the proposed protective measures and the small areas of habitat that will likely be affected by the project. Reclamation or the PVWMA must contact the Service immediately if evidence of any large-scale mortality event is detected downstream of work areas; any work that could lead to contamination of waters inhabited by the tidewater goby must cease in such **an** event.

<u>Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp</u>: We anticipate that the Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp may be taken through mortality in the event of an accidental spill during the proposed activities analyzed in this document. One small vernal poll occurs within the proposed project area and direct disturbance of the pool is unlikely to occur based on the minimization measures proposed by Reclamation and the PVWMA. The number of individuals of these species that may be taken cannot be determined because their numbers vary from year to year and we cannot anticipate the magnitude of any accident. However, because of the small size of the pool, **a** proportionately small number of Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp may be killed.

California red-legged frog. Santa Cruz lone-toed salamander. and California tiger salamander: We anticipate that few California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders will be killed or injured as a result of actions that are evaluated in this biological opinion. Take may occur in the form of death or injury from crushing by equipment or foot traffic, exposure to predation, accidental spills or leaks of hazardous materials. siltation. and capturing and handling of California red-legged frogs for relocation purposes. Incidental take of the California red-legged frog, Santa Cruz long-toed salamander. and

California tiger salamander will be difficult to detect because of their small body size; these species also spend large amounts of time concealed in vegetation or debris or underground. Additionally, finding a dead or injured specimen is unlikely. Consequently, we cannot accurately predict the number of California tiger salamanders, Santa **Cruz** tiger salamanders, and California red-legged frogs that may be taken.

Reclamation or the PVWMA must contact the Service whenever a least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy *shrimp*, vernal pool fairy shrimp, California red-legged frog, and California tiger salamander is killed or injured. Provided that protective measures proposed by Reclamation and the PVWMA and the terms and conditions of this biological opinion are being fully implemented, operations need not cease while the cause of mortality is being determined. The cause of death or injury must be determined by an authorized biologist and the Service. Once the cause of death or injury has been determined, the Service and Reclamation will decide whether any additional protective measures are required to address the cause of the loss of any of these species.

This biological opinion does not exempt from the prohibitions against take contained in section 9 of the Act any form of take that is not incidental to the completion of the PVWMA's revised **basin** management plan projects within the proposed project areas. Note that the exemption to the prohibition against take applies only to activities that are conducted within work areas as demarcated by the PVWMA.

REASONABLEAND PRUDENT MEASURES

We believe the following reasonable and prudent measures are necessary and appropriate to minimize take of the San Joaquin kit fax, least Bell's vireo, California red-legged frog, Santa Cruz long-toed salamander, California tiger salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp:

- 1. Biologists who intend to capture, move, and survey for California red-legged frogs and California tiger salamanders in work areas must be qualified and authorized by the Service.
- 2. The take of California red-legged frogs and California tiger salamanders found within the proposed project area must be reduced **through** careful monitoring of animals located adjacent to **work** areas, the removal of animals in harm's way to suitable adjacent habitat prior to and during the proposed activities, and by proper handling during their capture.
- 3. The authorized biologist must have the ability to coordinate with the PVWMA to ensure work activities can be halted, if necessary.

- **4.** Biologists who intend to conduct pre-activity surveys, monitoring, and den closures for San Joaquin kit foxes in work areas must be qualified and authorized by the Service.
- 5. Take of the species discussed in this biological and conference opinion, through injury or death due to the straying of construction equipment, must be reduced through the establishment of clearly defined construction access roads.

Our evaluation of the effects of the proposed action includes consideration of the measures to reduce the adverse effects of the proposed action on the least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, California red-legged frog, and California tiger salamander that were developed by Reclamation and the PVWMA and repeated in the Description of the Proposed Project portion of this biological opinion. Any subsequent changes in these measures proposed by Reclamation and the PVWMA may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Reclamation and the PVWMA as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure that the PVWMA complies with the following terms and conditions, which implement the reasonable and prudent measures and reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1:

Reclamation or the PVWMA must submit the credentials of biologists it intends to survey for, capture, and relocate California red-legged frogs and California tiger salamanders, for our review and approval, at least 15 days prior to their participation in these activities. Reclamation or the PVWMA must not begin project activities until the Service has provided written approval that the biologist(s) is authorized to conduct the work. Only qualified biologists authorized by the Service under the auspices of this biological opinion may survey for, capture. and move California red-legged frogs and California tiger salamanders from work areas.

- 2. The following terms and conditions implement reasonable and prudent measure 2:
 - **a.** Any California red-legged frogs observed outside of, but within, 100 feet of the immediate **work** site shall be monitored closely to ensure they do not enter the work site.



- b. Prior to the onset of construction activities, the approved biologists must identify appropriate areas to receive translocated California red-legged *frogs* and California tiger salamander; these habitats must be suitable and appropriate for whatever life stage of the species to be moved. These areas must be in proximity to the capture site, support suitable vegetation, and be free of exotic predatory species (e.g., bullfrogs) to the best of the approved biologists' knowledge.
- C. To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of California red-legged frogs and California tiger salamanders, Service-approved biologists must follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is attached. You may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
- 3. The following term and condition implements reasonable and prudent measure 3:

The authorized biologist must be able to coordinate with individuals at the **PVWMA** or other appropriate person to halt actions that might result in impacts that exceed the levels anticipated by the Service during review of the proposed action. If work is stopped, Reclamation and the Service must be notified immediately by the authorized biologist or the **PVWMA**.

4. The following term and condition implements reasonable and prudent measure 4:

At least 15 days prior to the onset of project activities, the PVWMA must submit the credentials of the biologists who would conduct pre-activity surveys, monitoring, and den closures for San Joaquin kit foxes. Project activities must not begin until the project proponent has received written approval of the biologists from the Service. Only qualified biologists authorized by the Service under the auspices of this biological opinion may conduct pre-activity surveys, monitoring, **and** den closures for the **San** Joaquin kit fox.

5. The following term and condition implements reasonable and prudent measure 5:

Construction access roads must be identified before project activities commence. Vehicles must access construction sites from existing roadways and move equipment and materials within the construction easement. Construction easements must be accessed using the shortest possible route from existing roadways, taking into consideration safety and other relevant factors. Identified sensitive areas within the construction easement must be mapped in the project plans or addressed in the project specifications.



DISPOSITION OF DEAD OR INJURED SPECIMENS

Upon locating dead or injured listed or proposed species, initial notification must be made in writing to the Service's Division of Law Enforcement in Torrance, California (**370** Amapola Avenue, Suite **114**, Torrance, California **90501**) and by telephone and writing to the Ventura Fish and Wildlife Office, **2493** Portola Road, Suite B, Ventura, California **93003**, (805) **644-1766**, within **3** working days **of** finding the animal. The report must include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling injured animals to prevent additional injury. Injured animals may be released to the wild after receipt of concurrence from the Service. Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. The **remains** of listed or proposed species must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Collections Manager, California Academy of Sciences Herpetology Department, Golden Gate Park, San Francisco, California, 94118, (415) 750-7037). Arrangements regarding proper disposition of potential museum specimens must be made with the California Academy of Sciences by Reclamation or the PVWMA prior to implementation of any actions.

REPORTING REQUIREMENTS

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Reclamation or the PVWMA must provide us a copy of compiled applications, annual site reports, and field inspection reports by January 31 of each year this project is under construction. Reclamation or the PVWMA must provide a final report to us within 90 days of the completion of project activities that have the potential to adversely affect the species discussed in this biological opinion. The compiled report must document the effectiveness of the minimization measures and terms and conditions, the number of individuals of listed or proposed species killed or injured, the number of listed or proposed species observed, the number of listed or proposed species moved and released, and the date(s) and places of capture and release. The report must note the **amount** of habitat affected and must contain recommendations for modifying the stipulations to enhance the conservation of listed or proposed species, results of biological surveys and sighting records, and any other pertinent information. This document will assist the Service and Reclamation in evaluating Future measures for conservation of listed or proposed species during similar activities.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act 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, to help implement recovery plans, or to develop information. We recommend the following conservation measures to promote recovery of listed species:



- 1. Reclamation and the PVWMA should support the control of brown-headed cowbirds along the Pajaro River to help promote recovery of the least Bell's vireo and other neotropical birds.
- 2. We recommend that areas to which California red-legged **frogs** and California tiger salamanders have been translocated be monitored to determine the success of the translocation. To assess the survival and movement patterns of translocated California red-legged frogs and California tiger salamanders, they may be fitted with radio transmitters and tracked as part of the monitoring effort. Plans to radio-track California red-legged frogs and California tiger salamanders captured pursuant to this biological opinion must be approved by the Service prior to implementation.
- 3. We recommend that on-site biologists relocate any Southwestern pond turtles (*Clemmys marmorata pallida*), black legless lizards (*Anniela pulchra nigra*), Pacific treefrogs, and any other reptiles or amphibians found within work areas to suitable habitat outside of the survey area, if such actions are in compliance with State laws.

We request notification of the implementation of m y conservation recommendations so **we** may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the Pajaro Valley Water Management Agency Revised Basin Management Plan projects. 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 agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified **in** a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded. any operations causing such take must cease pending reinitiation.

You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the California tiger salamander is listed. The request must be in writing. If the Service reviews the proposed action and finds that the level or extent of take has not been exceeded. the action has not changed in any substantive matter, and no new adverse effects to the California tiger salamander have been identified, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. No take of California tiger salamanders may occur between the time take prohibitions for the species become effective and the adoption of the conference opinion through formal consultation or the completion of a subsequent formal consultation. The final rule to list the species will contain information on when take prohibitions **will** become effective; the prohibitions will take effect when the final rule is published or 30 days after it is published.

If you have any questions regarding this biological opinion, please contact David Pereksta of my staff at (805) 644-1766.

Attachment

cc: Terry Palmisano, California Department of Fish and Game

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The Declinine Amphibian Populations Task Force Fieldwork Code of Practice

- 1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each work site.
- 2. Boots, nets, traps, and other types of equipment used in the aquatic environment should then be scrubbed with 70 percent ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond, wetland, or riparian area.
- 3. In remote locations, clean all equipment with **70** percent ethanol or a bleach solution, and rinse **with** sterile water upon return to the lab or "base camp" Elsewhere, when washing-machine facilities are available, remove nets from poles and wash in a protective mesh laundry bag with bleach on the "delicates" cycle.
- 4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean them **as** directed above and store separately at the end of each field day.
- 5. When amphibians are collected, ensure that animals from different sites are kept separately and take **great** care to avoid indirect contact (e.g., via handling, reuse of containers) between them or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected and disposable husbandry equipment.
- 6. **Examine** collected amphibia& for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.
- 7. Used cleaning materials and **fluids** should be disposed of safely and, if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on **this** Code, or on the Declining Amphibian Populations **Task** Force, contact John Wilkinson, Biology Department, The Open University, Walton Hall, Milton Keynes, **MK7** 6AA, UK. E-mail: <u>DAPTF@.ouen.ac.uk</u> Fax: +44 (0) 1908-654167

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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

1 5 2003

In Response Please Refer To: 151422SWR01SR939:JMA

Mr. David K. Young Environmental Specialist United States Department of the Interior Bureau of Reclamation South-Central California Area Office 1243N Street Fresno, California 93721-1813



Dear Mr. Young:

This document transmits the National Marine Fisheries Service's (NOAA Fisheries) biological opinion based on our review of the U.S. Bureau of Reclamation's (Reclamation) permitting of the Pajaro Valley Water Management Agency (PVWMA) to receive Central Valley Project water resulting in construction of apipeline project across the mainstem Pajaro River, Millers Canal, and Sargent and Pescadero Creeks, tributaries to the Pajaro River, in San Benito, Santa Clara, Monterey, and Santa Cruz Counties, California. The PVWMA will construct the pipeline. The biological opinion addresses the effects of the proposed project on South-Central California Coast (S-CCC) Evolutionarily SignificantUnit steelhead (*Oncorhynchus mykiss*) in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 etseq.). Your March 27,2003, request for consultation was received on March 29,2003.

The biological opinion is based on information provided in the **draft** biological assessment, prior site reviews, telephone conversations, and electronic mail. The biological opinion concludes the Reclamation's proposed permitting of the PVWMA's pipeline project is not likely to jeopardize the continued existence of threatened S-CCC steelhead. NOAA Fisheries believes the proposed action is likely to result in take of S-CCC steelhead, and therefore, **an** incidental take statement is **also** included with **this** biological opinion. A complete administrative of this consultation is on file at our Santa Rosa field office.

Mr. Jonathan Ambrose is the lead biologist for **this** project. He can be contacted at (707) 575-6091 or via email at <u>jonathan.ambrose@noaa.gov</u> if you would **like** additional information regarding the enclosed biological opinion.

Sincerely,

dney R. McImis

Acting Regional Administrator





cc: Jim Lecky, NOAA Fisheries Penny Ruvelas, NOAA Fisheries Dave Johnston, CDF&G - Monterey Jill Hamilton, Env. Sci. Assoc. - San Francisco

Enclosure

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BIOLOGICAL OPINION

ACTION AGENCY	U.S. Bureau of Reclamation
ACTION:	Pajaro Valley Water Management Agency proposed connection, construction, and operation of a pipeliie to convey Central Valley Project water from the San Felipe Turnout in Santa Benito County, California, into the Pajaro Valley located in coastal Monterey and Santa Cruz Counties, California.
CONSULTATION CONDUCTED BY:	NOAA Fisheries, Southwest Region
FILE NUMBER.	151422SWR01SR849
DATE ISSUED:	AUG 1 5 2003

I. CONSULTATION HISTORY

On March 29,2003, the U.S. Department of the Interior, Bureau of Reclamation, South-Central California Office (Reclamation) requested formal consultation with the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *etseq.*). The consultation applies to the Pajaro Valley Water Management Agency's (PVWMA) request to Reclamation to connect a pipeline to the Santa Clara Conduit (at the San Felipe Turnout) of the Central Valley Project (CVP); use CVP water in the Pajaro Valley; and provide funding support for the design, planning, and construction of a recycled water facility and distribution pipelines. Reclamation determined the project may affect South-Central California Coast (S-CCC) Evolutionarily Significant Unit (ESU) steelhead (*Oncorhynchus* mykiss).

NOAA Fisheries previously commented on the proposed project on July 10,1998, and December 3,2001, in letters addressed to the General Manager of the PVWMA where we outlined concerns regarding the general overdraft issue and the proposed project. In a telephone conference call on January 15,2002, between regulatory agencies, the Bureau of Reclamation and the PVWMA, the NOAA Fisheries learned the construction of the CVP pipeline would consist entirely of either directional drilling or jack and bore for all water course crossing. Based on the PVWMA's proposed water course pipeline construction techniques, the NOAA Fisheries believed the project

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would have no effect on S-CCC **ESU** steelhead trout thereby precluding the need for interagency consultation pursuant to section **7** of the ESA.

The project description, as indicated by the draft BA, has been revised and will now necessitate formal section 7 consultation due tu the proposed open ditch pipeline trenching across seven watercourse crossings. Three of these crossings have the potential for steelhead presence. Additionally, this consultation assesses potential impacts of trenchless construction at three watercourse crossings with potential steelhead presence. NOAA Fisheries met with Environmental Science Associates, consultants to PVWMA, on January 21,2003, to discuss proposed aspects of the final action and information necessary for an adequate biological assessment. Numerous telephone calls and electronic mail regarding information necessary for *the* biological assessment, including appropriate minimization measures, quantifyingtake, and clarification of potential impacts, occurred between NOAA Fisheries and Environmental Science Associates prior to initiation of section 7 consultation.

