COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
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TOM BURNS, PLANNING DIRECTOR

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: **Tim Nguyen of SC County Department of Public Works**

APPLICATION NO.: **08-0134**

APN: **Swanton Road (Post Mile Marker 3.5)**

The Environmental Coordinator has reviewed the Initial Study for your application and made the following preliminary determination:

__XX__ Negative Declaration
(Your project will not have a significant impact on the environment.)

__XX__ Mitigations will be attached to the Negative Declaration.

_____ No mitigations will be attached.

_____ Environmental Impact Report
(Your project may have a significant effect on the environment. An EIR must be prepared to address the potential impacts.)

As part of the environmental review process required by the California Environmental Quality Act (CEQA), this is your opportunity to respond to the preliminary determination before it is finalized. Please contact Matt Johnston, Environmental Coordinator at (831) 454-3201, if you wish to comment on the preliminary determination. Written comments will be received until 5:00 p.m. on the last day of the review period.

Review Period Ends: **May 28, 2008**

Jessica DeGrassi
Staff Planner

Phone: **454-3162**

Date: **April 22, 2008**

NAME: County of Santa Cruz Department of Public Works
APPLICATION: 08-0134
A.P.N: Public Right of Way on Swanton Road

NEGATIVE DECLARATION MITIGATIONS

A. In order to ensure that the mitigation measures B - G (below) are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: DPW design engineer, grading contractor supervisor, Santa Cruz County Resource Planning staff, and project biologist. Results of pre construction biotic surveys will be collected at that time. The applicant shall identify the receiving site for all export fill, and where the destination is not the municipal landfill valid grading permits must be submitted.

B. In order to prevent impacts to California Red legged frogs, implement pre-construction surveys, worker training, and periodic site inspection by the consulting biologist according to USFW protocol, and the following:

1. Construction will be scheduled to occur between April 1 and October 15, when stream flows are low, reducing the possibility of sediment to enter the stream.

2. Silt barriers shall be installed to protect downstream water quality during construction. These shall be shown on the Erosion Control plans.

3. A qualified wildlife biologist shall conduct pre-construction surveys for California red-legged frog, and relocate any frogs found as per the terms and conditions as outlined in the USFWS biological opinion for this site.

4. Construction activities in Scott Creek and the riparian habitat will be timed to occur during the later part of the dry season (non-breeding season for red-legged frogs, typically from April 15-October 15) to minimize take of dispersing frogs.

5. A USFWS –approved biologist will monitor construction activities that involve vegetation removal and installation of rock slope protection along the channel bank.

6. A qualified biologist shall conduct worker awareness training for all construction personnel regarding the potential for steelhead, Coho salmon, and California red-legged frog. The training may include a handout and shall cover the following information: identification of species, brief life history, protected status, and measures implemented for this project to avoid and minimize adverse effects to the species.

7. Best Management Practices (BMPs) shall be implemented that include silt fencing, straw bales, or other devices that prevent soil and sediment from entering Scott Creek. BMP's should also include a plan provided by the construction contractor for immediate containment and removal of contaminated oils if fuel or petroleum products should leak from equipment.

8. All disturbed banks and slopes shall be revegetated after the project is completed to preserve post-construction water quality and road embankment stability.

C. In order to mitigate long-term construction-related impacts, prior to disturbance DPW staff shall submit a revegetation plan to Environmental Planning staff for review and approval.

D. In order to prevent impacts to nesting birds, if the project is underway outside of the time period of August 1 to October 15, the project biologist shall perform surveys within two weeks

of the expected start date. If protected birds are nesting within the project area, either disturbance will be avoided until young have fledged, or a radius of "no disturbance" shall be implemented after consultation with California Department of Fish and Game staff.

E. To protect wildlife, In addition to Mitigation Measures B – D, the Department of Public Works shall implement all recommendations of the United States Fish and Wildlife Service Final Biological Opinion and Department of Fish and Game Stream Alteration Agreement.

Environmental Review
Initial Study

Application Number: 08-0134

Date: April 14, 2008
Staff Planner: Jessica deGrassi

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Tim Nguyen, Department of Public Works
OWNERS: County of Santa Cruz

APN: No APN (public right-of way), Post Mile 3.5 on Swanton Road
SUPERVISORAL DISTRICT: 3

LOCATION: This project is located on the west side of Swanton Road, approximately 3.5 miles east of the southern intersection with Highway 1.

SUMMARY PROJECT DESCRIPTION:
This project is located in a rural area of the north coast of Santa Cruz County, approximately 13 miles north of the City of Santa Cruz. The proposed project includes the repair of the outside corner of Swanton Road, which incurred damages to the slope during the storms of 2006.

ALL OF THE FOLLOWING POTENTIAL ENVIRONMENTAL IMPACTS ARE EVALUATED IN THIS INITIAL STUDY. CATEGORIES THAT ARE MARKED HAVE BEEN ANALYZED IN GREATER DETAIL BASED ON PROJECT SPECIFIC INFORMATION.

X	Geology/Soils	____	Noise
____	Hydrology/Water Supply/Water Quality	____	Air Quality
____	Energy & Natural Resources	____	Public Services & Utilities
____	Visual Resources & Aesthetics	____	Land Use, Population & Housing
____	Cultural Resources	____	Cumulative Impacts
____	Hazards & Hazardous Materials	____	Growth Inducement
____	Transportation/Traffic	____	Mandatory Findings of Significance
X	Biological Resources		

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

____ General Plan Amendment	____ Use Permit
____ Land Division	____ Grading Permit
____ Rezoning	__X__ Riparian Exception
____ Development Permit	____ Other:
____ Coastal Development Permit	

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:
California Department of Fish and Game
US Army Corps of Engineers
National Marine Fisheries Service/National Oceanic and Atmospheric Service

ENVIRONMENTAL REVIEW ACTION

On the basis of this Initial Study and supporting documents:

___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

___ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the attached mitigation measures have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Matt Johnston

4/22/08
Date

For: Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: n/a, County right-of-way (R.O.W)
Existing Land Use: R.O.W
Vegetation: annual forbs and grasses and weedy perennial species
Slope in area affected by project: _x_ 0 - 30% _x_ 30 – 50% _x_ over 50%
Nearby Watercourse: Scott Creek
Distance To: 20 feet

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: Yes
Water Supply Watershed: Yes
Groundwater Recharge: Yes
Timber or Mineral: Yes
Agricultural Resource: No
Biologically Sensitive Habitat: Yes
Fire Hazard: No
Floodplain: Yes
Erosion: highly erodible
Landslide: No
Liquefaction: possible
Fault Zone: No
Scenic Corridor: No
Historic: no
Archaeology: Yes
Noise Constraint: no
Electric Power Lines: N/A
Solar Access: N/A
Solar Orientation: N/A
Hazardous Materials: N/A

SERVICES

Fire Protection: CRZ-FSA48
School District: N/A
Sewage Disposal: N/A
Drainage District: Zone 0
Project Access: Swanton Road
Water Supply: N/A

PLANNING POLICIES

Zone District: Timber Production
General Plan: Mountain Residential
Special Designation: n/a

Urban Services Line:	Inside	X Outside
Coastal Zone:	_X_ Inside	____ Outside

PROJECT SETTING AND BACKGROUND:

This project is located in a rural area of the north coast of Santa Cruz County, approximately 13 miles north of the City of Santa Cruz. The proposed project includes the repair of the outside corner of Swanton Road, which incurred damages to the slope during the storms of 2006 (Attachment 1).

In March 2006 several roadways throughout the County were destroyed or impaired due to heavy rains causing over 9 million dollars worth of damage. The embankment along Swanton Road is in danger of continued damage, with the eroding material entering Scott Creek. The County has identified the need to repair and stabilize this section of Swanton Road by reinforcing the embankment in a manner that would prevent future damage and erosion.