Communications between NOAA Fisheries and Environmental Science Associates (consultant to PVWMA) resulted in identification of potential impacts to S-CCC steelhead from the proposed project. Impact minimization and conservation measures were developed to ensure the project was constructed in the manner believed least damaging to the environment. The measures were deemed necessary to minimize the effects to threatened S-CCC steelhead resulting from project activities. Many of these measures were incorporated into the Description of the **Proposed** Action section in this biological opinion.

II. DESCRIPTION OF THE PROPOSED ACTION

The Federal action involves Reclamation providing approval, under the authority of the Central Valley Projects Improvement Act, the Reclamation Reform Act, and Title XVI of Public Law 102-575, to the PVWMA for connection of a pipeline to the Santa Clara Conduit of the CVP, use of CVP water, and funding support to the PVWMA. The primary purpose of the proposed action is to address groundwater overdraft concerns in the Pajaro Valley. The PVWMA has purchased water assignments from existing Central Valley Project contracts and is attempting to purchase other existing assignments. The 23-mile long 54-inch diameter Import Pipeline would extend from the Watsonville turnout on the Santa Clara Conduit of the CVP (San Felipe Turnout) in San Benito county, California, to a location near the Highway 1 crossing of the Pajaro River near the City of Watsonville, Santa Cruz County, California Construction of the pipeline will require several stream **crossings**, six of which could adversely affect listed salmonids. These six stream crossings analyzed in this biological opinion occur at Millers Canal, Pescadero Creek, Sargent Creek, Pajaro River west of Highway 101, Pajam River west of Highway 1, and Pajaro River near Graniterock Property (Chittenden). PVWMA intends to use CVP water to manage water supplies in the Pajaro Valley Basin and deliver approximately 13,400 acre-feet of water per year (afy) of CVP water to farmers in PVWMA's service area for agricultural irrigation.



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Approximately 7,000 afy of the CVP water will be blended with 3,000 afy of inland groundwater and 4,000 afy of tertiary treated water from the City of Watsonville's wastewater treatment facility. Construction is anticipated to begin during the summer of 2004 and continue year round. Open trench construction is anticipated to take between two to **four** weeks and trenchless construction is anticipated to take between **four** to six weeks. Delivery of the imported water supply is anticipated to begin in early 2007.

In the coastal areas of the Pajaro Valley, overdraft conditions have caused groundwater levels to drop below sea-level, creating a landward pressure gradient causing seawater to move inland, displacing freshwater. Additionally, the overdraft has likely decreased water surface elevations in Corralitos Creek (tributary to the Pajaro River) to the point where portions of the creek now go *dry* during the summer period. These conditions are not expected to stabilize without changes in water management options that balance water use with recharge. The PVWMA will utilize the CVP water in order to bring its water supply into balance with existing agricultural demand, prevent continued overdraft of the groundwater basin, and to halt seawater intrusion into the aquifer. The Import Pipeline would supply surface water to the coastal distribution system serving approximately 8,960 acres of irrigated agricultural lands in the Pajaro Valley. The coastal area cnrrently relies on groundwater for irrigation. As part of the project, PVWMA would eliminate pumping along the coast, **thus** reducing seawater intrusion. Although the proposed project involves the inter-watershed transfer of water to the Pajaro Valley, all imported water will be transported through enclosed pipelines and will be used either for direct application to agricultural field or for blending with recycled water prior to application. Thus, the imported water is not expected to **directly** enter the Pajaro River or its tributaries.

A. Construction Methods

Construction crews will be able to install up to 100 linear feet of pipe (in 16 to 18 foot lengths) each work day, on average. Assuming construction will occur seven days a week, **as** is planned, the pipeline would be completed in approximately three years. Construction in flat open fields may allow more pipe to be installed each day, whereas construction in constrained areas, such **as** across or along major roads **and** railroads, stream crossings, or in areas with many utility lines, would slow construction. Use of multiple starting points and pipe installation crews could reduce construction time to 18 months or less.

Along most of the pipeline alignment, the pipe **would** be installed in a trench with 2: 1 sideslopes with five to ten feet of cover material. In general, the pipeline alignment is located in open areas where conventional excavation **methods** will be used to construct most of the proposed overland and road crossings. Final selection of the Import Pipeline **alignment** within the preferred alignment corridor will consider local landforms and potential slope failure areas and sensitive resource areas.

The proposed pipeline alignment includes open trench crossings of the Pajam River near the Graniterock Property (Chittenden), Pescadero Creek, Sargent Creek, and an unnamed drainage

east of Soda Lake, two small unnamed drainages west of Pescadero Creek, and a small channelized drainage west of Aromas, San Benito County. All river and stream crossings **are** proposed to occur during the dry season (August 15 - November 1, if water is present; June 1⁻ November 15, if no water is present). If water flows persist within the stream channel at the **time** of construction, sheet pile cofferdams in a portion of the channel and the construction area will be dewatered. **Two** crossings of the Pajaro River (just west of Highway 101 and just west of Highway 1) and a crossing of Millers Canal will be constructed with trenchless methods. Boreand-jack construction or directional drilling is proposed for these crossings. Adverse impacts to steelhead are limited to possible accidental bentonite releases and loss of riparian vegetation.

Site restoration in open areas and along transportation corridors would be completed **as** the pipeline is installed. The project areas would be restored to preconstruction contours. In fields and **areas** with sensitive habitats, the top **six** to 12 inches of soil would be stockpiled during construction and replaced following pipe installation. Erosion control methods will be **used** to minimize sediment transport. Revegetation may be accomplished by allowing the area to re-seed naturally.

S-CCC ESU steelhead presence has been assumed (for at least a portion of their life history) at the proposed open trench crossings at Pescadero Creek, Sargent Creek, and mainstem Pajaro River near the Graniterock Property (Chittenden). Presence is also assumed (for at least a portion of their life **history**) at the crossings on Millers Canal, Pajaro River west of Highway 1, and Pajaro River west of Highway 101. Steelhead **are** assumed not to be present (for any portion of their life history) at the open trench crossing on two unnamed drainages adjacent to Pescadero **Creek**, one unnamed drainage east of Soda Lake, and one unnamed drainage west of Aromas due to lack of adequate water flow during the summer construction period.

B. Minimization Measures

Details of the S-CCC ESU steelhead take minimization measures are described in the Biological Assessment developed for the project (See Section 6.0 in PVWMA, March 2003, and letter from Environmental Science Associates to NOAA Fisheries dated March 27, 2003). The following general conditions will be applied to the three watercourse crossings with potential for S-CCC ESU steelhead presence utilizing underground pipe construction techniques (Millers Canal, Pajaro River West of Highway 1, Pajaro River West of Highway 101):

- Construction will be restricted to the low-flow period of June 15 through November 1. If the channel is *dry*, construction can occur **as** early **as** June **1**. Restricting construction activities to this work window will minimize potential impacts to migrating adult and smolt steelhead potentially resulting from bentonite releases.
- A qualified biological monitor will be on site during all underground pipeline construction activities in the vicinity of potential steelhead occurrences. The

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biological monitor will have the authority to halt construction if a source of contamination is identified and until it **is** controlled.

The following general conditions will be applied to all four watercourse crossings without potential for S-CCC ESU steelhead presence during the construction season utilizing open trench construction techniques:

 All trenching activities across waterways will be restricted to low-flow periods of August 15 through November 1. If the channel is *dry*, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead.

The following general conditions will be applied to all three watercourse crossings with potential for S-CCC **ESU** steelhead presence utilizing open trench construction techniques:

- All trenching activities across waterways will be restricted to low-flow periods of August 15 through November 1. If the channel is *dry*, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead.
- If the channel is not *dry*, water from around the section of trench within the actively flowing channels will be diverted. **This** will reduce the potential for sediment or other pollutants to enter the waterways and to impact downstream resources. The diversions will consist of **sheet** pile cofferdams installed in two phases. Each phase will result in the dewatering of approximately two-thirds the width of the channel, thus allowing for continued open channel fish passage during construction. Project engineers are uncertain if sheet piling is feasible at the Pajaro River crossing near Graniterock Property (Chittenden) due **to** the composition of riverbed material. If sheet piling cannot used, then sandbags would be used to construct the cofferdam utilizing a similar design.

Sediment curtains will be placed downstream of the construction zone to prevent . sediment disturbed during trenching activities from being **transported** and deposited outside of the construction zone.

Prior to construction of the diversion and placement of the sediment curtains at Sargent and Pescadero Creeks, a qualified biologist will conduct fish relocation activities, and immediately release captured fish to a suitable habitat near the project site. At the Pajaro River near Graniterock Property (Chittenden) crossing, passive preconstruction surveys (e.g., snorkeling and/or streamside observations) for steelhead will be conducted no more than two weeks prior to the onset of construction activities. If, as expected, steelhead are not present, construction can

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occur. If steelhead are observed, construction activities will not occur and formal consultation will be reinitiated with NOAA Fisheries.

- If groundwater *is* encountered, or if water remains in the channel after **flows** are diverted, it will be pumped out of the construction area and into a retention basin constructed of hay bales lined with filter fabric. Pumps will be screened according to NOAA Fisheries screening criteria for anadromous salmonids (NMFS 1997). A biological monitor will be on-site during such pumping activities to ensure any fish in the construction area are relocated to suitable habitat near the project site.
- Silt fencing will be installed in all areas where construction occurs within 100 feet of known or potential **S-CCC** steelhead habitat.
- Spoil sites will be located so they do not drain directly into waterways. If a spoil site drains into a water body, catch basins will be constructed to intercept sediment before it reaches the stream channels. Spoil sites **will** be graded to reduce erosion potential.
 - A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of **all** potentially hazardous materials, as well *as* the proper procedures for cleaning up and reporting of *any* spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching stream channels.
 - Equipment and materials will be stored at least 50 feet from watercourses, but within the pipeline right-of-way. No debris such as trash and spoils will be deposited within 100 feet of wetlands. Staging and storage **areas** for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel and banks. *Stationary* equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream will be positioned over drip pans. **Any** equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily, to prevent leaks of materials potentially deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication.
- Proper and timely maintenance for vehicles and equipment used during construction will be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creeks. Maintenance and fueling will be conducted in an area meeting criteria set forth in the spill prevention plan (i.e., at least **60** feet **away** from creeks).

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A qualified biological monitor will be on site during all open trench crossing activities. The biological monitor will be authorized to halt construction if impacts to S-CCC **ESU** steelhead are evident.

- Project sites will be restored to preconstruction channel conditions, including streambed composition, compaction, and gradient. Channel banks will be returned to: the original grade and appropriate bank stabilization techniques will be implemented to reduce the potential for erosion and sedimentation. A plan describing pre-project conditions and restoration methods will be **prepared** prior *to* construction and will include installing seeded or nnseeded erosion control matting, as necessary, planting of seedlings and cuttings, use **of** a combination of silt fences and coir logs and straw and jute matting.
- Project sites shall be revegetated with an appropriate assemblage of native upland vegetation, and ifnecessary, riparian and wetland vegetation, suitable for the area.
 A plan describing pre-project conditions, restoration, and monitoring success criteria will be prepared prior to construction.
- Revegetation and habitat enhancement will be considered successful if, at the end of the five-year monitoring period, platings, as a whole, exhibit at least 70 percent cumulative survival and platings have attained 75 percent cover at the revegetation site.
- The success of the restoration effort will be evaluated using specific performance standards including the following criteria; a) at least 70 percent survival of the total number or originally installed plants over a five-year monitoring period, b) no excessive **rills**, gullies, or **other** erosional features **are** observed, c) no invasive nonnative plant species become established within or adjacent to the revegetation **area**, **and** d) properly functioning irrigation system in years one **through** three or until vegetation becomes established.

The following specific conditions will be applied to watercourse crossings with potential for S-CCC ESU steelhead presence utilizing open trench construction techniques:

- Sargent Creek Construction activities at this site will occur only during the first season of the anticipated two-year construction period if, and only if, the channel is *dry* during the construction window outlined above. If the channel remains wet during the entire construction window of the first year, construction will take place during the second year, regardless of whether the channel is *dry* or wet.
- Pescadero Creek Construction activities at this site can occur during the proposed construction windows regardless of whether the creek is wet or *dry*. However, if the Sargent Creek site discussed above is wet during the first year and is therefore

deferred to the second year, the Pescadero Creek pipeline crossing must be constructed during the first year. This will minimize adverse effects of direct take to steelhead by distributing the adverse effects of relocation over a two-year period (if necessary).

• Mainstem Pajaro River near Graniterock Property (Chittenden): Construction can occur whether the channel is wet or *dry* and during either the first **or** second year of the construction period if the biological monitor fails to detect steelhead presence. If detected, Reclamation will reinitiate section 7 consultation with NOAA Fisheries.

C. Action Area

The action area is defined as all areas affected directly or indirectly by the Federal action and not merely the immediate **area** involved in the action (50 CFR 402.02). The action area for **this** project includes the areas impacted by the proposed stream crossings and areas where changes to water quality from open trench and underground pipe construction could adversely affect steelhead.

The action area is as follows:

1. Crossings Installed via Underground Pipe Construction

Millers Canal: **This** portion of the action area extends from the proposed crossing downstream 1,000 feet. **This** distance is the maximum expected for potential water quality impacts to steelhead **as** described in the *Effects Analysis* **section.**

Pajaro River West of Highway 1: **This** portion of the action area extends from the proposed crossing downstream 1,000 feet. **This** distance is the maximum expected for potential water quality impacts **as** described **in** the *Effects Analysis* **section.**

Pajaro River West of Highway 101: This portion of the action area extends from the proposed crossing downstream 1,000 feet. This distance is the maximum expected for potential water quality impacts as described in the *Effects Analysis* section.

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No impacts to riparian vegetation are anticipated from underground pipeline construction.

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2. Crossing Installed via Open Trench Construction.

Sargent Creek A 30-foot wide construction comdor would be used through 30 LF of riparian zone and across 20 feet of *stream* channel. Thirty LF of stream channel will be dewatered (if water is present). Thus, 900 square feet (sq. ft.) of riparian zone and 600 sq. ft. of creek bed will be disturbed. Riparian vegetation will be disturbed. This portion of the action area also extends **from** the proposed crossing downstream 1,000 feet.

Pajaro River near Graniterock Property (Chittenden): A 30-foot wide construction corridor would be used through 160LF of riparian zone and across 100 feetof river channel. Thus, 4,800 sq. A. of riparian zone and 3,000 sq. ft. of river bed will be disturbed. In addition, a 40-foot construction corridor would be used where the pipeline parallels the south side of the Pajaro River. A 10-foot *dirt* road already is located on top of the southern bank of the river, but an additional 30-foot wide section of the riparian vegetation to the south of the gravel road may be removed. Thus, a 30-foot wide by 2,100-foot long (30,600 sq. ft.) section of the riparian vegetation may be disturbed.

Pescadero Creek A 30-foot wide construction comdor would be used **through** 180LF of riparian zone and across 50 feet of stream channel. Thirty LF of channel will be dewatered (if water is present). **Thus**, 5,400 sq. ft. of riparian zone and 1,500 sq. ft. of creek bed will be disturbed. Riparian vegetation will be disturbed.

The action area for each of these crossings also includes 1,000 feet of stream downstream from each crossing. This distance is the maximum expected for potential water quality impacts as described in the *Effects Analysis* section.

III. DESCRIPTION AND STATUS OF THE SPECIES

This biological opinion analyzes the effects of the **proposed** project on threatened S-CCC steelhead (62 FR 43937).

A. Species Description and Life History

General life history information for steelhead (*Oncorhynchus mykiss*) is summarized below, followed by detailed information on the S-CCC steelhead ESU, including any unique life history traits as well as their population trends. Further detailed information on this steelhead ESU is available in the NOAA Fisheries Status Review of west coast steelhead from Washington, Idaho Oregon, and California (Busby *et al.* 1996), and the NOAA Fisheries final rule for listing steelhead (62 FR 43937), the NOAA Fisheries Status Review for Klamath Mountains Province

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Steelhead (Busby *et al.* 1994), and the **NOAA** Fisheries final rule listing the S-CCC steelhead ESU.

I. Adult Freshwater Migration and Spawning

The most widespread run type of steelhead is the winter (ocean-maturing) steelhead, while summer (stream-maturing) steelhead (including spring and fall steelhead in southern Oregon and northern California) **are** less common. There is a high degree of overlap in spawn timing between populations, regardless of **run-type**. California steelhead generally spawn earlier than steelhead in northern areas. Both summer and winter steelhead in California generally begin spawning in December, whereas most populations in Washington begin spawning in February or March. Among inland steelhead populations, Columbia River populations from tributaries upstream of the Yakima River spawn later than most downstream populations.

The stream-maturing type enters fresh water in a sexually immature condition and requires several months in freshwater to mature and spawn. The ocean-maturing type enters fresh water with well-developed gonads and spawns shortly thereafter (*Barnhart* 1986).

Steelhead may spawn more than once before dying, in contrast to other species of the Oncorhynchus **genus**. It is relatively uncommon for steelhead populations north of Oregon to have repeat spawning, and more than **two** spawning migrations is rare. In California, the frequency of two spawning migrations is higher, but more than two is unusual (Shapovalov and Taft 1954).

2. Juvenile Rearing and Out-mieration

Juvenile steelhead live in freshwater between one and **four** years (usually one to two years in the Pacific Southwest) and then become smolts and migrate to the sea from November **through** May with peaks in March, April, and May. "he smolts can range from 14to **27** centimeters (*cm*)n length. Steelhead spend between one and four years in the ocean (usually two years in the Pacific Southwest) (Barnhart 1986). Fish size appears to be positively correlated with water velocity and depth (Chapman and Bjomn **1969**, Everest and Chapman 1972).

3. Ocean Migration

Noah American steelhead typically spend two years in the ocean before entering freshwater to spawn. The **distribution** of steelhead in the ocean is not well known. CWT recoveries indicate that most steelhead tend to migrate north and south along the Continental Shelf (Barnhart 1986). Steelhead stocks from the Klamath and Rogue **rivers** probably **mix** together in a nearshore ocean staging area along the northern California before they migrate upriver (Everest 1973).

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4. Biological Requirements

The timing of upstream migration is correlated with higher flow events, such as freshets or sand bar breaches, and associated lower water temperatures. Unusual stream temperatures during spawning migration periods can alter or delay migration **timing**, accelerate or retard mutations, and increase fish susceptibility to diseases. The minimum stream depth necessary for successful upstream migration is 18 cm (Thompson 1972). Reiser and Bjomn (1979) indicated that steelhead preferred a depth of 24 cm or more. The maximum velocity, beyond which upstream migration is not likely to occur, of 2.4 m/second (Thompson 1972).

Steelhead spawn in cool, clear streams featuring suitable gravel size, depth, and current velocity. Intermittent streams may be used for spawning (**Barrhart** 1986, Everest 1973). Reiser and Bjornn (1979) found that gravels of 1.3 cm to 11.7 cm in diameter and flows of approximately 40-90 cm/second (Smith 1973) were preferred by steelhead. The survival of embryos is reduced when fines of less than 6.4 millimeters (mm) comprise 20 - 25% of the substrate. Studies have shown a higher survival of embryos when intragravel velocities exceed 20 cm/hour (Phillips and Campbell 1961, Coble 1961). The number of days required for steelhead eggs to hatch varies from about 19 days at an average temperature of 60" Fahrenheit (F) to about 80 days at an average of 42" F. Fry typically emerge from the gravel two to three weeks after hatching (*Barnhart* 1986).

After emergence, steelhead *fry* usually inhabit shallow water along perennial stream banks. Older *fry* establish territories which they defend. Streamside vegetation and cover are essential. Steelheadjuveniles are usually associated with the bottom of the stream. In smaller California streams, the water levels may drop so low during the summer that pools are the only viable rearing habitat. No passage between pools **can** occur until river levels rise with the onset of **the** rainy season. Therefore, juvenile steelhead rearing in isolated summer pools are extremely vulnerable to disturbance or water quality impacts. Daytime temperatures in summer rearing pools may also be near lethal levels; riparian shading and the presence of sub-surface, cold water seeps are often essential to **neirtein** pool temperatures at tolerable levels. In winter, they become inactive and hide in any available cover, including gravel or woody debris.

The majority of steelhead in their first year of life occupy riffles, although some larger **fish** inhabit pools or deeper runs. Juvenile steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Water temperatures influence the growth rate, population density, swimming ability, ability to capture and metabolize food, and ability to Withstand disease of these rearing juveniles. Rearing steelhead juveniles prefer water temperatures of 45" to 58" F and have an upper lethal limit of 75° F.

Dissolved oxygen levels of 6.5 to 7.0 milligrams (mg)/Liter (L) affected the migration and swimming performance of steelheadjuveniles at all temperatures (Davis *et al.* 1963). Reiser and Bjomn (1979) recommended that dissolved oxygen (DO) concentrations remain at or near saturation levels with temporary reductions no lower than 5.0 mg/L for successful rearing of

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juvenile steelhead. Low DO levels decrease the rate of metabolism, swimming speed, growth rate, food consumption rate, efficiency of food utilization, affect normal behaviors, and ultimately reduce the survival rate of the juveniles.

During rearing, suspended and deposited fine sediments *can* directly affect salmonids by abrading and clogging gills, and indirectly cause reduced feeding, avoidance reactions, destruction of food supplies, reduced egg and alevin survival, and changed rearing habitat (Reiser and Bjornn 1979). Bell (1973) found that silt loads of less than 25 mg/L permit good rearing conditions for juvenile salmonids.

B. Range-wide (ESU) Status and Trends of Species

In this opinion, NOAA Fisheries assesses the **status** of *S-CCC* ESU steelhead by examining four types of information, all of which help us understand a population's ability **to** survive. These population viability parameters are: abundance, (population) growth rate, spatial structure, and diversity (McElhaney *et al. 2000*).

Abundance is a measure of the population size and is generally expressed **as** the number **of** spawning adults or the number of rearing juveniles. Small populations are generally at *greater* risk of extinction because **as** their numbers vary in response to environmental changes, the population can dip to critically **low** numbers more easily than larger populations (Gilpin and Soule 1986, Pimm *et al.* 1988).

The growth rate of a population is a function of the species' intrinsic ability to reproduce and the capacity of their environment to support the population. Life stage specific survival rates and long term trends in abundance are both indications of a population's performance in response to its environment. If a population is consistently failing to replace itself, as indicated by low survival rates and/or long term population declines, then it is at an increased risk of extinction.

A population's spatial structure refers to the geographic distribution of individuals in the population. This structure depends in part on habitat quality and the species dispersal characteristics. Species range constriction and fragmentation are likely to interfere with the population structure and are indications of reduced viability.

Species diversity is manifested genotypically (genetic variation among individuals in **a** population) and phenotypically (morphological **and** behavioral variation among individuals in **a** population). These forms of diversity allow species to better survive the challenges **of** environmental variations. A diverse population is more likely to contain combinations of **traits** that prove successful in coping with a given environment. Conversely, **a** lack of diversity, as happens when populations are diminished, decreases the species likelihood of surviving environmental adversity.

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1. Abundance

In the mid-1960s, total spawning populations of steelhead in the rivers in this ESU were estimated as 27,750 (CDFG 1965). Recent estimates for those rivers show a substantial decline during the past 30 years. Other estimates of steelhead include 1,000to 2,000 in the Pajaro River in the early 1960s (McEwan and Jackson 1996), and about 3,200 steelhead for the Cannel River for the 1964-1975 period (Snider 1983). No recent estimates for total run size exist for this **ESU**. However, fairly recent run-size estimates are available for five **streams** (Pajaro River, Salinas River, Cannel River, Little **Sur** River, and Big Sur River). The total of these estimates is less than 500 fish (Nehlsen *et al.* 1991) and was considered at high risk, compared with a total of 4,750 fish for the same **streams** in 1965. Total number of adult steelhead in the ESU may be larger due to recent increases in number of steelhead recorded on the Carmel River.

Adequate adult escapementinformation was available to compute a trend for only one sub population within this ESU (Carmel River above San Clemente Dam). About one half (55 percent) of the adults that enter the Carmel River move upstream of the San Clemente Dam (Dettman and Kelly 1986). An estimate of the total steelhead run in the Carmel River in 1984 was 860 adults (Jones and Stokes 1998). Between 1987 and 1991 a **drought** occurred in the region and no outflow **through** the river mouth occurred in 1988,1989, and 1990. Nehlsen *et al.* (1991) determined the steelhead population was **at** high risk in the Carmel River during this drought period and a reevaluation for this stock may be necessary in light of additional information (Jones and Stokes 1998, Entrix 2000, *MPWMD* 2003). The 1997 and 1998 totals were the highest counts at San Clemente Dam since 1975(775 and 856, respectively) (Jones and Stokes 1998). From 1999-2002, steelhead adults returning to the San Clemente Dam numbered 405,432 (Entrix 2000), 804, and 642 (**MPWMD** 2003). As of April 21,2003, ladder counts recorded 491 adults (McKeon, **NOAA** Fisheries, per. comm., 2003).

2. Pouulation Growth Rate

Available information indicates total steelhead abundance is low and most stocks in the ESU, for which there **are** data, show a substantial decline during the last 40 years (Busby *et al.* 1996). Their decline is attributed to long-standing human induced factors (e.g., blocked access to historic spawning and rearing areas due to **dams and** extensive water diversions) that exacerbate the adverse effects of natural environmental variability (61 FR 56138, 62 FR 43937, Titus *et al.* 2002).

Adequate adult escapement information was available to compute a trend for only one stock within the ESU (Carmel River above San Clemente Dam) (Titus *et al.* 2002). These data series show a significant decline of 22% per year from 1963 to 1993, with a five-year total count of only 16 adult steelhead at the San Clemente Dam between 1988-1992. Since 1994, the stock has partially recovered with a recent six-year average (1997-2002) of **652** fish passing the ladder at San Clemente Dam (Jones and Stokes 1998, Entrix 2000, *MPWMD* 2003, McKeon, NOAA Fisheries, pers. comm., 2003).

Although it is difficult to assess the sustainability of **natural** populations in these river basins because of a general lack of information about naturally spawning populations, available information suggests recent total abundance in five of the larger **rivers** in the ESU is less than 11 percent of their abundance in the mid 1960s. In the mid 1960s, the CDF&G (1965) estimated the ESU-wide run size was about 17,750 adults. No comparable recent, ESU wide, information exists'. In these five major S-CCC ESU river systems (Pajaro, Salinas, Cannel, Little **Sur**, and Big Sur), available information indicates runs of fewer than 500 adults (Nehlsen *et al.* 1991) where previously runshad been on the order of 4,750 adults (CDF&G 1965). This 89 percent decline in the population of steelhead spawning indicates an overall negative trend in growth rate for the population in the ESU.

3. Saatial Structure

S-CCC **ESU** steelhead have not maintained a wide distribution throughout the ESU. A 2003, NOAA Fisheries GIS (Geographic Information System) analysis of historic habitat loss **within** the ESU indicates approximately 79 percent of the habitat is no longer suitable or accessible to steelhead. In general, two ecological habitat types occur in this ESU, coastal **basins**, and inland basins. Habitat loss **has** been acute in the two inland basins (**Salires** and Pajaro systems), where conditions are more arid and in-stream conditions **are** less resilient to adverse perturbation than the wetter coastal basins (Cannel, Big Sur, and Little Sur systems). Habitat loss has been less dramatic in the coastal basins and a status review update (Schiewe 1997) listed numerous reports of juvenile **O**.*mykiss* present in many coastal streams.

Habitat loss in the inland basins **is** a cause for concern **as** unique local behavioral and physiological adaptations for these areas may be **lost**. While habitat **loss is** ongoing, the species remains fairly well distributed **from** the southern part of the ESU through the northern part of the coastal streams. A wide coastal distribution is a positive indicator **as** species with broad distributions are more likely to survive environmental fluctuations and stochastic events, even if **they** suffer local extirpations(Pimm *et al.* 1988). Whether-or-not steelhead presence in the coastal streams provides the ESU with sufficient resiliency to persist in the face of environmental fluctuations and stochastic events is unknown

¹ Run size was estimated post-completion of many of the major dams in the ESU, including Nacimiento, Uvas, Chesbro, Hernandez, Pacheco, San Clemente, Salinas, and San Antonio dams. Thus, population levels were likely substantially greater prior to CDF&G's 1965 estimate. San Clemente dam is the only one of these dams constructed prior to 1965 with any fish passage facility. The last major dam constructed in this ESU was completed in the late 1960s and now forms Lopez Lake on *Arroyo* Grande Creek, San Luis Obispo County, California. This dam also has no fish passage facilities.

4. Diversity

The genetic integrity (including **fitness** and genetic diversity) of wild populations may be affected primarily through interbreeding with genetically divergent hatchery fish (MacCall and Wainwright 2003). Interbreeding has the potential to reorganize the natural intra- and interpopulational distribution of genetic diversity and to change heritable survival-related characteristics. Interbreeding reduces the genetic diversity among populations currently thought to be critical for long-term persistence and to decreased fitness for rearing in the natural environment in the short-term (MacCall and Wainwright 2003). The interbasin transfer of hatchery steelhead has persisted in various locations and at various times within the S-CCCESU (Sundermeyer **1999**, Titus *et al.* 2002). This has adversely affected the genetic composition of existing stocks in at least one major watershed in the S-CCC ESU. Sundermeyer (1999) found steelhead in many of the tributaries of the Pajaro River indistinguishable from steelhead in the San Lorenzo River (Central California Coast ESU) due to the long **history** of hatchery supplementation. Remnant native populations are probably only present in areas above natural and anthropogenic barriers to anadromy (Sundermeyer 1999). Other basins in the ESU have also had interbasin transfers but little other genetic information is available to assess the effects of these practices. Interbasin transfer still continues in the Nacimiento River, a tributary to the Saliras River (CDF&G 1999), for the purpose of operating an easily accessible recreational trout fishery.