DETAILED PROJECT DESCRIPTION:

The project includes clearing and grubbing approximately 107 cubic yards of soil and vegetation for site preparation. The area is currently covered in annual forbs and grasses and by weedy perennial species. The proposed steel soldier pile and timber lagging retaining wall will be set out 8 feet from the outside edge of the existing roadway. This will put the toe of the wall at an estimated height of 20 feet above the toe of slope and above the stream bank. The 9 soldier piles are at intervals of 6 feet on center at a depth of 30 feet with 15 feet of freeboard for a total linear distance of 48 feet. Each soldier pile will be attached to the embankment with a tieback anchoring system. Timber lagging members will be placed between each soldier pile to construct the façade with a 15-foot freeboard. Rock gabions will be installed at each end of the retaining wall to act as enclosures for the backfill material. A total of 296 cubic yards of structural backfill will be placed in the void between the standing wall and the existing embankment.

The area of damaged roadway will be saw-cut and removed and repaired to current County standards. This includes the addition of a metal guardrail on the outside corner of the roadway. Non-native fill material removed from the project site will be transported to an approved County landfill.

Avoidance and minimization measures will be implemented during project construction, as well as revegetation after the project has been completed. These measures include installation of silt fences immediately downslope of the areas to be disturbed during construction, and installation of erosion control blankets on all disturbed ground after construction is complete. Construction vehicles and equipment will be maintained to prevent contamination of soils or water.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

1. Expose people or structures to potential adverse effects, including the risk of material loss, injury, or death involving:

   A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or as identified by other substantial evidence? ____ ____ ____ X

The site is not located in an area delineated as a California Fault Zone.

   B. Seismic ground shaking? ____ ____ X ____

Due to the proximity of the San Andreas and Zayante-Vergales Faults, moderate to severe shaking is expected to occur during the projected life of the project. The project has been engineered to minimize damage related to seismic ground shaking.

   C. Seismic-related ground failure, including liquefaction? ____ ____ X ____

Due to the proximity of the San Andreas and Zayante-Vergales Faults, ground failure including liquefaction may occur during the projected life of the project. The project has been engineered to minimize damage related to these hazards.

   D. Landslides? ____ ____ X ____

Landsliding is not an issue in the immediate area. A soil (geotechnical) report has been completed for the proposed project, which demonstrates that the area is underlain by dense bedrock below the road fill. The unstable fill will be removed and replaced in conjunction with the proposed soldier pile retaining wall.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?			X	

Following review of the project soil (geotechnical) report, mapped information and a field visit to the site, there is no indication that the development site is subject to a significant potential for damage caused by any of these hazards.

3. Develop land with a slope exceeding 30%?			X	

Activities on lands with slope over 30% include construction of a soldier pile retaining wall with wood lagging and associated backfill. The slopes below the retaining wall will be replanted and restored as part of the project.

4. Result in soil erosion or the substantial loss of topsoil?			X	

Some potential for erosion exists within the project site, however, this potential is minimal because all work will be conducted during the dry season and standard erosion controls are a required condition of the project. Prior to issuance of the riparian exception, the project must have an approved Erosion Control Plan, which will specify detailed erosion and sedimentation control measures.

5. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to property?			X	

*There is no indication that the development site is subject to substantial risk caused by expansive soils (*Butano Geotechnical Engineering, 2/21/08*).*

6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative wastewater disposal systems?				X

No septic systems are proposed.

7. Result in coastal cliff erosion?				X

This project is not in the vicinity of coastal cliffs.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

B. Hydrology, Water Supply and Water Quality

Does the project have the potential to:

1.	Place development within a 100-year flood hazard area?				X

The project area is not within a 100-year flood hazard area as designated by F.E.M.A on the County flood hazard maps.

2.	Place development within the floodway resulting in impedance or redirection of flood flows?				X
3.	Be inundated by a seiche or tsunami?				X
4.	Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?				X

This project does not impact groundwater.

5.	Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).			X	

Silt barriers will be in place during construction to protect downstream water quality (Attachment 4). All disturbed slopes will be revegetated with native riparian plantings (Attachment 2).

6.	Degrade septic system functioning?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
7. Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that could result in flooding, erosion, or siltation on or off-site?			X	

Drainage will be captured behind the soldier pile retaining wall with ¾ inch drain rock wrapped in heavy non-woven filter fabric, with a 6 inch perforated PVC pipe at the bottom of the lagging.

8. Create or contribute runoff, which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?			X	

This project will not result in any change to runoff.

9. Contribute to flood levels or erosion in natural watercourses by discharges of newly collected runoff?			X	

The proposed drain outlet will be located in a place acceptable to the soil (geotechnical) engineer and will not contribute to erosion of Scott Creek, because an energy dissipater will be placed at the outfall. See B.5.

10. Otherwise substantially degrade water supply or quality?			X	

This project will not result in the degradation of water quality or supply.

C. Biological Resources

Does the project have the potential to:

1. Have an adverse effect on any species identified as a candidate, sensitive, or special status species, in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?		X		

The following measures are recommended to avoid, minimize, and mitigate for potential temporary, construction related impacts to listed species as a result of this

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

project (Attachment 3).

1. *Construction will be scheduled to occur between April 1 and October 15, when stream flows are low, reducing the possibility of sediment to enter the stream.*

2. *Silt barriers shall be installed to protect downstream water quality during construction. These shall be shown on the Erosion Control plans.*

3. *A qualified wildlife biologist shall conduct pre-construction surveys for California red-legged frog, and relocate any frogs found as per the terms and conditions as outlined in the USFWS biological opinion for this site.*

4. *Construction activities in Scott Creek and the riparian habitat will be timed to occur during the later part of the dry season (non-breeding season for red-legged frogs, typically from April 15-October 15) to minimize take of dispersing frogs.*

5. *A USFWS –approved biologist will monitor construction activities that involve vegetation removal and installation of rock slope protection along the channel bank.*

6. *A qualified biologist shall conduct worker awareness training for all construction personnel regarding the potential for steelhead, Coho salmon, and California red-legged frog. The training may include a handout and shall cover the following information: identification of species, brief life history, protected status, and measures implemented for this project to avoid and minimize adverse effects to the species.*

7. *Best Management Practices (BMPs) shall be implemented that include silt fencing, straw bales, or other devices that prevent soil and sediment from entering Scott Creek. BMP's should also include a plan provided by the construction contractor for immediate containment and removal of contaminated oils if fuel or petroleum products should leak from equipment.*

8. *All disturbed banks and slopes shall be revegetated after the project is completed to preserve post-construction water quality and road embankment stability.*

2.	Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)?	____	X	____	____

The disturbance associated with construction of the retaining wall will have a short-

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

term negative effect on the stream bank. It is worth noting, however, that the vegetation in the project area is largely invasive species. Sediment barriers shall be in place prior to construction. A revegetation plan will be implemented once construction is completed, to include riparian species.

3.	Interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native or migratory wildlife nursery sites?			X	

The proposed project will be located above Scott Creek although will be located within the riparian corridor. A silt fence barrier will be constructed below the project site to act as a barrier for both sediment control as well as movement of wildlife species.

4.	Produce nighttime lighting that will illuminate animal habitats?				X
5.	Make a significant contribution to the reduction of the number of species of plants or animals?				X
6.	Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6 inch diameters or greater)?			X	

The project will not conflict with any local policies or ordinances. Findings can be made to approve a riparian exception for work within the Riparian corridor and temporary disturbance of vegetation.

7.	Conflict with the provisions of an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional, or state habitat conservation plan?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
D. Energy and Natural Resources				
Does the project have the potential to:				
1. Affect or be affected by land designated as "Timber Resources" by the General Plan?				X
2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?				X
3. Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?				X
4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?				X
E. Visual Resources and Aesthetics				
Does the project have the potential to:				
1. Have an adverse effect on a scenic resource, including visual obstruction of that resource?				X
2. Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridgeline?			X	

The riparian area will be restored at the completion of construction.