5. Conclusions

Total steelhead abundance is extremely low and most stocks in the ESU, for which there are data, show a substantial decline during the past 30 years (Busby *et al.*, 1996). Their decline has been attributed to long-standing human induced factors (e.g., blocked access to historic spawning and rearing areas upstream of dams, extensive water diversions) exacerbating the adverse effects of natural environmental variability (61 FR 56138, 62 FR 43937, Titus *et al.* 1999). This species is generally more resilient to perturbation than other salmonids due to their ability to tolerate a wider range of habitat conditions. However, the poor condition of their habitat in many areas remains, and compromised genetic integrity of some stocks poses a serious risk to their survival and recovery. Furthermore, steelhead are not evenly distributed throughout the ESU. Distribution of steelhead within many watersheds across the ESU is very patchy, with better distribution in the coastal basins and poor distribution in the interior basins.

C. Factors Responsible for Stock Declines: Changes to Habitat and Other Impacts

Threats to naturally reproducing steelhead are numerous and varied. Among the **most serious** and ongoing threats to the survival of steelhead in the S-CCCESU are changes to natural hydrology, habitat degradation, and complete habitat loss. The following discussion provides an overview of the types of activities and conditions adversely affecting steelhead ESUs in California watersheds in general with some specific examples **of** impacts in the S-CCC **ESU**.

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1. Habitat Degradation and Destruction

A major cause of the decline of salmon and steelhead is the loss or severe decrease in quality and function of essential habitat features. Most **of** this habitat **loss** and degradation has resulted **from** anthropogenic watershed disturbances caused by agriculture, logging, urban development, water diversion, wetlands loss and management, off-road vehicle use, confined animal facilities, road construction, erosion and flood control, dam building, **and** grazing. **Most** of this habitat degradation is associated with the **loss** of essential habitat components necessary for salmon and steelhead survival. For example, the loss of deep pool habitats **from** sedimentation and stream **flow** reductions has reduced rearing and holding habitat for juvenile and adult salmonids.

These factors alter habitat conditions and have exacerbated the adverse effects of natural environmental variability from such factors as **drought**, poor ocean conditions, and predation The alteration of the estuaries in conjunction with increased sediment loads in the watersheds **from** land use activities and lower stream **flows** due to water diversions and other watershed changes have delayed sandbar breaching in the fall, delayed adult steelhead migration into streams, reduced and degraded estuary rearing habitat for juvenile steelhead, and created a poor freshwater-saltwater transition zone for steelhead smolts (CDF&G 1998).

Four large dams on the Pajaro River, one on Arroyo Grande Creek, and three on the **Saliras** River completely blocks steelhead access to historical spawning areas. Two **dams** on the Carmel River reduce access. Furthermore, dam water management operations have reduced migration and/or rearing opportunities in downstream **areas**. Numerous small dams (summer recreation and diversion dams) also reduce anadromous access throughout the ESU including Little **Arthur** Creek (Pajaro River), Little Sur, Corralitos Creek (Pajaro River), Arroyo de la **Cruz**, Chorro Creek, Old Creek, and Malpaso Creek.

2. Natural Stochastic Events

Natural events such **as** droughts, landslides, **floods**, and other catastropheshave adversely affected steelhead populations throughout their evolutionary *history* and yet they have persisted due in large part to a flexible life *history*. The effects of these **natural** events **are often** exacerbated by anthropogenic changes to watersheds such as logging, road building, and water diversion. Additionally, the ability of species to rebound **from** natural stochastic events may be limited as a result of other existing anthropogenic factors or depressed populations.

3. Ocean Conditions

Variability in ocean productivity has been **shown** to affect salmon production both positively and negatively. Beamish and Bouillion (1993) showed a **strong** correlation between North Pacific salmon production from 1925 to 1989 **and** their marine environment. Beamish **et** *al.* (1997) noted decadal-scale changes in the production of Fraser River sockeye salmon that they attributed to changes in the productivity of the marine environment. They also reported the dramatic

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change in marine conditions occurring in 1976-77 (an el Niño year), when an oceanic warming trend began. These el Niño conditions, which occur every 3-5 years, negatively affect ocean productivity. Johnson (1988) noted increased adult mortality and decreased average size for Oregon's Chinook (*Oncorhynchustshawytscha*) and coho salmon (*Oncorhynchus kisutch*) during the strong 1982-83El Niño. It is unclear to what extent ocean conditions have played a role in the decline of S-CCC ESU steelhead, however, ocean conditions have likely affected populations throughout their evolutionary history and thus, the species has likely adapted to these events.

4. <u>Flows</u>

Depletion and storage of natural flows have drastically altered natural hydrological cycles in many California rivers and streams in general, and within streams providing habitat to S-CCC ESU steelhead in particular. Alteration of streamflows has increased juvenile salmonid mortality for a variety of reasons: migration delay resulting from insufficient flows or habitat blockages; loss of usable habitats due to dewatering and blockage; stranding of fish resulting from rapid flow fluctuations; entrainment of juveniles into unscreened or poorly screened diversions; and increased juvenile mortality resulting from increased water temperatures (Chapman and Bjomn 1969, Berggren and Filardo 1993, 61 FR 56138).

5. Harvest

There **are** few good historical accounts of the abundance of steelhead harvested along the California coast (Jensen and Swartzell 1967). **Early** records did not contain quantitative data by species until the early 1950s. In addition, the confounding effects of habitat deterioration, **drought**, and poor ocean conditions on salmon **and** steelhead survival make it difficult to assess the degree to which recreational and commercial harvests have contributed to the overall decline of salmonids in West Coast rivers.

6. Artificial Propagation

Releasing large numbers of hatchery fish can **pose** a threat to steelhead stocks through genetic impacts, competition for food and other resources, predation of hatchery fish on wild fish, **and** increased fishing pressure on wild stocks as a result of hatchery production (Waples 1991). The genetic impacts of artificial propagation programs are primarily caused by the straying of hatchery fish and the subsequent hybridization **of** hatchery and wild fish. Artificial propagation threatens the genetic integrity and diversity that protect overall productivity against changes in the environment (61 FR 56138). The potential adverse impacts of artificial propagation programs are well documented (reviewed in Waples 1991, National Research Council 1996, Waples 1999).

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7. Marine Mammal Predation

Predation is not believed to be a major factor contributing to the decline of West Coast steelhead populations relative to the effects of fishing, habitat degradation, and hatchery practices. Predation may have substantial impacts in localized areas. Harbor seal (*Phoca vitulina*) and California sea lion (*Zalophus californianus*) numbers have increased **along** the Pacific Coast (NOAA Fisheries 1999). However, at the mouth of the Russian River, Hanson (1993) reported foraging behavior of California sea lions and harbor seals with respect to anadromous salmonids was minimal. Hanson (1993) also stated predation on salmonids appeared to be coincidental with the salmonid migrations rather than dependent upon them.

8. Reduced Marine-Derived Nutrient Transport

Reduced marine-derived nutrient (MDN) transport to watersheds is another consequence of *the* past century of decline in salmon abundance (Gresh *et al. 2000*). MDN are nutrients accumulated in biomass by salmonids while in the ocean and transported back to their freshwater spawning sites. Salmon may play a critical role in the survival of their own species MDN (from salmon carcasses) has been shown to be vital for the growth of juvenile salmonids (Bilby *et al.* 1996, Bilby *et al.* 1998). The return of salmon to rivers makes a significant contribution to the flora and fauna of both terrestrial and riverine ecosystems (Gresh *et al.* 2000). Evidence of the role of MDN and energy in ecosystems suggests this deficit may result in **an** ecosystem failure that has contributed to the downward spiral of salmonid abundance (Bilby *et al.* 1996). The loss of this nutrient source may thus perpetuate salmonid declines in an increasing synergistic fashion.

D. Status in the Pajaro River

Current status of the population is, for all practical purposes, unknown. However, relatively detailed information on historical distribution of *Oncorhynchus mykiss* in the basin in available due to surveys conducted by Snyder (1913), CDF&G (Lollock 1968), Moyle *et al.* (1982), and Smith (1982). Smith *et al.* (1982) estimated smolt size steelhead abundance for streams in the Santa Cruz County portion of the Pajaro River. Busby *et al.* (1996) estimated adult steelhead escapement at less than 100; Nehlsen estimated adult steelhead escapement at less than 200. No other quantitative information on juvenile or adult lifestages is available.

The recent estimates of steelhead population size (Busby *et al.* 1996, Nehlsen *et al.* 1991) indicate the Pajaro River population has declined significantly. If the decline of a stock is unchecked, **a** threshold is reached at which the probability of extinction form genetic, demographic, or environmental stochasticity increases sharply (Nehlsen *et al.* 1991).

1. Factors Affecting Steelhead and Their Habitat in the Paiaro River

Historically, the mainstem Pajaro River possessed spawning and rearing habitats (Snyder 1913) but habitat conditions have deteriorated significantly and today no longer supports these habitats (Moyle *et al.* 1982, AMBAG 1983, Smith 2002). Nehlsen *et al.* (1991) cited steelhead populations have been depleted primarily by habitat damage. Many of the tributaries in the Pajaro River historically accessible to steelhead no longer **are** due to large dams (upper Llagas Creek, upper **Uxas** Creek, upper Pacheco Creek), summer dams (Little Arthur Creek), **inadequate** flows (Llagas Creek), or other anthropogenic barriers (Green Valley Creek, Coward Creek). Inadequate flow releases from the four reservoirs on the Pajaro River have likely resulted in significant alteration of habitats in the Pajaro River. Of the large dams, only Uvas Reservoir has a water right specifying minimum winter and summer releases (Smith 2002). Water management in these reservoirs has lead to decreases in rearing and spawning habitat due to lack of adequate scouring flows, attraction flows, and flows necessary to maintain summer rearing conditions. Portions of the upper tributaries now dewater during the summer due to groundwater pumping or inadequate flow releases from the upper dams.

The lower Pajaro River has been channelized, leveed, and heavily altered. Virtually no riparian vegetation has been allowed to become established (except for a narrow strip on the Santa Cruz County side of the River below Highway 1) since 1995 due to ongoing maintenance activities. The channelization of the lower river has resulted in a loss of channel sinuosity and a head cut (from channel straightening) is now present **a** Murphy's Crossing which presents a barrier to smolt out-migration.

Present land use practices within the Pajaro River Watershed have and continue to degrade water quality of the Pajaro River and many of its tributaries. Production fiom irrigated croplands located on highly erodible lands in the lower Pajaro River and Watsonville Slough Complex areas have accelerated erosion, resulting in excessive sedimentation and associated transport of potentially toxic pesticide residues (AMBAG 1999) that can exceed water quality objectives to protect aquatic life (SCCRCD 2001).

The Pajaro River is the second largest river in the S-CCC ESU, and its tributaries originate **from** *dry* inland pine and scrub habitats in the San Benito and Diablo Mountains and mesic coastal redwood habitats **in** the Santa Cruz Mountains. Both the Pajaro River and Salinas River **(largest**)

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river in the ESU) are drier than the coastal streams in the ESU. Steelhead in the Pajaro River basin were likely adapted to these drier conditions and remnant populations likely maintain an important component to the **overall** genetic diversity within the S-CCCESU.

3. Trends

The trend of habitat degradation **is** anticipated to continue due to; (1)current water management practices from the four Pajaro River reservoirs; (2) agricultural practices in the watershed; (3) overdraft of ground water resources; (4) instream gravel mining practices; (5) increasing urbanization on the Highway 101 corridor valley floor; and, (6) construction, reconstruction, and maintenance of levees on the Pajaro River and **its** tributaries.

IV. ENVIRONMENTAL BASELINE

A. Status of the Species and Eabitat in the Action Area

This section is **an** analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem within the action area. The environmental baseline does not include the effects of the action under review in the consultation.

Information on the status of the species within the footprint of the proposed action is nonexistent Therefore, it is necessary to utilize information from species surveys above and below the construction footprint of the proposed action and observations **from** the project proponent both within, and upstream and downstream of the action area. **This** information was used to determine the approximate number of steelhead likely present in the action area. Additionally, when site specific information is unavailable, it is necessary and prudent to utilize relevant information from other **similar** species and habitats for determination of potential effects that may occur from the proposed action. The status of steelhead and their habitat **are** broken out by the **various** reaches affected by the proposed **project**.

1. Pajaro River

At the proposed crossing west of Highway 1 and 1000feet downstream, the riparian vegetation consists of a sparse **stand** of cottonwood (*Populus* sp.) and willow (*Salix* sp.) on **the** Monterey County side of the River. On the **Santa** Cruz County side of the River the vegetation consists of mature cottonwood and willow in a relatively thick, but narrow (less than 70 feet), corridor. Streambed substrates consists of sand and silt. This area is the upper limit of tidal influence for the Pajaro River lagoon.

At the proposed crossing near Graniterock Property (Chittenden) and 1000 feet downstream, the riparian vegetation is dominated by willow but also contains redwood (*Sequoia sempervirens*),

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cottonwood, and elderberry (*Sambucus* sp.). Some of the riparian vegetation was recently disturbed from installation of a pipe bridge. Streambed substrate is primarily comprised of bedrock.

At the proposed crossing west of Highway 101, the riparian vegetation is dominated by cottonwood and willow. Streambed substrate **is** primarily comprised of silt with banks primarily comprised of sand.

In the mainstem Pajaro River, habitat has been adversely affected within the action **area** and today serves only as a migration corridor. Snyder (1913) collected juvenile steelhead in 1908 at four of five locations sampled between Highway 101 and the Pajaro River Lagoon. According to Moyle *et al.* (1982) these areas on lower mainstem Pajaro were originally important summer nursery areas for juvenile steelhead. By 1960, juvenile steelhead use of the lower Pajaro River **as** rearing habitat may have ceased, **as** none were captured at the Highway 101 crossing or in the lagoon when sampled in 1959 (Titus *et al.* 1999). Moyle *et al.* (1982), in **an** effort to replicate Snyder (1913), surveyed the same general areas between 1972-1975 and failed to detected steelhead presence.

2. Pescadero Creek

At the location of the proposed crossing and downstream to the confluence of the Pajaro River, riparian vegetation is comprised of a well vegetated corridor of mature willow and cottonwood trees. The understory is comprised of blackberry and other riparian obligate species. Streambed substrates **are** comprised of relatively clean and well distributed gravels and cobbles. The riparian vegetation along the Pajaro River portion of the action area is generally comprised of mature willow and cottonwood.

Steelhead use Pescadero Creek year round. It **one** of the least impacted steelhead streams in the Pajaro River watershed. The best available data regarding steelhead use of this creek is by Smith (1982) who presented data on observed smolt-sized steelhead densities. **Smith** (1982) sampled two sites and reported densities of 5.0 smolts rearing in Pescadero Creek per ten feet of channel **length.** There is no information to suggest habitat conditions will change in the rear-future.

3. <u>Sargent Creek</u>

At the location of the proposed crossing downstream to the Pajaro River confluence, riparian vegetation is comprised of a well vegetated corridor of mature willow and cottonwood trees. The understory is comprised of elderberry and other riparian obligate species. Streambed substrates are comprised of relatively clean and well distributed gravels and cobbles. The riparian vegetation along the Pajm River portion of the action area is generally comprised of mature willow **and** cottonwood.

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The PVWMA (2003) did not discover any steelhead survey information for this creek. It **is** reported as ephemeral and therefore, unlikely to provide steelhead rearing habitat. It may provide opportunities for spawning in wet years. The trend of habitat conditions is unknown.

4. Millers Canal

At the location of the proposed crossing and 1000 feet downstream, overstory riparian vegetation generally consists of a narrow corridor (between five and ten feet wide) of willow **trees**. Vegetation is comprised of non-native grasses and weeds. Streambed substrates are comprised of fine silt.

Millers Canal is a channelized watercourse draining San Felipe Lake. Smith (2002) reported this *canal* as *dry* during most of the year but serves as the primary steelhead migration comdor into Pacheco Creek. **PVWMA** (2003) reported the lower portion of the canal, near the proposed crossing, adjacent to its confluence, may provide marginal steelheadrearing habitat. Moyle (1982) and Snyder (1913) failed to detect steelhead presence **at** sample locations in proximity to Millers Canal. Millers Canal acts as a complete **bypass** for flows from the upper Pajaro **River**. Habitat conditions for rearing are poor and **are** not anticipated to improve or worsen. Smith (2002) reported the Canal provides good fish passage when San Felipe Lake spills. Flows of approximately two to four-cubic feet **per** second are adequate for smolt passage. Migration opportunities have improved with the removal of a bridge apron at Frazer Lake Road in the late **1980's** (Smith 2002).

B. Factors Affecting Species and Habitats Within the Action Area

The action area is located in the Pajaro River watershed, a 1300 square-mile watershed, encompassing the Counties of **Santa** Clara, San Benito, Monterey, and Santa Cruz. The factors affecting steelhead and their habitat **are** broken out by the various reaches to facilitate review.

1. Paiaro River

Deterioration of stream bottom and water quality, as well as increased instream summer temperatures, due to riparian forest alteration and **removal**, is likely responsible for the loss of steelhead rearing habitat and spawning habitat on the mainstem Pajaro River, including the stream crossing action areas for the proposed crossings at Graniterock Property (Chittenden), west **of** Highway 101, and areas downstream of the Pescadero Creek and Sargent Creek confluences.

At the proposed crossing west of Highway 1, the Pajaro River **has** been impacted by flood control projects, vegetation maintenance project, channelization, and agriculture. The lower twelve miles of river were straightened and confined between levees due to a **U.S.** Army *Corps* of Engineers flood control project authorized in 1948. **This** flood control project and associated maintenance have resulted in habitat simplification, increased summer water temperatures, and a

smolt out-migration barrier at Murphy's Crossing (due to channel headcutting). An extensive riparian forest within the confines of the levee was removed following flooding of the lower Pajaro in 1995, leading to increased erosion and sedimentation problems in the lower Pajaro River. Runoff from croplands directed to aged, failing, and poorly maintained infrastructure (drainage ditches, culverts, and roads) has caused severe erosion problems throughout the lower watershed (SCCRCD 2001). Sediment **from** runoff has buried larger substrates associated with typical riffle habitats (**AMBAG** 1999) important for steelhead feeding. These conditions are expected to continue into the foreseeable future.

2. Pescadero Creek

Pescadero Creek has a drainage area of ten square miles and is one of the better creeks for steelhead in the lower Pajaro watershed. The only land use activity in this watershed is cattle grazing. Grazing impacts to this stream and the action area are unknown. AMBAG (1983) reported that Pescadero Creek is the only valley-type riparian community in the Santa Cruz County portion of the Pajaro River system which has not been artificially constricted by agriculture and other clearing. Instream macroinvertebrate sampling at eight sites in the Pajaro River (AMBAG 1999) suggests the biotic condition of Pescadero (and middle Corralitos Creek) were of considerably higher quality than the other reaches. AMBAG (1999) reported that physical habitat assessments indicated habitat quality probably contributed heavily to the relatively good biotic condition of Pescadero Creek. These general conditions are expected to occur throughout the action area in Pescadero Creek. The mouth of Pescadero Creek, like all tributaries to the Pajaro River, goes *dry* during the summer months (AMBAG 1983). The lower one mile (which includes the area of the proposed crossing) of Pescadero Creek was *dry* in 1981 (AMBAG 1983).

3. Sargent Creek

Sargent Creek is an ephemeral stream and no steelhead survey data or habitat data are **known** for this creek. The action area within Sargent Creek may provide **marginal** steelhead habitat during the wet season (PVWMA 2003).

4. Millers Canal

The head of the Pajaro River was originally wetlands associated with San Felipe Lake, a Calaveras Fault sag pond located near Highway 152 east of Gilroy in San Benito County. When the valley flooded, the lake and wetlands drained into the river. To facilitate agricultural development, Millers Canal was constructed, early in the 20th **Century**, from San Felipe Lake directly to a downstream portion of the Pajaro River near its confluence with Llagas Creek, totally bypassing the upper river (Smith 2002). The majority of the leveed canal traverses agricultural land, however the lower reaches provide marginal steelhead habitat (PVWMA 2003). Other than the lower portion (which includes the action area) the canal is devoid of riparian trees and shrubs and is *dry* in most summers (**AMBAG** 1983). The ongoing management of the

riparian zone along Millers Canal and water management at Pacheco Reservoir **has** resulted in degraded habitat conditions in the action **area**. However, **this** canal **serves** as the primary steelhead migration route into Pacheco Creek. The remnant Pajam River Channel receives only local runoff from agricultural fields and pastures, and is often dry (above the action area) during

V. EFFECTS OF THE PROPOSED ACTION

summer (Smith 2002).

A. Temporary Loss, Alteration, and Reduction of Aquatic Habitat

Streamflow diversion and workspace dewatering are expected to cause temporary loss, alteration, and reduction of aquatic habitat within the action area. The areal extent of effects will likely be limited to a total of **5,100 sq. ft.** of habitat (600 **sq.** ft. at Sargent, **1,500 sq. ft.** at Pescadero, and 3,000 **sq.** Et. at Pajaro River at Graniterock Property (Chittenden)) at the location of the proposed open trench crossings. Stream flow diversions could **harm** individual S-CCC ESU steelhead by concentrating or strandingthem in residual wetted areas (Cushman **1985**) or causing them to move to adjacent habitats (Clothier **1953**, Clothier **1954**, **Kraft 1972**, Campbell and Scott **1984**).

Dewatering the workspace may cause harm, injury, and mortality to S-CCC **ESU** steelhead by temporarily confining them to areas predisposed to dewatering or desiccation, increased **water** temperature, decreased dissolved oxygen concentration, and predation (Cushman **1985).** NOAA Fisheries anticipates juvenile steelhead will be captured and a subset will be harmed because of the proposed action. The specific effects of the proposed action on juvenile S-CCC **ESU** steelhead are uncertain and depend, in part, on the number of individuals present within the individual action areas. S-CCC **ESU** steelhead will be moved **from** workspaces. Direct effects **vill** be largely confined to activities associated with physically installing and removing the diversion due to capture and relocation activities.

1. Paiaro River near Graniterock Property (Chittenden)

The majority of the lower Pajaro River serves **as** a migratory comdor **(HRG 1997,** Titus et *al.* **2002)** for adult steelhead returning to spawn in the river system, and for steelhead smolts emigrating to the ocean. NOAA Fisheries anticipates the likelihood of steelhead presence in the area of the proposed crossing **as** low, but nonetheless conceivable. If undetected fish are present during dewatering, **all** of the steelhead juveniles within the project sites at Pajaro River **near** Graniterock Property (Chittenden; estimated **as** 3,000 **sq.** ft. of river bed) will be **injured** or **killed**.

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2. Pescadero Creek and Sargent Creek

S-CCC ESU steelhead trout are assumed to be present at both proposed crossings. Individual level of take is quantified below in *Fish Relocation*. NOAA Fisheries expects that all juvenile steelhead located within these work areas will be captured and relocated. Therefore, no additional direct impact to individual steelhead is expected.

B. Loss of Aquatic Macroinvertebrates

The benthic (bottom dwelling) aquatic macroinvertebrate assemblage of most waterways comprises numerous species. Aquatic macroinvertebrates provide a source of food for stream fish populations and may represent a substantial portion of food items consumed by juvenile steelhead at various times of year. Some species of macroinvertebrates **are** found in swift-water habitats such as **runs** and riffles. **Riffles are** an important salmonid food-producing habitat in streams. Any activity that affects instream habitats could be expected to affect these food resources.

Benthic aquatic macroinvertebrates may be temporarily lost or their abundance reduced when individual organisms are stranded **or** when creek habitats are dewatered **(Cushman1985)** due **to** streamflow diversion or workspace or equipment access site dewatering in the action areas. Effects to aquatic macroinvertebrates resulting **from** streamflow diversions and dewatering will be temporary because construction activities will be relatively short-lived, and rapid recolonization (about one to two months) of disturbed areas by macroinvertebrates (Cushman **1985**, **Thomas 1985**, **Thomas 1986**) is expected following rewatering.

Due to the silty nature of the streambeds within the construction footprints, macroinvertebrate production in the **areas** scheduled for dewatering is likely lower than sites with **pool/riffle** features where more cobbles and gravels are present. In addition, the effect of macroinvertebrate loss on juvenile steelhead is likely to be negligible because food from upstream sources (via drift) would be available downstream of the dewatered areas **through** the creek diversion devices; and the small area of dewatering is expected to be recolonized by aquatic invertebrates relatively quickly following rewatering. Further, due to the **high** likelihood the proposed pipeline crossings on Pescadero Creek and Sargent Creek will be *dry* during the construction period, adverse impacts are unlikely. Based on the foregoing, the value of the resource is not expected to be diminished by dewatering impacts to the extent that **this** reduction will have a detectable effect to steelhead.

For the sites where underground trenching will be used, a bentonite² spill may embed instream substrates to the extent that aquatic macroinvertebrate production in the area would be reduced or precluded for several months until flows increase enough to flush the sediment out of the **area**.

²Bentonite is a fine sediment mixture used as a lubricant on drilling devices.

Depending on the volume and extent of the bentonite spill, this decrease in localized production would reduce juvenile steelhead feeding success and subsequent growth rates.

1. Millers Crossing: Paiaro River West of Highway 1: Paiaro River West of Hiehway 101

While underground pipeline construction avoids the potential impacts associated with open trench construction, steelhead and their habitat may nevertheless, be impacted by potential releases of bentonite, into the water course. NOAA Fisheries anticipates the likelihood of steelhead presence in the area of the three proposed underground crossings as low. However, if an accidental **spill** of bentonite occurs, it is anticipated that up to **1,000** feet of habitat may be embedded for each location for a total of 3,000 feet. NOAA Fisheries anticipates no more than one spill of bentonite will occur for each location, and the likelihood of a spill occurring at all is . low. All juvenile steelhead migrating through and rearing within those **areas** affected by any possible spill are expected to have lowered feeding rates and increased energy expenditures **as** they search for other instream food **sources**.

C. Loss of Riparian Habitat

Riparian areas **are** an essential feature steelhead habitat. The **functional** values of riparian corridors and the benefits they provide to aquatic systems overall and *stream* fish populations in particular are well documented (Hall and Lantz 1969, Karr and Schlosser 1978, Lowrance *et al.* 1985, Wesche *et al.* 1987, Gregory *et al.* 1991, Platts 1991, Welsch 1991, Castelle *et al.* 1994, Lowrance *et al.* 1995, Wang *et al.* 1997). Loss of riparian vegetation might increase solar radiation and fine sediment input into the **creeks**, reduce insect drop, and decrease wood debris input to the creeks. The overall detectable effect of riparian removal and alteration on steelhead could be significant with the anticipated loss of 35,400 sq. ft. of riparian habitat. Most of this loss will occur at the Pajam River at Graniterock Property (Chittenden) crossing due to access road construction.

However, effects from increased sediment input are expected to be minimal due to extensive erosion control measures designated for the action area including planting of riparian vegetation and installation of erosion control devices at all locations where the likelihood **of** sediment input exists. Effects due to loss of wood recruitment will likely be minimal due to the current **paucity** of vegetation capable of supplying wood **of** sufficient size to supply channel forming features such as pools *and/or* provide persistant **instream** cover. The potential for insect drop will **likely** be reduced in the short **term**, however, due to the relatively small **area** affected directly adjacent to the stream crossings, this impact is expected to be negligible. The potential effect of increased solar radiation **is** expected to be negligible due to the flat topography of the action areas and the relatively small amount of vegetation that will be removed directly adjacent to the crossings. **The** applicant will replace vegetation affected by the proposed action with fast-growing native vegetation using liner seedlings. Thus, the value of this habitat is not expected to be diminished to the extent that the reduction will have a long-term negative effect to steelhead.

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D. Chemical Spills

Equipment refueling, fluid leakage, and maintenance activities within the *dry* stream channel pose some risk of contamination and potential take. Double containment of fuel and oil reservoirs provide increased protection to the aquatic environment from the risk of accidental spills. However, industry estimates indicate that **75** to **85** percent of all hydraulic fluids eventually leave their systems **through** slow leaks, catastrophic breaks, or **failures** of fittings and seals (Midwest Research Institute 1979, Foszcz 1996). Many commonly used hydraulic fluids contain organophosphate ester additives toxic to anadromous salmonids. Acute lethal and sublethal effects are documented in several salmonid species (USGS 2001, Moore and Waring **1996,** Sholtz *et al.* 2000) which **are** particularly sensitive (vs. warmwater fish) **to** organophosphates due to differential metabolic and detoxification mechanisms (Mayer *et al.* 1976).

Accidental failure of a hydraulic fluid hose from mechanized equipment may likely result in direct adverse effects to steelhead downstream of the dewatered portion of the **stream**. As hydraulic fluid hoses are pressurized and have no secondary containment features, it is conceivable a broken hose could squirt its contents into the wetted **stream** areas. **Minimization** measures included in the project **proposal** address a substantial portion **of** this risk, however, some adverse affects **are** still possible due to accidents.

1. Pescadero and Sargent Creek Stream Crossings

NOAA Fisheries anticipates steelhead will be present downstream of the proposed crossings on Pescadero and Sargent Creeks. Harm or death may occur to steelhead downstream of the proposed crossing, should an accidental hydraulic fluid spill occur. If a hydraulic fluid hose breaks, NOAA Fisheries anticipates that all juvenile steelhead in the affected **areas** could be killed or suffer other physiological harm that could reduce growth and future reproductive and survival rates. If an accidental spill of hydraulic fluid occurs, it is anticipated that up to 1,000 feet of habitat below each crossing may be contaminated by levels of fluid concentrated enough to cause lethal and sublethal responses in affected steelhead. NOAA Fisheries anticipates no more than one spill of hydraulic fluid will happen for each location and the likelihood of a spill is low.

2. Paiaro River at Graniterock Property (Chittenden)

If an accidental spill of hydraulic fluid occurs, NOAA Fisheries anticipates *that* up to 1,000 feet of habitat below each crossing may be contaminated by levels of fluid concentrated enough to cause lethal and sublethal responses in affected steelhead. NOAA Fisheries anticipates no more than one spill of hydraulic fluid will happen for each location and the likelihood of a spill is low. NOAA Fisheries does not expect steelhead to be present within the areas downstream of this project site during the construction phase, although based on habitat and flow conditions, a few

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juvenile steelhead may be present. As a result, individual **fish** affected by a spill may be killed or seriously injured, however there are likely to be few fish so affected.

E. Sedimentation

Increased sedimentation rates could result if fme sediment is contributed to the creeks, or mobilized, during the proposed action. **This**, in turn, could affect water quality and the channel bed. Specific sedimentation rates would depend on the duration, volume, and frequency sediment is contributed to the creeks. Substantial sedimentation rates could bury less mobile organisms (Ellis 1936, Cordone and Kelley 1961) that *serve* as a food source for many **fish** species, degrade **instream** habitat conditions (Cordone and Kelly 1961, Eaglin and Hubert 1993), infiltrate redds resulting in progressively lower egg survival (Tappel and Bjornn 1983, McNeil and Ahnell 1964, Reiser and White 1988, Tagart 1984), and cause reductions in fish abundance (Alexander and Hansen 1986, Berkman and Rabeni 1987) and growth (Crouse *et al.* 1991).