4. Create a new source of light or glare that would adversely affect day or nighttime views in the area?				X
5. Destroy, cover, or modify any unique Geologic or physical feature?				X

There are no unique geological or physical features on or adjacent to the site that would be destroyed, covered, or modified by the project.

F. Cultural Resources

Does the project have the potential to?

1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5?				X
2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5?			X	

Archeological resources are mapped in the vicinity of this project. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Disturb any human remains, including those interred outside of formal cemeteries?			X	

Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

4. Directly or indirectly destroy a unique paleontological resource or site?			X	

See comment on F.3 above.

G. Hazards and Hazardous Materials

Does the project have the potential to?

1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use, or disposal of hazardous materials, not including gasoline or other motor fuels?				X
2. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X

The project site is not included on the October 2, 2002 list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two miles of the project site?				X
4. Expose people to electro-magnetic fields associated with electrical transmission lines?				X
5. Create a potential fire hazard?				X
6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

H. Transportation/Traffic

Does the project have the potential to?

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X

There will be no impact because no additional traffic will be generated.

2. Cause an increase in parking demand that cannot be accommodated by existing parking facilities?				X
3. Increase hazards to motorists, bicyclists, or pedestrians?			X	

A traffic plan has been prepared which will decrease the hazards to motorists, bicyclists or pedestrians in the vicinity (Attachment 4).

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways?				X

I. Noise

Does the project have the potential to:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies?			X	

Noise generated during construction will temporarily increase the ambient noise levels for adjoining areas. This noise will be generated in the creek bed, well below the roadway. Construction will be temporary and given the limited duration of this impact it is considered to be less than significant.

3. Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

Noise generated during construction will temporarily increase the ambient noise levels for adjoining areas. This noise will be generated in the creek bed, well below the roadway. Construction will be temporary and given the limited duration of this impact it is considered to be less than significant.

J. Air Quality

Does the project have the potential to:
(Where available, the significance criteria established by the MBUAPCD may be relied upon to make the following determinations).

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X
2. Conflict with or obstruct implementation of an adopted air quality plan?			X	

The project will not conflict with or obstruct implementation of the regional air quality plan.

3. Expose sensitive receptors to substantial pollutant concentrations?				X
4. Create objectionable odors affecting a substantial number of people?				X

K. Public Services and Utilities

Does the project have the potential to:

1. Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?				X
b. Police protection?				X
c. Schools?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
d. Parks or other recreational activities?				X
e. Other public facilities; including the maintenance of roads?				X
2. Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
3. Result in the need for construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?				X
5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?				X
6. Result in inadequate access for fire protection?				X
7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
8. Result in a breach of federal, state, and local statutes and regulations related to solid waste management?				X

L. Land Use, Population, and Housing

Does the project have the potential to:

1. Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any policies adopted for the purpose of avoiding or mitigating an environmental effect. A Riparian Exception will be completed for this project, which includes conditions of approval necessary to mitigate disturbance to the Riparian Corridor, as protected by the Riparian Corridor and Wetlands Protection Ordinance.

2. Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any regulations adopted for the purpose of avoiding or mitigating an environmental effect. A Riparian Exception will be completed for this project, which includes conditions of approval necessary to mitigate disturbance to the Riparian Corridor, as protected by the Riparian Corridor and Wetlands Protection Ordinance.

3. Physically divide an established community?			X	

The project will not include any element that will physically divide an established community.

4. Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	

The proposed project will not extend the road or increase its capacity.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?	____	____	____	X

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? Yes X No ____

- California Department of Fish and Game

N. Mandatory Findings of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes ____ No X

2. Does the project have the potential to achieve short term, to the disadvantage of long-term environmental goals? (A short term impact on the environment is one which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future) Yes ____ No X

3. Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes ____ No X

4. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? Yes ____ No X

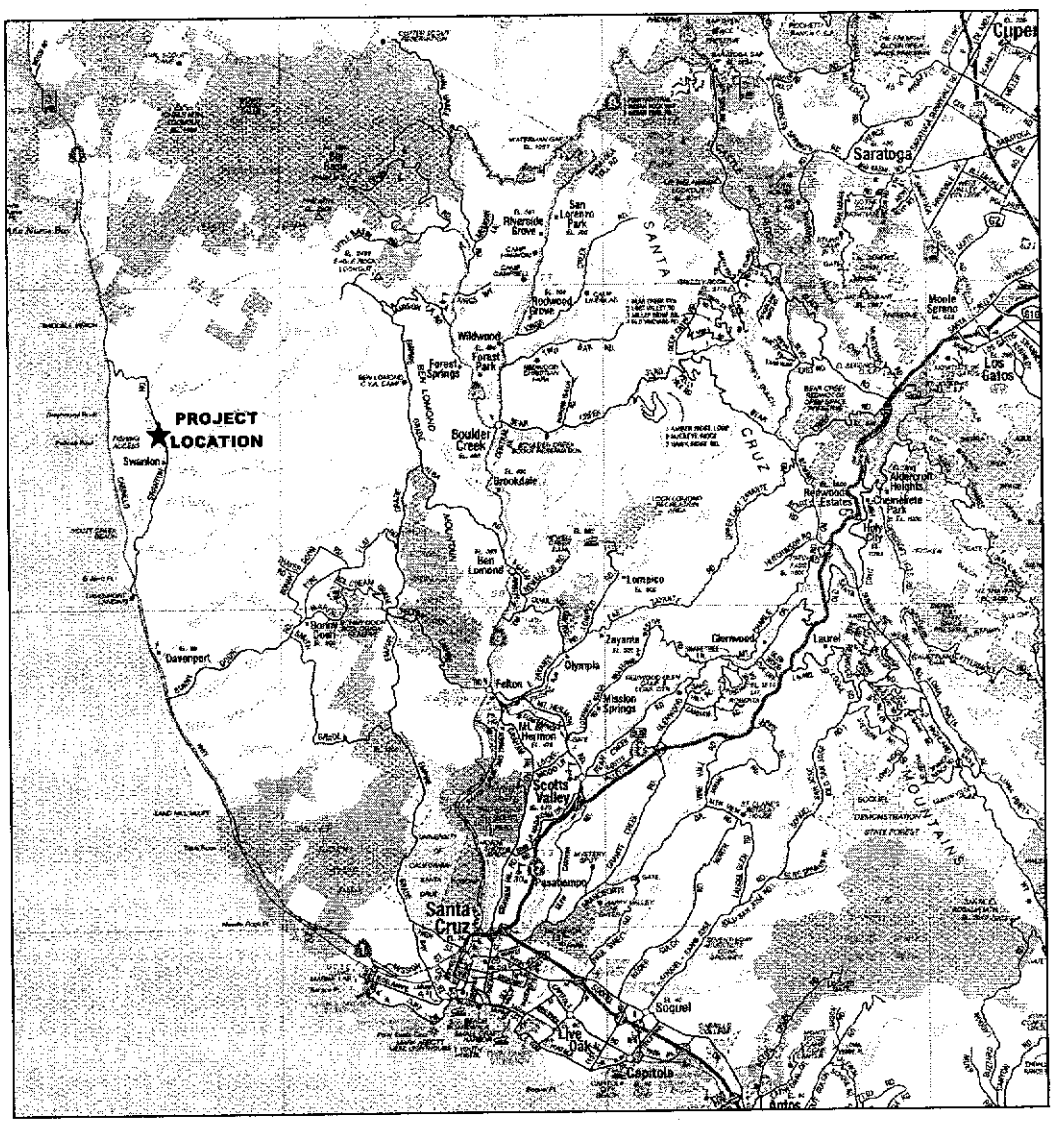
TECHNICAL REVIEW CHECKLIST

	REQUIRED	COMPLETED*	N/A
Agricultural Policy Advisory Commission (APAC) Review			X
Archaeological Review			X
Biotic Report/Assessment		4/07	
Geologic Hazards Assessment (GHA)			X
Geologic Report			X
Geotechnical (Soils) Report		2/08	
Riparian Pre-Site			X
Septic Lot Check			X
Other:			

Attachments:

1. Project Maps
2. Project Description and Plans
3. Biological Assessment for USFWS, Swanton Road and Slope Repair, prepared by FEMA dated April 2007
4. Traffic Control System, Erosion Control Plan, Santa Cruz DPW Project Specifications.

On File at the County Planning Department:
Geotechnical Investigation prepared by Butano Geotechnical Engineering, dated 2/21/08



DRIVING DIRECTIONS:

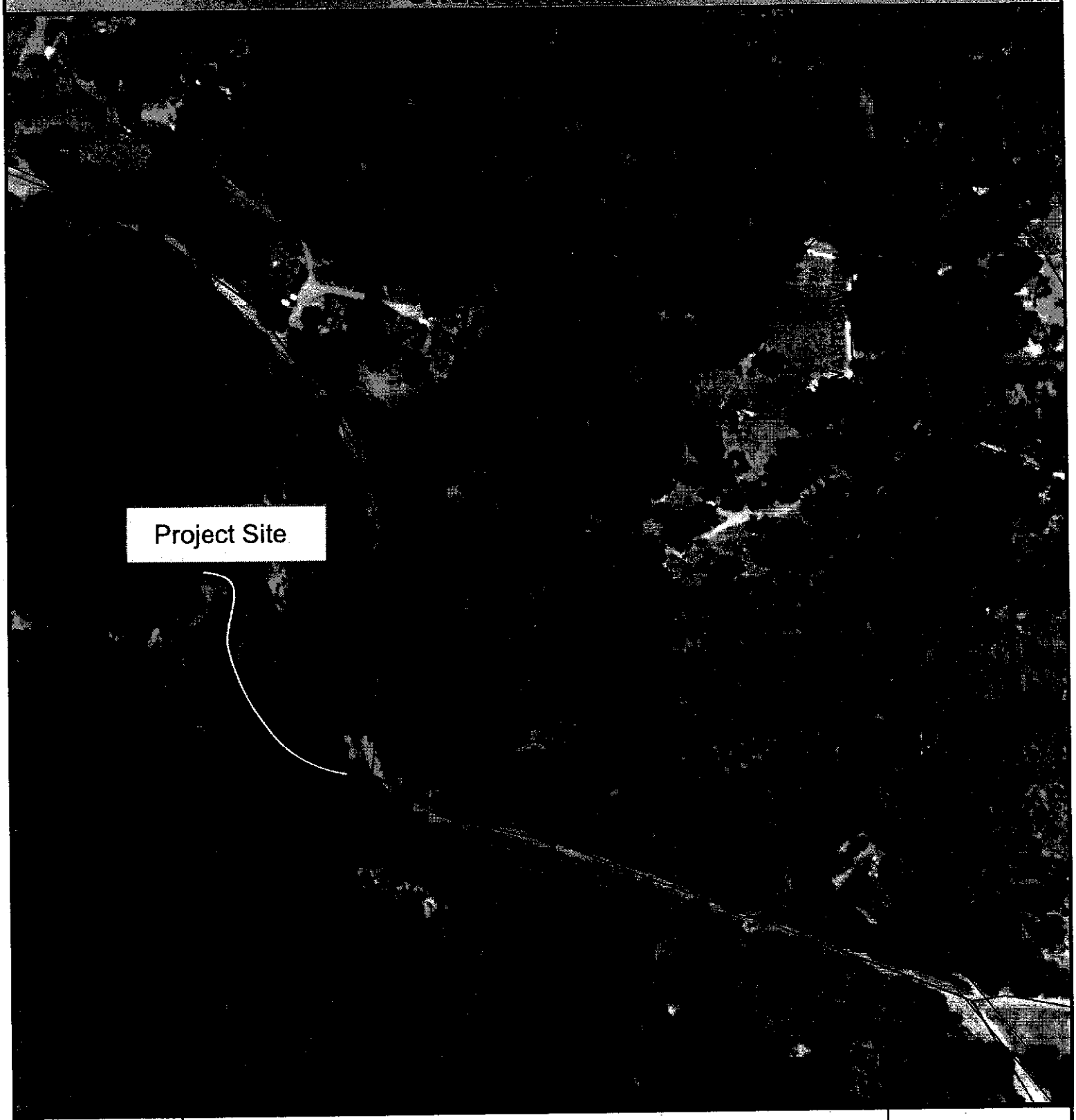
From Mission Street in Santa Cruz,

Travel north on Highway 1 approximately 10.8 miles,

Turn right on Swanton Road to PM 3.5.