The extent steelhead are harmed by sedimentation depends partially on the extent that postproject action substrate conditions differ from pre-project action conditions. Although specific sedimentation rates have not been estimated, they are expected to be low and temporary because the project proponent proposes to isolate the workspace from **flowing** water, install erosion control devices (sediment curtains) and implement sediment control measures at the time of the proposed action and throughout the winter period, and limit the in-channel work window. Beyond the effects to steelhead resulting from **loss** of macroinvertebrate production discussed above, no further adverse effects to individual steelhead are expected fkom project sediment impacts.

F. Turbidity

Turbidity refers to the amount of light scattered or absorbed by a fluid. Turbidity due to suspended particulate matter (sediment) is likely low in the creeks **throughout** most of a given year. Suspended sediment produces little or **no** direct mortality on adult fish **at** levels observed in natural, relatively unpolluted streams (Waters 1995). High concentrations of suspended sediment can result in direct mortality (Lloyd 1987, Sigler *et al.* 1984, McLeay *et al.* 1983) or deleterious **sublethal** effects to fish (Bisson and Bilby 1982, Cleary 1956, Reynolds *et al.* 1989, **Febret** and Merken 1961, Newcomb and Flagg 1983).

Elevated levels of **turbidity** may result when fine sediment is contributed to the creek, **or** mobilized, during the proposed action. This could result in increased gill abrasion and decreased feeding activity. The duration and concentration of the turbidity would depend **partially** on the length of time required to construct the proposed action, and the volume and rate that sediment **is** contributed to the creek, or mobilized, during construction activities.

The effect of any elevated turbidity level on juvenile salmonids is difficult to evaluate, because the amount of sediment contributed and the resulting turbidity level is speculative. An increase

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is likely to be temporary and minor because Reclamation proposes to isolate the workspace from flowing water, to install erosion control devices at the time of the proposed action, have monitors in place for open trench and trenchless crossings, and to detain sediment laden water on-site. Nevertheless, NOAA Fisheries anticipates that turbidity levels may increase, albeit briefly, over background levels due to the nature of the proposed action, rewatering of areas dewatered for construction, or accidental releases of bentonite for trenchless construction activities. Increased turbidity could further degrade already degraded habitat conditions at Millers Crossing, Pajaro River west of Highway 1, Pajaro River West of Highway 101, and Pajaro River at Graniterock Property (Chittenden). All juvenile steelhead within the affected **areas** may be injured by gill abrasion or harmed when turbid conditions reduce their feeding success and lower **growth** rates.

1. Millers Crossing: Paiaro River West of Highway 1: Paiaro River West of Highway 101

While underground pipeline construction avoids the potential impacts associated with open trench construction, steelhead and **their** habitat may **nevertheless**, be impacted by accidental releases of bentonite into the water course. NOAA Fisheries anticipates the likelihood of steelhead presence in the area of the three proposed underground crossings **as** low. However, if an accidental spill of bentonite occurs, **it** is anticipated that up to 1,000 feet of habitat may be embedded for each location for a total of 3,000 feet. NOAA Fisheries anticipates **no** more than one spill of bentonite **vil** occur for each location, and the likelihood of a spill occurring at all is low. **All** juvenile steelhead migrating **through** and rearing within those areas affected by any possible spill are expected to experience **gill** abrasion dependent upon the amount of bentonite spilled and have lowered feeding rates and increased energy expenditures as they search for other instream food sources.

2. Paiaro River at Graniterock Property (Chittenden)

Turbidity levels may increase at this crossing due to the nature of the proposed action and rewatering of areas dewatered for construction. Turbidity levels **high** enough to cause gill abrasion **ar** reduce feeding success may occur up to 1,000 feet of habitat downstream of the proposed crossing. If turbidity levels do increase when the site is rewatered, all juvenile steelhead within this area are expected to be **injured** or harmed by the increase in turbidity. Based **on** habitat conditions and the timing of construction, NOAA Fisheries anticipates the likelihood of steelhead presence **in** the **area** of **this** crossing as low.

3. Sargent Creek and Pescadero Creek

Turbidity levels may increase at this crossing due to the nature of the proposed action and rewatering of areas dewatered for construction. NOAA Fisheries anticipates steelhead presence downstream of these proposed crossing for both creeks down to their confluence With the Pajaro River. Turbidity levels high enough to cause gill abrasion or reduce feeding success could occur up to 1,000 feet of habitat downstream of each proposed crossing for a total distance of 2,000 feet. However, the number of S-CCC **ESU** steelhead that may be injured or harmed in these

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action areas is likely minimal due to the minimization and avoidance measures Reclamation has proposed to implement which should keep turbidity level increases low.

G. Fish Relocation

Any fish collection gear, whether passive (Hubert 1983) or active (Hayes 1983) has some associated risk to the fish, including stress, disease transmission, injury, **c** death. Electrofishing can kill both juvenile and adult fish (Reynolds 1983, Zeigenfuss 1995, Habera *et al.* 1999, Nordwall 1999). The amount of unintentional mortality attributable to electroshocking may vary widely depending on the equipment used, the settings on the equipment, ambient conditions, and the expertise and experience of the personnel. The effects to fish from electroshocking can be severe, and may include death, spinal injuries, burns, hemorrhaging, and physiological **stress** Sharber and Carothers (1988) reported that electroshocking caused a 50-percent mortality level in adult rainbow **trout**. Habera *et al.* (1996) reported overall mortality rates *cf* 20 percent for rainbow trout less than 100mm in length and six percent for those more **than** 100mm using a three-pass depletion method. Habera *et al.* (1996) also reported an overall injury rate of six percent. Long-term effects of electroshocking on both juveniles and adult salmonids are not well understood; although chronic effects may occur, it is assumed that most impacts from electroshocking occur at the time of sampling.

Thus, the possibility of harm and mortality to steelhead smolts captured and moved **through** relocation activities does exist. With implementation of protocols used in capturing **fish** for relocation, unintentional mortality of listed juvenile steelhead expected from capture and handling procedures **is** not likely to exceed three percent (according to a **NOAA** Fisheries Southwest Region review of ESA section 10 permit salmonid mortality rates) of the fish handled, and may be reduced to approximately one percent with increased *skill* and experience of the fish relocation personnel.

The applicant proposes to relocate fish from the areas to be dewatered by stunning them with backpack electroshockers, netting them, placing the fish in buckets, and moving them to adjacent suitable habitats. NOAA Fisheries anticipates that approximately 300juvenile steelhead could be relocated **as a** result **of this** proposed action. Assuming a worse case **scenario of** three percent mortality from electrofishing, nine of the 300 steelhead may be killed.

1. Pescadero Creek

The best available **data** regarding steelhead use of Pescadero Creek is presented in Smith (1982). Two sites in the upper watershed, located at channel miles 4.7 and 6.4, were surveyed during **the** fall of 1981. Unfortunately, the report only presents data on observed smolt densities. Both **sites** contained 5.0 smolts per ten feet of channel length. Assuming a conservative juvenile-to-smolt rate **of** ten percent NOAA Fisheries estimates that the surveyed reaches of Pescadero **Creek** would support approximately 50 juvenile steelhead per 10 feet of channel. Based on **Smith's**

(1982) estimates, a total of 150 steelhead (50 fish per 10 feet of channel length by 30 LF of dewatering and subsequent construction) are expected to occur Within the construction corridor.

The proposed location of the pipeline crossing is located immediately north of the Union Pacific Railroad tracks, 400 feet upstream of the creek's confluence with the Pajaro River. In the absence of survey data **from** this stream location, NOAA Fisheries assumes juvenile densities are the same at those observed by Smith (1982). This presents a conservative estimate considering habitat conditions at the proposed crossing site are less favorable than *in*the upper watershed. Furthermore, Pescadero Creek is known to *dry* out in the vicinity of the proposed construction area during all but the wettest years. NOAA Fisheries reasons that estimating take based on the above conservative estimates of incidental take from **this** project **is** prudent because it allows **an** analysis of a "worse case **scenario**" of potential adverse affects to S-CCC ESU steelhead. **NOAA** Fisheries expects that all S-CCC ESU present in the area proposed for dewatering will be captured and removed.

2. Sargent Creek

The proposed pipeline crossing for this drainage is located approximately one mile east of the proposed Pescadero Creek crossing. No steelhead survey data appears to be available for this creek. Although this is an ephemeral stream and is even more likely to be dry during the proposed construction period than Pescadero Creek, it may provide marginal steelhead spawning habitat during the winter and early spring. Therefore, under the conservative assumption if the channel should remain wetted during the **summer** and fall, it would support the same juvenile steelhead densities of 50 fish per ten feet of channel length as Pescadero Creek. Based on Smith's (1982) estimates, a total of 150 steelhead (50 **fish** per 10 feet of channel **length** by 30 LF of dewatering and subsequent construction) are expected to occur within the construction comdor. NOAA Fisheries reasons that estimating take based on the above conservative estimates of incidental take from this project is prudent because it allows **an** analysis of a "worse case scenario" of potential adverse affects to S-CCC ESU steelhead. **NOAA** Fisheries expects that all S-CCC ESU present **in** the area proposed for dewatering **vill** be captured and removed.

H. Effects of Pipeline Operation

Delivery of CVP water will alleviate problems associated with groundwater overdraft and subsequent seawater intrusion into the groundwater aquifer stemming from agricultural pumping in the lower Pajaro Valley. Irrigated agricultural land constitutes 30,200 acres of the 79,600-acre service **area** and the PVWMA **has** no plans to extend service beyond areas currently irrigated.

The availability of a reliable water supply is anticipated to provide a positive incentive to **maintaining** long-term agriculture in the P a j m Valley and **may** increase surface water elevations in fish bearing streams due to a reduction in groundwater pumping. However, it is conceivable additional water may facilitate conversion of native lands to agriculture. However, **assessing** these effects is speculative as the Pajaro Valley has been almost completely developed for

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agriculture already. A reliable water supply may also facilitate the rate of conversion of agricultural land to urban/suburban uses. Again, this impact is speculative as the stated goal of the project is to maintain agricultural lands for agriculture rather **than** for future urban development. No information is presently available to assess the likelihood of agriculture to urban conversion.

Water from Reclamation will come from existing Central Valley Project (CVP) water assignments. No new CVP diversions from the Delta or from Reclamation's other points of diversion have been authorized by the State of California Water Resources Control Board (SWRCB) for this project. The SWRCB authorization of Reclamation's CVP Place of Use made this a condition of Reclamation's water rights permit. The PVWMA has purchased a contract assignment from the Mercy Springs Water District for **6,260** AF and will be seeking to purchase other assignment from other sources (the stated goal of PVWMA is **13,400** AF). As these contracts **are** not yet complete, any attempt to assess interrelated and interdependent effects to listed salmonids is speculative. Some water from the Mercy Springs Water District is currently being used by the County of San Benito and the County of Santa Clara, however some of the water may not be used currently. The effects of **this** water use to listed species from its point of origin is unknown, however, according to consultants to PVWMA, **reduced** flows to Central Valley streams were not identified as an impact fiom the Mercy Springs contract assignment, while increased use of groundwater was. Impacts to listed salmonids from increased groundwater use is unknown.

In the Pajaro Valley, the long-term effect of the proposed project would be an increase in groundwater elevations of five feet in the Pinto Lake area and 15 feet in the Pajaro Lagoon area. Modeling of changes to groundwater resulting from water importation has suggested streamflows into the Pajaro Lagoon will increase, on a long-term average basis, by six cubic feet per second (PVWMA 2003). Surface water diversions, and the associated reductions of streamflows, have long been understood to adversely affect the natural function of lagoon systems (Smith 1987, Moyle 2002). Thus, the proposed project may have an overall beneficial impact on the natural hydrology and ecosystem of the Pajaro Lagoon by increasing freshwater input.

While the project provides water only to agricultural uses, the PVWMA has accounted for projected future (2040) urban water demands in order to plan long-term groundwater basin management. The PVWMA has advocated that not implementing the proposed project could result in urban growth (PVWMA 2003). Continued pumping under current groundwater pumping practices, absent a supplemental water supply, would worsen seawater intrusion conditions and thus, preclude cultivation throughout an increasingly larger area within the Pajaro Valley. Under these circumstances it is likely pumping restrictions would be imposed throughout the lower Pajaro River basin. To stop seawater intrusion, water for agriculture would be reduced by 80 percent while urban supplies would remain at current levels. A subsequent decline in property values would likely create pressure for conversion of fallowed farmland to urban or other uses that require less water than agriculture. NOAA Fisheries expects maintenance of agriculture in the Pajaro Valley at current levels will not create additional

adverse effects nor additional beneficial effects to S-CCC ESU steelhead beyond current conditions described in the *Status & the Species* and *Environmental Baseline*.

v. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in **this** biological opinion. Future Federal actions unrelated to the proposed action are not considered in this section because **they** require separate consultation pursuant to section **7** of the **ESA**.

Both Santa Clara and San Benito Counties reported no major development projects are occurring in the upper Pajaro River watershed (PVWMA 2003). The City of Gilroy reported a large residential developmentknown as the **Clen** Loma Ranch development has been proposed. **This** development project would be located on approximately **392** acres southwest of the City of Gilroy. **This** project will likely involve a number of adverse effects to steelhead including; new sources of sedimentation, depletion of ground water resources, and increased run-off from nonpermeable surfaces. Increased run-off and sedimentation could further degrade instream habitat on the action areas in the mainstem Pajaro River.

VI. INTEGRATION AND SYNTHESIS OF EFFECTS

The construction of the pipeline to deliver CVP water into the lower Pajaro Valley will capture, harm, injure, and kill juvenile S-CCC ESU steelhead. Steelhead present in areas to be dewatered will be captured and relocated, and a small percentage may die or be injured as *a* result. All of these fish would be killed if *they* remained within areas to be dewatered, however. Steelhead present in the action area may be disturbed, displaced, injured, or killed by project activities. NOAA Fisheries expects that all S-CCCESU present in the areas proposed for dewatering will. be captured and removed, except those fish on the Pajm River mainstem that are undetected within the area to be dewatered. Up to 1000 feet of habitat below the trenchless crossings on Millers Canal, Pajaro River west of Highway 1, and Pajaro River west of Highway 101 may have increased turbidity and sedimentation levels if an accidental release of bentonite occurs, for a total of 3,000 feet. Up to 1000 feet of habitat below each of the crossings at Pajaro River at Graniterock Property (Chittenden), Pescadero, and Sargent Creeks may have increased turbidity levels from construction activities and rewatering of the crossing location, or become contaminated by **high** levels of hydraulic fluid if an accidental spill occurs, for a total of 3,000 feet. As a result of these sediment and contaminant impacts, steelhead within these areas will be killed or injured. In addition, NOAA Fisheries estimates that a total of 5,100 sq. ft. or river and streambed will be impacted due to temporary loss on instream habitat from open trench pipe. construction

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The proposed project minimization and conservation measures avoid and minimize short-term risks to steelhead. Additionally, the **use** of trenchless construction techniques for some of the stream crossings significantly minimizes adverse effects to steelhead and their habitat.

Mest of the open trench pipeline construction activities will occur when the smaller creeks are *dry* or, on the mainstem Pajaro River (Chittenden Pass), when steelhead **are** not likely to be present. However, if the Sargent Creek and Pescadero Creek crossings are not *dry* during the time of construction, capture and relocation efforts will be necessary to minimize the possible adverse effects of work within the wetted channel.

The mainstem Pajaro River currently does not appear to provide juvenile rearing habitats during the summer and fall, primarily due to **high** water temperatures, sandy substrates, and limited food supplies. **Surveys** conducted over the past decades (Smith 1982) have failed to detect juvenile presence in the mainstem. However, the survey effort has been inconsistent (Titus *et al.* 1999) and no recent *survey* information is available. NOAA Fisheries believes that a small number of juvenile steelhead may be present in the action **areas** on the mainstem Pajaro and Millers Canal. Fish exposed to elevated turbidity levels, sedimentation, or accidental bentonite spills **are** expected to experience gill abrasion, reduced feeding success, and possibly death depending on the amount and duration of the impacts.

Long-term effects **from** this project **to** steelhead may be beneficial due to potential increases in surface flows and potential reduction in urban development pressure in the lower Pajaro River. At worse, long-term impacts associated with **this** project are anticipated to neither improve nor further degrade conditions for steelhead in the action **area**.

Temporary impacts will be localized and sufficient contingency measures are **proposed** to minimize adverse impacts. At the Sargent and Pescadero Creek crossings, impacts to the sub-population will be minimal and temporary, because the action occurs one time at each site and juvenile steelhead **vvill** be relocated with minimal associated death and **injury.** Impacts to the sub-population due to adverse habitat modification are expected to be low due to the low likelihood steelhead will be present at the mainstem Pajaro River crossings or Millers Canal during construction.

Steelhead reproductive strategy results in thousands of fertilized eggs **per** adult per year and, in both natural and degraded settings (i.e., the Pajaro River), most **eggs** do not survive to become adults. Given the naturally low survival chances per individual, the small amount of expected mortality during project construction is unlikely to have a detectable *effect* on population abundance or viability. The effects of the project are not expected to appreciably reduce the number, distribution, or reproduction of the Pajaro River sub-population of steelhead. **This** conclusion is based, in large part, on the conservation and minimization measures proposed by the PVWMA to reduce impacts **from** construction to S-CCCESU steelhead. Most project-related impacts will be of limited scope and duration, and therefore are not expected to have long term effects on the **survival** of the species within the action area or at the ESU level.

VII. CONCLUSION

After reviewing the best available scientific and commercial information, the current status of S-CCC **ESU** steelhead, the environmental baseline for the action **area**, the effects of the proposed projects and the cumulative effects, it is NOAA Fisheries' biological opinion that the proposed project is not likely to jeopardize the continued existence of S-CCC ESU steelhead.

VIII. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act 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** NOAA Fisheries **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 Act 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 Reclamation for the exemption in section 7(0)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (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(0)(2) may lapse. In order to monitor the impact of incidental take, Reclamation must report the progress of the actions and its impact on the species to NOAA Fisheries as specified in the incidental take statement. (50 CFR §402.14(I)(3)).

A. Amount or Extent of Take

NOAA Fisheries anticipates that juvenile steelhead will be captured, harmed, wounded and **killed** as a result **of** the proposed action. All capture of juvenile steelhead for relocation purposes is exempted. NOAA Fisheries estimates that approximately **300** juvenile steelhead are likely to be captured and relocated as a result of this proposed project **Three** percent of these captured fish are anticipated to be killed. Thus, NOAA Fisheries estimates that nine of the 300 juvenile steelhead would be killed **æ** aresult of relocation activities at the Sargent Creek and Pescadero Creek crossings. As no relocation efforts will be conducted at the Pajaro River crossing at

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Graniterock due to the expected absence of steelhead juveniles in **this** area during the construction period, all undetected steelhead juveniles at this site will be killed by dewatering.

In addition, juvenile steelhead are likely to be harmed and killed downstream of some of the project sites by increases in sediment and turbidity and accidental releases of bentonite or hydraulic fluid. The number of S-CCC ESU steelhead that may be incidentally taken at Pajaro River near Graniterock Property (Chittenden), Pajaro River West of Highway 1, Pajaro River West of Highway 101, and Millers Canal during project activities has been determined to be minimal, but cannot be accurately quantified due to (1) the unknown level of harm or mortality that might occur when juvenile fish are displaced to other habitat areas of the stream; (2) the uncertainty of steelhead presence in the action areas; and (3) the unknown level of harassment, harm, or mortality resulting from rewatering of the construction areas, accidental releases of bentonite, and/or accidental releases of hydraulic fluid. In instances where NOAA Fisheries can not quautify the amount of incidental take, surrogates such as the extent of habitat affected or modified by the proposed action are used. Impacts to steelhead at these locations were analyzed in the *Effects of the Proposed Action* using habitat as a surrogate.

1. Paiaro River near Graniterock Property (Chittenden)

A total of 1,000LF of instream habitat downstream of the proposed crossing due to turbidity from construction and accidental chemical spills. A total of 3,000 sq.ft. of riverbed due to temporary loss of habitat resulting from open trench pipeline construction.

2. Pescadero

A total of 150 steelhead are expected to be captured and relocated within the construction corridor. A total of 1,000 LF of instream habitat downstream of the proposed crossing due to turbidity from construction and accidental chemical spills.

3. Sargent Creek

A total of 150 steelhead **are** expected to be captured and relocated within the construction corridor. A total of 1,000 LF of instream habitat downstream of the proposed crossing due to turbidity from construction and accidental chemical spills.

4. Millers Crossing: Paiaro River West of Highway 1: Paiaro River West of Highway 101

NOAA Fisheries anticipates the likelihood of steelhead presence in the area of three proposed crossings **as** low, but nonetheless possible due to the presence of useable habitat. A total **of** 1000 LF of instream habitat downstream of the proposed crossings for each site, due to turbidity, accidental chemical spills, and sedimentation, for a total distance of **3000** LF.

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B. Effect of the Take

Within this biological opinion, NOAA Fisheries determined this level of anticipated take is not likely to result injeopardy to the species.

This incidental take statement is based on full implementation of the proposed pipeline construction project **as** described in the Description of the Proposed Action section of this biological opinion, including impact minimization and conservation measures incorporated into the project design. Failure to implement the project **as** proposed (including relevant conservation measures) or implementation of the project in a manner that causes **an** effect to listed species not adequately considered in this opinion may cause coverage of section 7(o)(2) to lapse and require reinitiation of consultation to ensure compliance with section 7(a)(2) of the ESA.

C. Reasonable and Prudent Measures

Pursuant to section 7(b)(4) of the ESA, the following reasonable and prudent measures are necessary and appropriate to minimize take of S-CCC **ESU** steelhead

- 1. Impacts to salmonids will be minimized during and after pipeline construction.
- 2. Implementation of proper procedures for the capture, handling, transport, and placement of juvenile salmonids will be used during fish relocation efforts.
- **3.** The project site will be monitored during construction to prevent adverse effects to listed **salmonids**. Project documentation will be forwarded to NOAA Fisheries.
- 4. A spill prevention plan will be in place prior to construction.

D. Terms and **Conditions**

In order to be exempt from the take prohibitions **of** the **ESA**, Reclamation and the **PVWMA** must comply With the following **Terms** and Conditions, which implement the Reasonable and Prudent Measures described above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following **Terms** and Conditions implement Reasonable and Prudent Measure No. 1.

1. Additional (to those described in the project description) erosion control measures and sediment detention devices shall **be** implemented at the time of construction. These devices shall be implace during and after construction activities for the purposes **of** minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. The devices shall be properly installed at **all** locations where the likelihood of sediment input **exists**.

The following procedures shall apply for erosion control measures associated with open trench pipeline construction, road construction in riparian areas, and riparian vegetation removal.

- a. Revegetate all soil exposed as a result of the proposed action before I November of each construction year.
- b. **Possess** 125 percent **of** the necessary erosion control material on site at all times during construction for all erosion and water pollution control needs.
- c. Inspect and repair/maintain all erosion control practices prior to and after any rainfall event exceeding ¹/₂ inch, at 24-how: intervals during extended storm events, and a minimum of every two weeks the first winter following completion.
- d. During the winter period (defined **as** October 15 through May 15), all inactive areas (defined **as** no construction for **a** five-day period) shall have all the necessary soil stabilization practices put in place two days after identification of inactivity or before a rain event, whichever comes first.
- e. Remove all artificial erosion control devices after the project area has fully stabilized.
- f. If the thalweg of the **stream has** been altered due to construction activities, efforts will be undertaken to reestablish it to its original configuration.

The following Terms and Condition implement Reasonable and Prudent Measure No. 2.

1. The biological monitor shall capture and relocate listed salmonids prior to construction of the streamflow diversion. The biological monitor *shall* note the number of salmonids observed in the affected area, the number and species of salmonids relocated, and the date **and** time of collection and relocation.

The following procedures shall be followed for relocating fish

- a Notify NOAA Fisheries one week prior to capture **and** relocation of salmonids to provide NOAA Fisheries an **opportunity** to attend (call Jonathan Ambrose at 707-575-6091 or via email at **jonathan.ambrose@noaa.gov).**
- b. Block nets shall be placed at the upper and lower extent of the areas to be electrofished. Block net mesh will be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering between

passes with the electrofisher. Block nets will extend across the entire wetted channel.

- c. Block nets will not be removed **util** successful construction of the coffer dams and pipeline installations are complete.
- d. The backpack electrofisher will be set **as** follows when capturing fish.

A) Voltage: 100V (IN) - 300V (MX) B) Duration: 500s (IN) - 5ms (MX) C) Frequency: 30 Hz (IN) - 70 Hz (MX)

- e. A minimum of three **passes** with the electrofisher will be utilized to ensure maximum capture probability of steelhead within the area proposed for dewatering.
- **f.** No electrofishing shall occur if water conductivity is greater than 350 s/cm or when instream water temperatures exceed 18° Celsius. Only direct current (DC) shall be used.
- **g.** *All* captured fish will **be** processed and released prior to each subsequent pass with the electrofisher in the area to be dewatered.
- **h.** All captured fish will be allowed to recover from electrofishingbefore being returned to the stream.
- Captured fish shall be kept in cool, shaded, aerated water protected from noise or jostling any time they are not in the stream. Fish shall not be removed from this wafer except for (1) collection of genetic material and (2) upon release.
- **j.** A minimum of one assistant will aid the biological monitor during electrofishing (and dewatering) by netting stunned fish and other aquatic vertebrates.
- k. Fish shall not be overcrowded into buckets; allowing approximately **six** cubic inches per 0+ individual and more for larger/older fish.
- 1. Make every effort not to **mix** 0+ with larger steelhead, or other potential predators, that may consume the smaller **salmonids**.
- m. All non-salmonid aquatic vertebrates will be collected and relocated during electrofishing activities. Sculpins (*Cottus sp.*) and Pacific-giant

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salamanders (*Dicamptodon ensatus*) should not be relocated so as to concentrate them in one area. Particular emphasis shall be placed on avoiding the steelhead trout relocation pools. To minimize predation on salmonids these species should be distributed throughout the wetted portion of the stream.

- n. All steelhead shall be relocated upstream of the pipeline construction project and placed in suitable habitat. Captured fish will be placed into a pool, preferably with a depth of greater *than* two feet with available instream cover.
- 2. All steelhead in areas proposed for dewatering may be captured and relocated. If nine or more listed salmonids (>three percent mortality) are found dead or injured as a result of relocation activities, the project permitee shall contact NOAA Fisheries' biologist Jonathan Ambrose by phone ((707)-575-6091) immediately. If Mr. Ambrose cannot be reached, the Santa Rosa NOAA Fisheries Office will be contacted 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 Federally listed species mortalities must be retained, placed in an appropriately sized whirl-pak or zip-lock bag, labeled with the date and time of collection, fork length, location of capture, and frozen as soon as possible. Frozen samples must be retained until specific instructions are provided by NOAA Fisheries.
- 3. The biological monitor will possess a valid State of California Scientific Collection Permit as issued by **the** California Department of Fish and Game.
- 4. Although not expected to occur in the project area, any coho salmon collected will be photographed and immediately, upon collection of genetic material (per collection protocols outlined in **#5** below), placed upstream of the dewatered area **in** pool habitat. Photographs will emphasize documenting physical attributes unique to this species including dorsal fins, parr marks, eyes, and anal **fin.** *All* photographs will include references for scale to allow accurate estimation of each individuals length. The biological monitor will **inform Mr.** Jonathan Ambrose of the NOAA Fisheries ((707) 575-6091) at the earliest possible opportunity. **Reclamation will be required to reinitiate consultation.**
- 5. For all salmonids captured, genetic tissue shall be collected according to the following methods:
 - a. Live fish: Cut a three millimeter (mm) square clip from tail fin using clean scissors and place the clip in a piece of *dry* blotter/filter paper (e.g.,

Whatman brand). Fold blotter paper over for temporary storage. Samples must be air-dried as soon as possible (don't wait more than eight hours). Air-drying inside takes about 24 hours; air-drying in the sun is much quicker. When tissue/paper is dry to the touch, place both into a clean envelope labeled with Sample ID Number. Seal envelope.

- b. Live fish (alternate method): Cut a 3 mm square clip **from** tail **fin** using clean scissors and store the clip in a small (e.g., 2 ml) vial filled with pure ethanol. Sample must be fully immersed in ethanol. Ethanol dissolves all irks, so make sure vials are well sealed and outside is dry. Label with Sample ID Number.
- Carcasses: Either a 1 cm square clip from the operculum or tail fin, or C. alternately, complete scales (20-30) should be removed and placed on a piece of dry blotter/filter paper (e.g., Whatman brand). Fold blotter paper over for temporary storage. Samples must be air-dried as soon as possible (don't wait more than eighthours). When tissue/paper is dry to the touch, place into a clean envelope labeled with Sample ID Number. Seal envelope.

Additional guidelines:

d.

Never cut adipose fin.

Each sample must be stored in a separate tube or envelope. Each sample **mst** be clearly labeled with the Sample ID Number. Samples may be sent surface mail. Samples are for scientific research. Please take care in their collection.

Genetic material **shall** be provided to the Salmonid Genetic Repository, NOAA Fisheries Science Center, 110Shaffer Road, Santa Cruz, California, 95060. Please contact Dr. Carlos Garza at (831) 420-3903 with questions or for additional instructions. The following information shall be part of the Genetic Tissue. Collection Data:

> Collection Date: Collection Location (County, River, Exact location on river); Collector Name: Collector Affiliation/Phone; Sample ID Number; Species: Species Tissue **Type**; Condition: Fork Length (mm);

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Sex (M, F, Unk.); Adipose Fin Clip? (Y or N); Tag? (Y or N); Notes/Comments.