Environmental Review Inital Study
ATTACHMENT 1, 1 of 5
APPLICATION 08-0134

Aerial Photo
Post Mile 3.6
Swanton Road



Environmental Review Inital Study
ATTACHMENT 1g 2 of 5
APPLICATION 08-0134

Legend

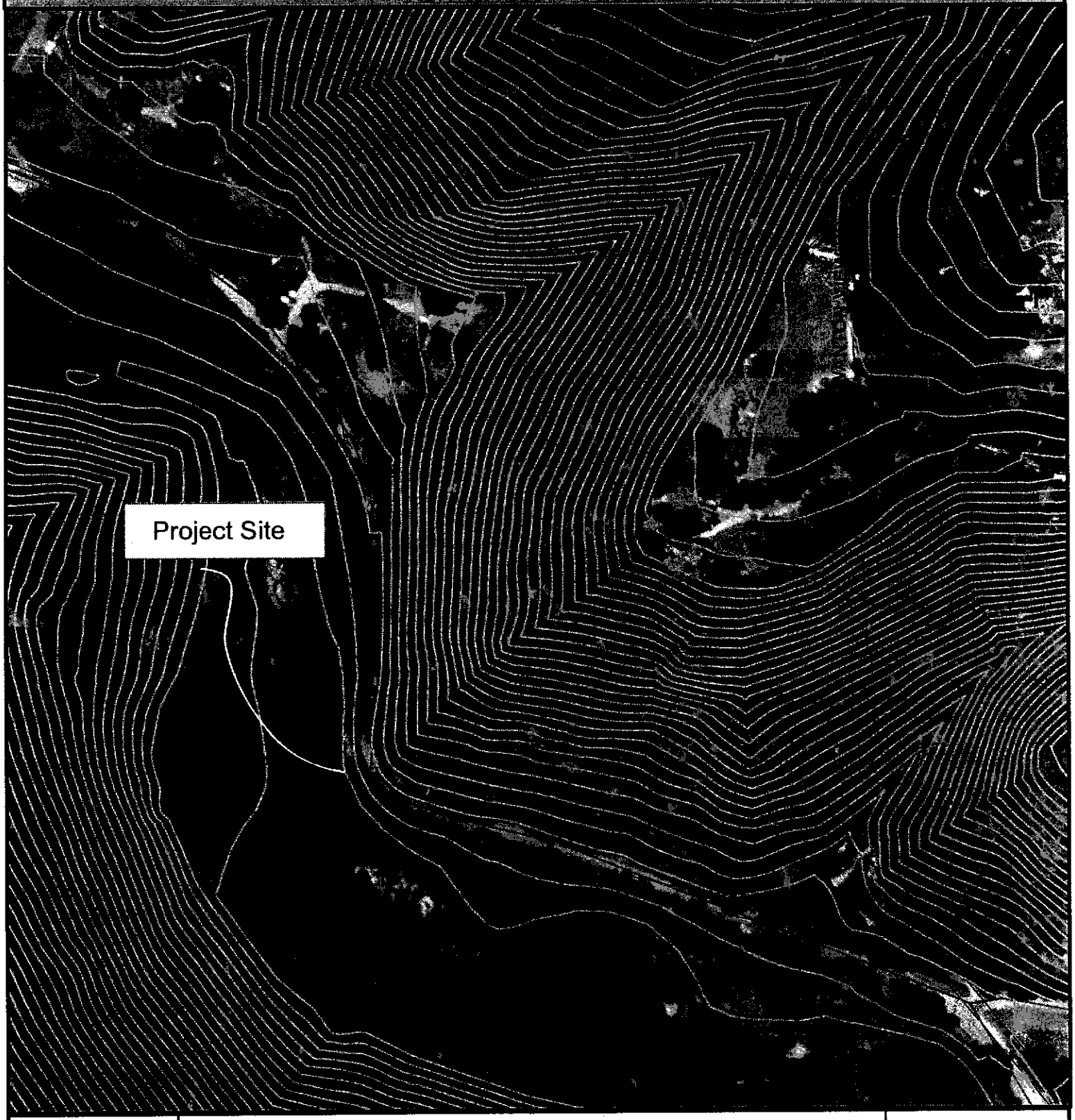
- NO-APN-SPEC
- Assessors Parcels

0 65 130 260 390 520 Feet

Figure #

Map created by JLD
March 2008

Aerial Photo with Topography
Post Mile 3.5
Swanton Road



Environmental Review Inital Study

ATTACHMENT 1, 3 of 5

APPLICATION 08-0134

Legend

NO-APN-SPEC

Assessors Parcels

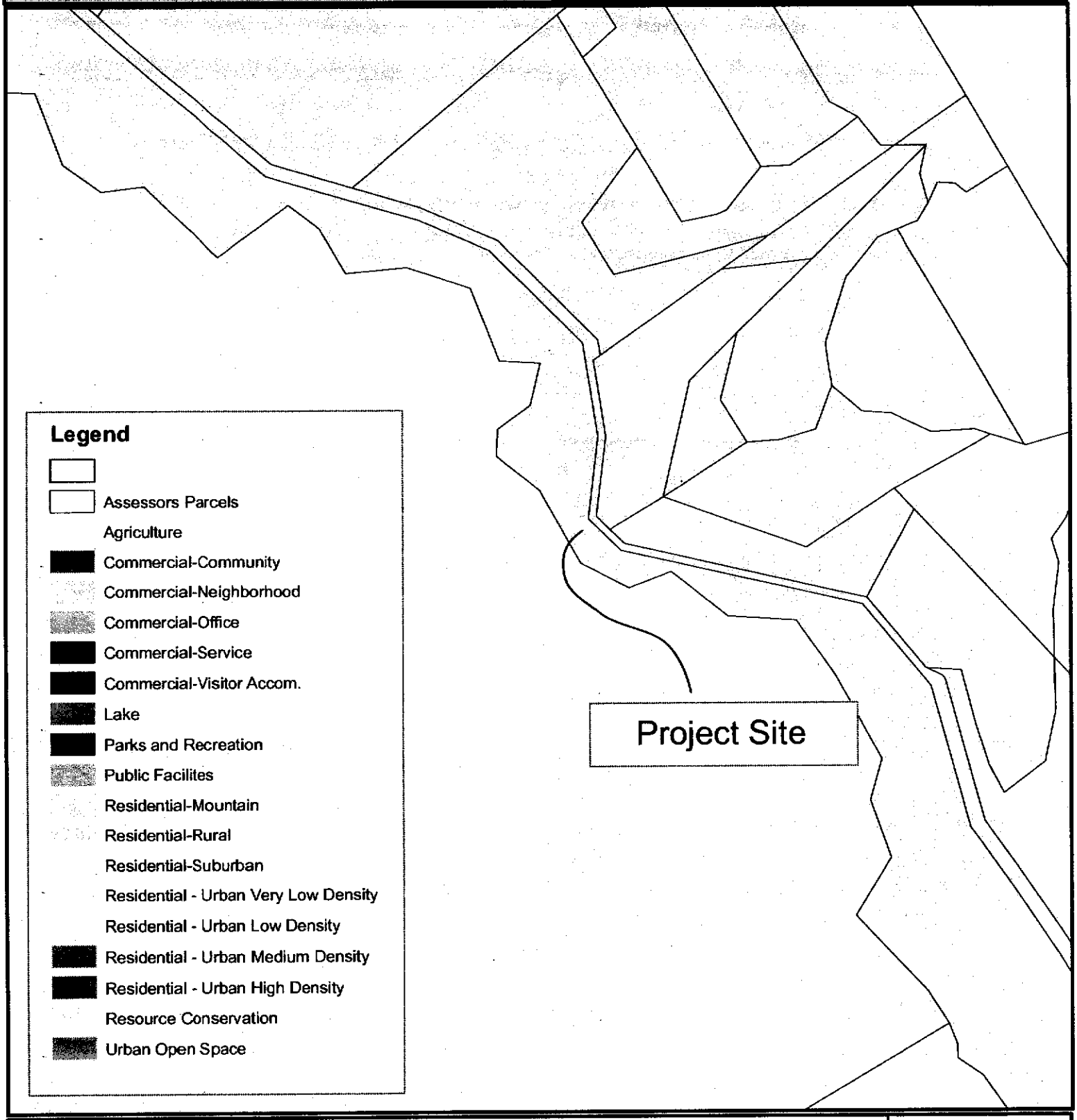
0 65 130 260 390 520

Feet

Figure #

Map created by JLD
March 2008

GENERAL PLAN DESIGNATIONS



Environmental Review Inital Study

ATTACHMENT 1, 4 of 5

APPLICATION 08-0134

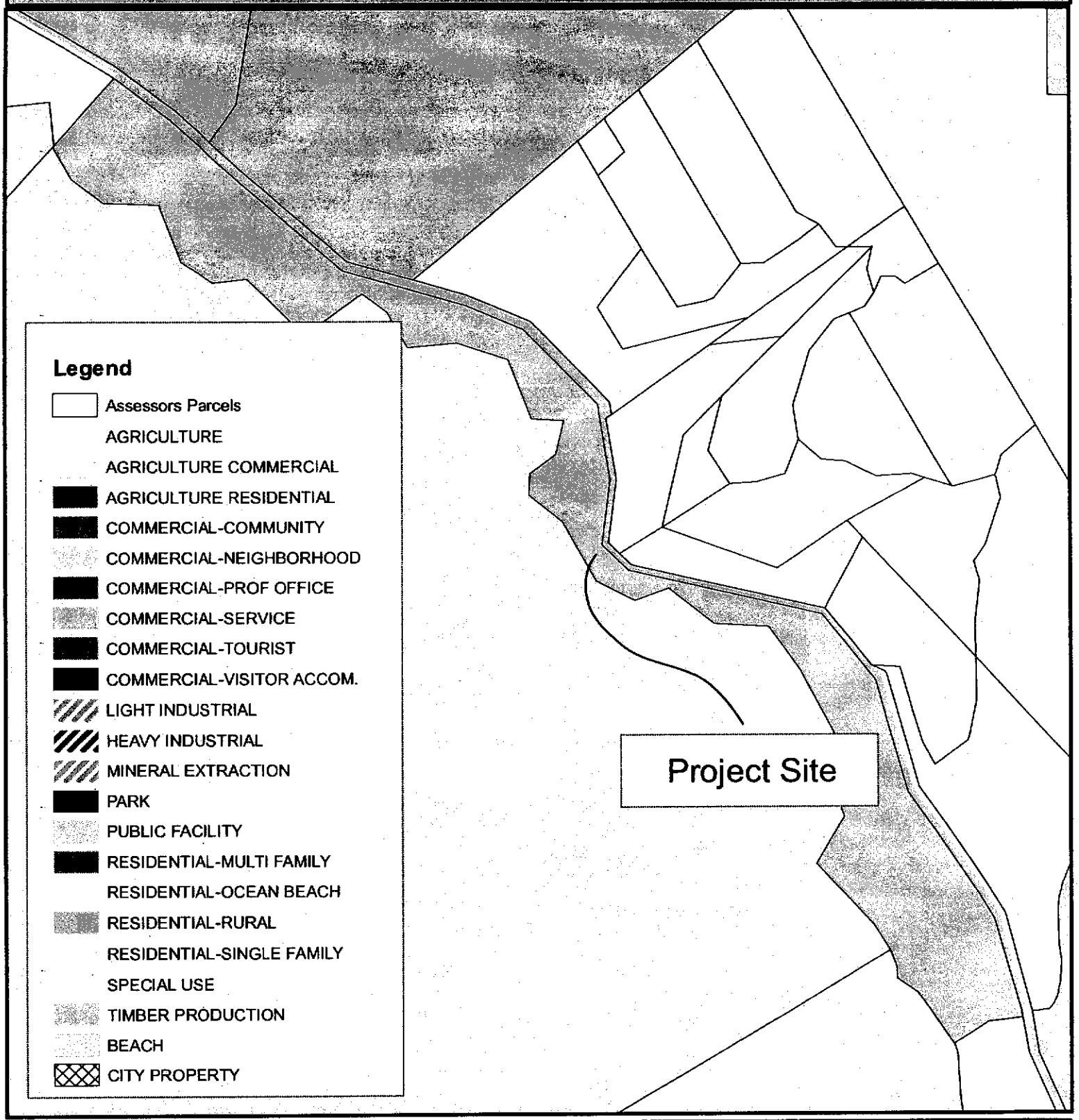
0 120 240 480 720 960 Feet

N

Attachment

Map created by JLD
April 2008

ZONING DESIGNATIONS



Environmental Review Inital Study

ATTACHMENT 1, 5 of 5

APPLICATION 08-0134

0 150 300 600 900 1,200 Feet

N

Attachment

Map created by JLD
April 2008

Project: Swanton Road PM 3.5 Storm Damage Repair Project
Location: Swanton Road, West Santa Cruz County, CA
Stream: Scott Creek

Project Description:

This project consists of the repair of a roadside slipout located on Swanton Road at post-mile 3.5. The slipout site is located near Scotts Creek which flows into the Pacific Ocean. The slipout failure has entered the roadway reducing the roadway width. The method of repair shall consist of construction of steel soldier piles with 30" concrete cast-in-drilled-hole (CIDH) foundations, construction of a 15' high by 48' long timber lagging wall along the slipout area, underdrain system, geo-grid end closures, metal beam guard railing, repair of the roadway, and erosion control. Approximately **296 cubic yards of compacted fill** shall be placed behind the wall and adjacent ends.

Erosion control fabric and hydroseed will be installed to cover all exposed soils disturbed during construction.

Staging Areas:
The staging area for construction equipment and materials shall be on roadside turnout(s) located south and north of the slipout site:

Swanton Road PM 3.5

Township	Range	Section
10S	03S	07

Environmental Review Inital Study
ATTACHMENT 2, 1 of 6
APPLICATION 08-0134