The following Terms and Conditions implement Reasonable and Prudent Measure 3

- 2. The biological monitor shall monitor work activities and instream habitat a minimum of two times per week for the purpose of identifying and reconciling any condition that could adversely affect **salmonids** or their habitat.
- 3. A written report shall be provided to NOAA Fisheries (Jonathan Ambrose) within 90 working days following the completion of the proposed action. The report shall include the number of S-CCC **ESU** steelhead; the number and size (in millimeters) of S-CCC **ESU** steelhead captured and removed; any effect of the proposed action on S-CCC **ESU** steelhead; and, photographs taken before, during, and after the activity from photo reference points.
- 4. The applicant shall provide a yearly written report to Mr. Jonathan Ambrose at 777 Sonoma Avenue, Rm. 325, Santa Rosa, California, 95404, describing results of the revegetation project for a minimum of two calender years upon completion of the proposed project.
- 5. If plantings do not successfully establish themselves after one calender year of project completion, additional revegetation efforts will be required. Success is determined as 70 percent survival after five years (per Project Description).

The following Terms and Condition implement Reasonable and Prudent Measure 4.

1. Oil absorbent and spill containment materials will be located on site when 'mechanical equipment is in operation with 100 feet of the proposed watercourse crossings. If a spill occurs, (1)no additional work will occur in-channel util the mechanical equipment is inspected by the contractor and PVWMA and the leak has been repaired, (2) the spill has been contained, and (3) the California Department of Fish and Game and NOAA Fisheries are contacted and have evaluated the impacts of the spill. Prior to construction, all mechanical equipment shall be thoroughly inspected and evaluated for the potential of fluid leakage. All questionable motor oil, coolant, transmission fluid, and hydraulic fluid hoses, fitting, and seals will be replaced. The contractor will document in writing all hoses, fittings, and seals replaced and shall keep this documentation until the completion of operations. All mechanical equipment used for the stream course crossings will be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, or coolant leaks. All leaks will be repaired in

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the equipment staging area or other suitable location prior to-resumption of construction activity.

- 2. Hydraulic fluids in mechanical equipment working **within** the stream channel shall not contain organophosphate esters.
- 3. If sandbags are **used** for cofferdam **construction**, rather than sheetpiles, visqueen will be placed over the sandbags to minimize water seepage into the construction areas.
- 4. Monitors will be on site during trenchless stream crossings at Millers Canal, Pajaro River **west** of Highway 1, Pajaro River west of Highway 101, and any other wetted stream channel to monitor for potential bentonite spills.
 - **a** If bentonite is observed entering the water column, construction will stop immediately.
 - b. Pressurized grout will be injected into the streambed **through pre**drilled holes in order to seal fissures in bedrock strata.
 - c. Gonstruction will not resume until grout **has** cured.

NOAA Fisheries expects that approximately 300 S-CCC **ESU** steelhead (of which nine may be mortalities) will be taken and; 3,500 linear feet and 38,400 sq. ft. of steelhead habitat will be adversely affected **as** a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal action agency must immediately provide **an** explanation of the causes of the taking and review with NOAA Fisheries the need for possible modification of the reasonable and prudent measures.

IX. 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, to help implement recovery plans, or to develop information.

NOAA Fisheries recommends Reclamation promote establishment of effective erosion control measures for all C W water contractors in the Pajam basin. The fish bearing streamshave been heavily degraded due to excess input of fine sediment due in large part to past and current agricultural practices in the basin. Promotion of riparian cover in stream and **ditches draining** many of the agricultural lands in the Pajaro basin would reduce erosion rates and promote recovery of S-CCC **ESU** habitat.

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, **NOAA** Fisheries requests notification of the implementation of any conservation recommendations.

X. REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. **As** provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionaryFederal agency involvement or **centrol** over the action has been retained (or is authorized by law) and if: (1) the amount or extenf of incidental take is exceeded; (2) **new** information reveals effects of the action that may affect listed species 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 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 shall be reinitiated immediately.

XI. LITERATURE CITED

- Alexander, G. R., and E. A. Hansen. 1986. Sand bed load in a brook trout stream. N. *Am.* J. of Fish. Man. 69-23.
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DEPARTMENT OF THE ARMY SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS 333 MARKET STREET SAN FRANCISCO, CALIFORNIA 94105-2197

Regulatory Branch

MAY 0 4 2004

SUBJECT: File Number 27825S

Ms. Johanna Evans Environmental Science Associates 436 16th Street. Suite 600 Oakland. California 94612-2727

Dear Ms. Evans:

This letter is in reference to your submittal on behalf of the Pajaro Valley Water Management Agency concerning Depanment of the Army authorization to construct the Revised Basin Management Plan Projects in San Benito. Santa Clara. Santa Cruz and Monterey Counties, California.

Based on a review of the information you submitted, your project qualifies for authorization under Department of the Army Nationwide Permits **12** - Utility Line Activities. and 33 - Temporary Construction. Access and Dewatering (67 Fed.Reg. 2020. January IS. 2002), pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403) as shown in Enclosure 1. **All** work shall be completed in accordance with the Basin Management Plan Projects Preconstruction Notice prepared by your office. dated March 3.2004.

The project must be in compliance with the General Conditions cited in Enclosure 2 for this Nationwide Permit authorization to remain valid. 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. Non-compliance with any condition could result in the revocation, suspension or modification of the authorization for your project. thereby requiring you to obtain an individual permit from the Corps. This Nationwide Permit authorization does not obviate the need to obtain other State or local approvals required by law.

This authorization will remain valid for two years from the date of this letter unless the Nationwide Permit is modified, suspended or revoked. If you have commenced work or **are** under contract to commence **work** prior to the suspension, or revocation of the Nationwide Permit and the project would not comply with the resulting Nationwide Permit authorization, you have twelve (12) months from that date to complete the project under the present terms and conditions of the Nationwide Permit.

EXHIBIT

This Corps permit does not authorize you to take an endangered species. In order to legally take a listed species. you must have a separate authorization under the Endangered Species Act (ESA) (e.g., **an** ESA Section 10 permit or a Biological Opinion (BO) under ESA Section **7** with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) BOs dated March 19,2004 and August 15.2003 respectively, contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BOs. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BOs, where a take of the listed species occurs, would constitute an unauthorized take and it would also constitute non-compliance with this Corps permit. The FWS and NMFS are the appropriate authorities to determine compliance with the terms and conditions of their BOs and with the ESA.

Should you have any questions regarding this matter, please call Bob Smith of our Regulatory Branch at 415-977-8450. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available through the Forms and Contacts Block on our website: www.spn.usace.army.mil/regulatory/

Sincerely,

Edward H. Wyle

Edward A. Wylie Chief, South Section

Enclosures

Copy furnished (w/o enclosures):

US EPA, San Francisco, CA US F&WS, Ventura, CA US NMFS, Santa Rosa, CA CA DFG. Yountville, CA CA RWQCB, San Luis Obispo, CA 2

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EXHIBIT

Enclosure 1

12. Utility Line Activities. Activities required for the construction. maintenance and repair of utility lines and associated facilities in waters of the U.S. as follows:

(i) Utility lines: The construction, maintenance, or repair of utility lines, including outfall and intake structures and the associated excavation, backfill, or bedding for the utility lines. in all waters of the **U.S.**, provided there is no change in preconstruction contours. A "utility line" is defined **as** any pipe **or** pipeline for the transportation of any gaseous, liquid, liquescent. or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. (See Note 1 below.) Material resulting from trench excavation may be temporarily sidecast (up to three months) into waters of the U.S., provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The District Engineer may extend the period of temporary side casting not to exceed a total of 180 days, where appropriate. In wetlands, the top 6" to 12" of the trench should normally be backfilled with topsoil from the trench. Furthermore, the trench cannot be constructed in such a manner **as** to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a french drain effect). For example, utility line trenches can be backfilled with clay blocks to ensure that the trench does not drain the waters of the U.S. through which the utility line is installed. Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

(ii) Utility line substations: The construction, maintenance, or expansion of a substation facility associated with a power line or utility line in non-tidal waters of the U.S., excluding non-tidal wetlands adjacent to tidal waters, provided the activity does not result in the loss of greater than 1/2-acre of non-tidal waters of the U.S.

(iii) Foundations for overhead utility line towers, poles, and anchors: The construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the **U.S.**, provided the foundations **are** the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

(iv) Access roads: The construction of access mads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the U.S., excluding non-tidal wetlands adjacent to tidal waters, provided the discharges do not cause the loss of greater than 1/2 acre of non-tidal waters of the U.S. Access roads shall be the minimum width necessary. (See Note 2 below.) Access roads must be constructed so that the length of the road **minimizes** the adverse effects on waters of the U.S. and as near **as** possible to preconstruction contours and elevations(e.g., at grade corduroy roads or geotextile/gravel roads). Access mads constructed above preconstruction contours and elevations in waters of the U.S. must be properly bridged or culverted to maintain surface flows.

The term "utility line" does not include activities which drain a water of the U.S., such **as** drainage tile, or french **drains;** however, it does apply to pipes conveying drainage from another area. For the purposes of this NWP, the **loss of** waters of the U.S. includes the filled area plus waters of the U.S. that are adversely affected by flooding, excavation, or drainage **as** a result of the project. Activities authorized by Paragraphs (i) through (iv) may not exceed a total of 112 acre loss of waters of the **U.S.** Waters of the U.S. temporarily affected by filling, flooding,

The following General Conditions must be followed in order for any authorization by an NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation

2. Proper Maintenance. Any structure or fill authorized Shall be properly maintained, including maintenance to ensure public Safety.

3. 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.

4. 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. Culverts placed in streams must be installed to maintain low flow conditions.

5 Equipment. Heavy equipment working in wetlands must be placed on mats. or other measures must be taken to minimize soil disturbance.

6. Regional and Case-Bv-Case Conditions. The activity must comply with any regional conditions that may nave been aadea by the Division Engineer (See 33 CFR Part 330.41el.1 and with any Case specific conditions added by the Corps or by the State or tribe in its Section 401 Water Quality Certification or Coastal Zone Management Act consistency determination.

1. 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 statu. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest service, Bureau of Land Management, U.S. Fish and Wildlife Service).

8. 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.

9. Water Quality.

Enclosure 2

(a) In certain states and tribal land5 an individual Section 401 Water Quality Certification must be obtained or waived. (See 33 CFR Part 330.4(c).)

(b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43. and 44, where the state or tribal Section 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does m result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable. will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality. (Refer to General Condition 21 for stormwater management requirements.) Another important component of water quality management is the establishment and maintenance of vegetated buffers next to commuters, including streams. (Refer to General Condition 19 for vegetated buffer requirements for the NWPS.)

This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken. in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

10. coastal Zone Management. In certain states, an individual state coastal zone management Consistency concurrence must be obtained or waived. (See 33 CFR Part 330.4(d).)

11 Endangered Species.

(a) No activity is authorized under any NWP which is likely to 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 destroy or adversely modify the critical habitat of such species. Nan-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project. cr is located in the 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 may affect Federally-listed endangered or threatened species or designated critical habitat. the notification must include the name(s) of the endangered or

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are and the amount of wetlands that exists on the property. For parcels greater than 1/4 iffe it size, formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See Paragraph 13(f) Gelow.); (iv) A written description of all land (including, if available, legal descriptions

owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile racius of the parcel, in any form of exmership (including any land owned as a partner, corporation joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale of purchase has been executed;

(10) For NW? 31 (Maintenance of Existing Flood Control Facilities), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or success a five year (or less) maintenance plan. In addirion, the PCN must Include all of the following:

(1) Sufficient baseline information identifying the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection of drainage is not increased:

(ii) A delinestion of any affected special aquatic sites, including wetlands: and (iii) Location of the dredged material disposal site;

(11) For NWP 33 (Temporary Construction, Access. and Dewatering), the PCN must include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources:

(12) For MMPs 35, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization for losses of waters of the US were achieved on the project site:

(13) For NWP 39 and NWF 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should hat de required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, deternine adverse environmental effects are minimal both individually and cumulatively. and waive the limitation on stream Impacts in writing before the permittee may proceed;

(14) For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the U.S. This NWP does not authorize the relocation of greater than 300 linear fee: Of existing serviceable drainage ditches constructed in non-tidal streams Unless, for drainage ditches constructed in intermittent non-tidal streams, the District Engineer valves this criterion in writing, and the District Engineer has determined that the project complies with all terms and Conditions of this NW?, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;

(151 For NW? 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwate; management facilities, a maintenance plan (in accordance with stare and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of Watters of the U.S. For discharger that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NW?, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on Stream impacts in writing before the permittee may Proceed:

(16) For NW? 44 (Mining Activities), the PCN must include a description of all waters of the U.S. adversely affected by the ocolect. a description of measures taken to minimize adverse effects to waters of the 0.3., *a* description of measures taken to comply with the criteria of the NWP. and *a* reclamation plan (for all aggregate mining activities in isolated waters and non-tidal Wetlands adjacent to headwaters and any hard rock/mineral mining activities);

(171 For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical nabitat thai may be affected by the proposed work: and

(181 for activities that may affect historic properties listed in. or eligible for listing in, the National Register of Mistoric Places, 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.

(c) Form of Notification: The standard Individual Permit application form (CNG FORM 4345) m y be used as the notification but must clearly indicate that it is a PCN and must include all Of the information required in Paragraphs (b) (1)-(18) of General Condition 13. A letter containing the requisite information may also be used.

Id) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine Whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may submit a proposed mitigation plan with the PCN to expedite the process. The District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether rhe net adverse environmental effects to the aquaric environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the WW? and that the adverse effects on the aquaric environment are minimal, after considering mitigation. the District Engineer will notify the permittee and include any conditions the District Engineer detas necessary. The District Engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCM, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the



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(a) The project must be designed and constructed to avoid and minimize adverse effects to waters of the U.S. to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms lavoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are mi-1.

(c) compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other for- of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration Of wetlands as compensatory mitigation. with preservation used only in exceptional circumstances.

(d) Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, 1/4 acre of wetlands cannot be created to change a 314 acre loss of wetlands to a 112 acre loss associated with NWP 39 verification. However, 1/2 acre of created wetlands can be used to reduce the impacts of a 112 acre loss of wetlands to the minimum impact level in order to meet the minimum impact requirement associated with NWPs.

(e) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect Open waters such as streams; and replacing losses of aquatic resource functions and values by creating. restoring. enhancing, or preserving similar functions and values, preferably in the same watershed.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment. mamtenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cares, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer will be 25 to 50 feet wide on each aide of the stream, but the District Engineer may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetland. and open waters exist on the project site, the corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive Of reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

(g) Compensatory mitigation proposals submitted with the *notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the U.S.

(h) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation. the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities. including Structures and work in navigable waters of the U.S. or discharger of dredged or fill material. in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location. capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditio%, and provide for not increasing water flows from the project Site. relocating water. or redirecting water flow beyond preconstruction conditions. Stream channelizing Will be reduced to the minimal amount necessary, and the activity must. to the maximum extent practicable. reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to Conduct detailed studies and monitoring of water flow.

This Condition is only applicable to projects that have the potential to affect waterflows. while appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures of require monitoring to ensure their effectiveness. Normally, the Corps will defer Ko state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of Water, and/or the restricting of its flow shall be minimized to the maximum extent practicable. This includes structures and work in navigable waters of the U.S., or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities. including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

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Enclosure 3

Permittee: Pajaro Valley Water Management Agency

File Number: 27825S

Certification of Compliance for Nationwide Permit

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of the Nationwide Permit."

(Permittee)

(Date)

Return to:

Bob Smith U.S. Army, Corps of Engineers San Francisco District Regulatory Branch, CESPN-OR-R 333 Market Street San Francisco, CA 94105-2197

EXHIBIT