DIST	COUNTY	ROUTE	POST MILL TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SCr	32001	PM 3.5	1	5

COUNTY OF SANTA CRUZ
DEPARTMENT OF PUBLIC WORKS

PROJECT PLANS FOR CONSTRUCTION ON

SWANTON ROAD PM 3.5
STORM DAMAGE REPAIR PROJECT

To be supplemented by Standard Plans dated May 2006

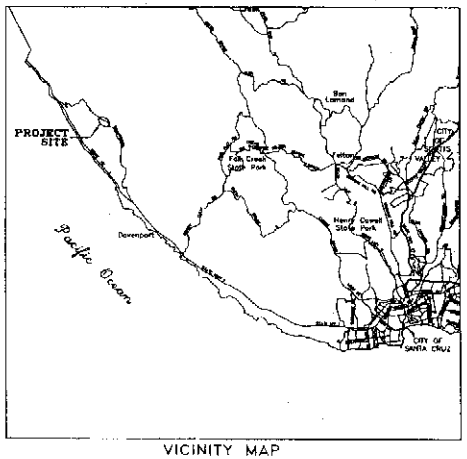
INDEX OF SHEETS

GENERAL NOTES

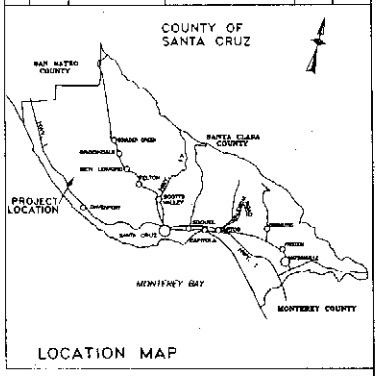
1. ALL CONSTRUCTION SHALL CONFORM TO THE COUNTY OF SANTA CRUZ DESIGN CRITERIA STANDARD DETAILS AND THE APPLICABLE PROVISIONS OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS AND PLANS, MAY 2006 EDITION.
2. NO CHANGES SHALL BE MADE IN THE APPROVED PROJECT PLANS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3. THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS WERE OBTAINED FROM ON-SITE OBSERVATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND DEPTH OF THESE UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IN CASE OF A CONFLICT.
4. THE CONTRACTOR IS REQUIRED TO CONTACT UNDERGROUND SERVICE ALERT (USA) AT (800) 642-2444 LEAST 48 HOURS PRIOR TO CONSTRUCTION, IN ORDER TO HAVE THE EXISTING UTILITIES MARKED IN THE FIELD.
5. THE CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
APPROX	APPROXIMATE
BOT	BOTTOM
℄	CENTER LINE
CIDH	CAST IN DRILLED HOLE
CL	CONTROL LINE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CP	CONTROL POINT
DESG	DESIGN
DIA	DIAMETER
E	EAST
(E)	EXISTING
EA	EACH
EL, ELEV	ELEVATION
ENGR	ENGINEER
EP	EDGE OF PAVEMENT
EST	ESTIMATE
EXCAV	EXCAVATE, EXCAVATION
FD	FOUND
FT	FOOT, FEET
FTG	FOOTING
GEN	GENERAL
GRD	GRADE
HDPE	HIGH DENSITY POLYETHYLENE
HT	HEIGHT
INV	INVERT
IP	IRON PIPE
JP	JOINT POLE
KIP	1000 POUNDS FORCE
MBGR	METAL BEAM GUARD RAIL
MIN	MINIMUM
N	NORTH
(N)	NEW
O.C.	ON CENTER
OH	OVERHEAD
PERF	PERFORATED
PG&E	PACIFIC GAS AND ELECTRIC
PM	POST MILE
PRIN	PRINCIPAL
PT	POINT
PVC	POLY VINYL CHLORIDE
RD	ROAD
REINF	REINFORCED
RT	RIGHT
R/W	RIGHT OF WAY
S	SOUTH
SBC	SOUTHERN BELL CORPORATION
SEC	SECTION
SHT	SHEET
S.S.	SANDSTONE
STA	STATION
TYP	TYPICAL
U.B.	UNBONDED
W	WEST
W/	WITH
&	AND
@	AT
1ST	FIRST
<	LESS THAN
#	POUND



VICINITY MAP
NOT TO SCALE



LOCATION MAP

Design Engineer
Registered Civil Engineer

Assistant Director of Public Works
Transportation Engineering Division
Registered Civil Engineer

Director of Public Works
Registered Civil Engineer

Chair, Board of Supervisors

May 13, 2008
Approved by Board of Supervisors

Reviewed by: Construction Manager

Reviewed by: Road Superintendent

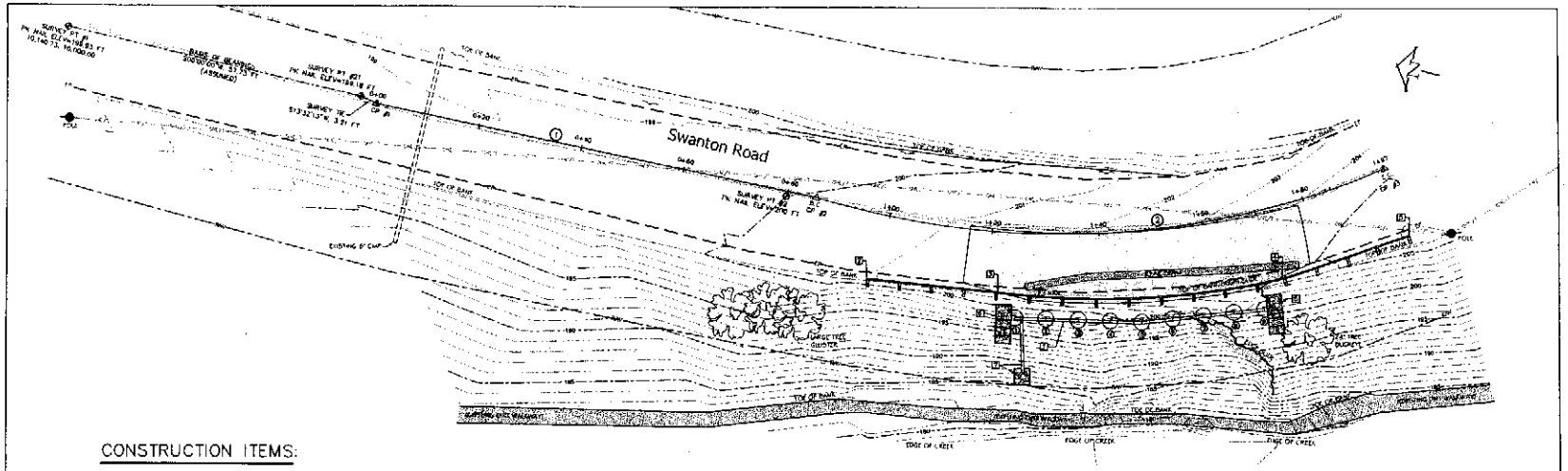
Reviewed by: Traffic Engineer

Environmental Review Initial Study
ATTACHMENT 2, 2 & 6
APPLICATION 04-0134

THE CONTRACTOR SHALL POSSESS A CLASS "A" LICENSE AT THE TIME THE CONTRACT IS AWARDED.

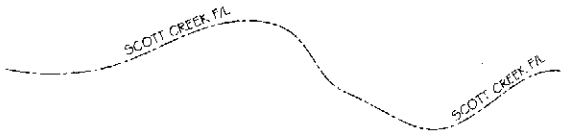
County Job No. 76263

F:\ENGR\ROAD\EUREKA CANYON ROAD PM 6.11\EUREKA CANYON ROAD PM 6.11.dwg



PLAN VIEW

SCALE 1"=10'



CONSTRUCTION ITEMS:

1. CONSTRUCT (48 LF) STEEL PILE AND TIMBER LAGGING RETAINING WALL
2. BEGIN TYPE ET (LEVEL 2) TERMINAL END SYSTEM (L=25 FT) WITH TYPE F AC DIKE PER STD PLAN A77E2 STA 0+98.04, 12.36 FT RT TO FACE OF RAIL.
3. BEGIN METAL BEAM GUARD RAIL PER STD PLAN A77A1 (L=54 FT, RADIUS=164 FT) WITH TYPE F AC DIKE PER STD PLAN A77C4. STA 1+21.83, 11.30 FT RT.
4. END METAL BEAM GUARD RAIL. BEGIN TYPE ET (LEVEL 2) TERMINAL END SYSTEM (L=25 FT) WITH TYPE F AC DIKE PER STD PLAN A77E2. STA 1+72.65, 13.48 FT RT.
5. END TERMINAL SYSTEM, STA 1+96.45, 13.34 FT RT
6. CONSTRUCT GABION END CLOSURE STRUCTURES. SEE DETAIL ON SHEET 4
7. CONSTRUCT APPROX. (12 LF) OF 6" SOLID PVC DISCHARGE PIPE AND (3' x 3') GABION ROCK ENERGY DISSIPATOR STAKED TO GROUND AT OUTLET.

GENERAL CONSTRUCTION NOTES:

1. THE WORK HEREIN SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS & PLANS DATED MAY 2006 OF THE STATE OF CALIFORNIA AS THEY MAY APPLY TO THE CONTRACT PLANS AND SPECIAL PROVISIONS.
2. DIMENSIONS OF THE STRUCTURAL ITEMS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND THE MANUFACTURER(S) RECOMMENDATIONS.
3. REFER TO THE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS FOR THE STRUCTURE BACKFILL REQUIREMENTS FOR THE PILE WALL.
4. THE NORTHBOUND TRAVEL LANE OF SWANTON ROAD SHALL BE KEPT OPEN TO TRAFFIC FOR THE DURATION OF THE CONSTRUCTION OPERATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ANY DAMAGE(S) TO PRIVATE PROPERTY & ANY UTILITIES IN SWANTON ROAD. THE EXACT LOCATION(S) OF EXIST. UTILITIES IS NOT KNOWN.
6. THE CONTRACTOR IS REFERRED TO THE GEOTECHNICAL REPORT BY BUTANO ENGINEERING, DATED FEB. 2008 ON FILE AT THE PUBLIC WORKS DEPT.
7. ALL CLEARING, GRADING AND EROSION CONTROL MEASURES SHALL BE COMPLETED NO LATER THAN NOV 15, 2008.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE TO REVIEW THE WORK AND ACCESS LIMITATIONS, VERIFY CONDITIONS, AND UNDERSTAND THE PROJECT BEFORE SUBMITTING A BID FOR THE WORK. THERE IS NO PRE-BID SITE MEETING FOR THIS PROJECT.

Environmental Review Initial Study
ATTACHMENT 2, 3of6
APPLICATION 08-0134

SURVEY CONTROL DATA

CONTROL LINE SEGMENT	BEGIN STA.	END STA.	RADIUS	ANGLE	LENGTH (ft.)	BEARING	TANGENT(ft)	COORDINATES NORTHING	COORDINATES EASTING	CONTROL POINT
①	0+00 (CP #1)	0+88.42 (CP #2)			88.42	S01°15'01"E		9,911.48	10,001.11	CP #2
②	0+88.42 (CP #2)	1+65.96 (CP #3)	164.34	38°	111.54			9,864.30	10,031.20	CP #3
	SURVEY PT #1 (PK NAIL)							10,140.73	10,000.00	
	SURVEY PT #2 (PK NAIL)							10,083.00	10,000.00	
SURVEY TIE	SURVEY PT #1	CONTROL PT #1			3.31	S13°32'13"W				

PILE LOCATION COORDINATES

PILE NUMBER	NORTHING	EASTING
①	9,952.23	9,987.68
②	9,946.35	9,988.85
③	9,940.46	9,990.02
④	9,934.58	9,991.18
⑤	9,928.67	9,992.35
⑥	9,922.99	9,894.37
⑦	9,917.32	9,996.27
⑧	9,911.64	9,996.22
⑨	8,905.97	10,000.17

LEGEND:

- 3" AC OVER 9" AB CLASS II COMPACTED TO 95%
- △ CP#1 CONTROL LINE POINT (TYP.)
- SURVEY POINT

ELEVATION BENCH MARK: SURVEY PT #2 = 200.00 FT (ASSUMED)

SHEET NAME: PLAN DRAWING NAME:

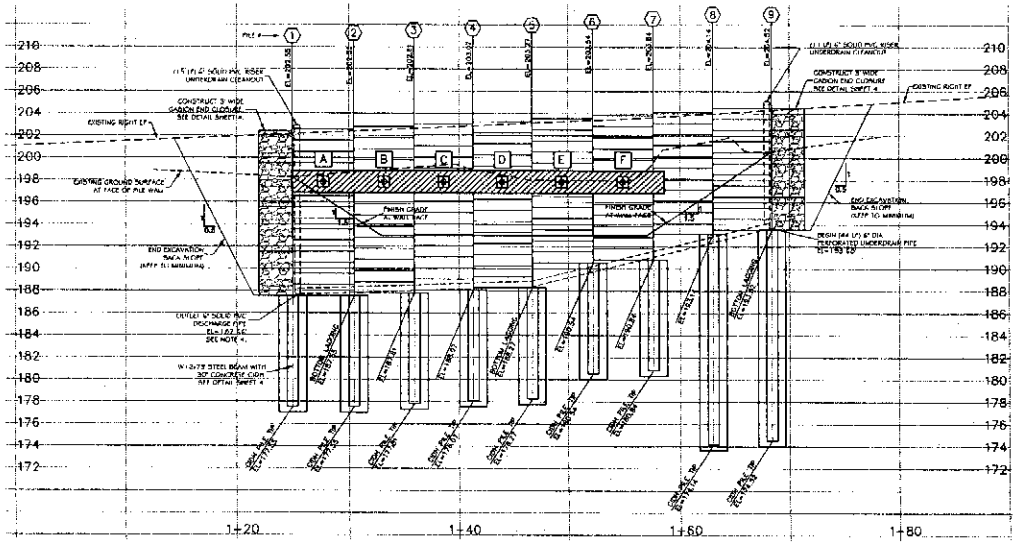
BY	
REVISION	
DATE	

PROJECT ENGINEER
STEVEN B. WIESNER

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS

SWANTON ROAD PM 3.5
STORM DAMAGE REPAIR PROJECT

DRAWN: TN
CHECKED: SBW
DATE: 4/08
SCALE: 1"=10'
JOB NO. 76283
SHEET 2 OF 5



PILE WALL PROFILE

SCALE: 1"=5'

LEGEND:

DOUBLE CHANNEL STEEL WALER

[A] TIEBACK

TIEBACK	ELEVATION
A	197.84
B	197.84
C	197.84
D	197.84
E	197.84
F	197.84

CONSTRUCTION NOTES:

1. W12x79 STEEL PILES WITH 30" CONCRETE CIDH SHALL BE PLACED AT 6 FT ON CENTER (9 TOTAL).
2. A MINIMUM OF 6' OF CONCRETE SHALL BE PLACED FROM THE BOTTOM TIP OF THE STEEL PILE.
3. ALL RIGHT ANGLE BENDS IN 6" DIA. PERF. AND SOLID WALL PVC UNDERDRAIN PIPE SHALL BE FABRICATED FROM TWO 45° ANGLE MANUFACTURER PIPE FITTINGS.
4. CONSTRUCT APPROX. (12 LF) OF 6" SOLID PVC DISCHARGE PIPE AND GABION ROCK ENERGY DISSIPATOR STAKED TO GROUND AT OUTLET.
5. EXCAVATED AREAS FOR GABION END CLOSURE STRUCTURES AND BACKFILLED SLOPES SHALL BE GRADED 1.5:1 H:V SLOPE AT WALL FACE.

Environmental Review Initial Study
ATTACHMENT 2, 4 of 6
APPLICATION 08-0134

SHEET NAME: PROFILE DRAWING NAME:

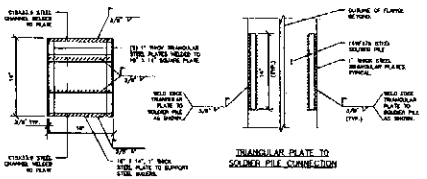
BY:
DIVISION:
DATE:

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS

PROJECT ENGINEER
STEVEN B. WIESNER

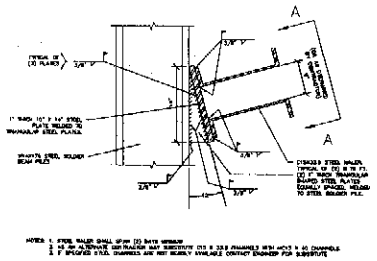
SWANTON ROAD PM 3.5
STORM DAMAGE REPAIR PROJECT

DRAWN: TN
CHECKED: SBW
DATE: 4/08
SCALE: 1"=5'
JOB NO. 76283
SHEET
3 OF 5



PLAN VIEW A-A

SCALE- NOT TO SCALE



1 STEEL WALER TO SOLDIER PILE CONNECTION

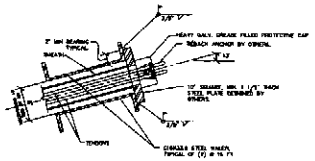
SCALE: NOT TO SCALE

STRUCTURAL STEEL

1. ALL WORK DONE UNDER THIS SECTION SHALL CONFORM TO THE REQUIREMENTS OF THE AISC SPECIFICATIONS AND THE CODE OF STANDARD PRACTICE, OR THE FHWA SPECIFICATIONS FOR WELDING (AWS D1.1-75)
2. STRUCTURAL STEEL PLATES AND BARS SHALL CONFORM TO ASTM A441 & A572
3. ALL STRUCTURAL STEEL MEMBERS OTHER THAN FASTENERS SHALL BE PAINTED WITH A ZINC RICH RUST INHIBITING PRIMER SUCH A TNEMEC BRAND TNEMATU-ZINC, OR THE EQUIVALENT.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND FIELD CONDITIONS PRIOR TO FABRICATING THE STEEL MEMBERS IN THE EVENT OF A DISCREPANCY, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.
5. ALL STRUCTURAL STEEL WELDING SHALL BE EITHER PERFORMED IN A SHOP BY AN APPROVED FABRICATOR, OR SHALL BE DONE WITH SPECIAL INSPECTION PER SECTION 1701 OF THE 1997 UBC.
   A. APPROVED FABRICATORS: SPECIAL INSPECTIONS REQUIRED BY SECTION 1701 MAY BE WAIVED IF THE WORK IS PERFORMED ON THE PREMISES OF A WELDER REGISTERED AND APPROVED BY THE COUNTY OF SANTA CRUZ BUILDING DEPARTMENT. THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS TO THE BUILDING DEPARTMENT AND THE ENGINEER OF RECORD.
   B. SITE WELDING AND SPECIAL INSPECTION: IF THE WELDING IS TO BE PERFORMED ON SITE, OR BY OTHER THAN AN APPROVED FABRICATOR, THE WORK SHALL BE PERFORMED WITH SPECIAL INSPECTION. THE CONTRACTOR SHALL OBTAIN THE NECESSARY FORMS FROM THE COUNTY OF SANTA CRUZ BUILDING DEPARTMENT PRIOR TO PERFORMING ANY WELDING. THESE FORMS SHALL INCLUDE THE INFORMATION REGARDING THE INSPECTING AGENCY AS WELL AS THE SIGNATURE OF THE ENGINEER OF RECORD. THESE FORMS SHALL THEN BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.

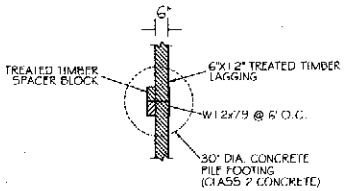
NOTES REGARDING SPECIAL INSPECTION:

1. SPECIAL INSPECTION IS REQUIRED FOR SHOP AND FIELD STRUCTURAL WELDING, UBC 1701.5.5
2. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR SPECIAL INSPECTIONS BY A COUNTY APPROVED INSPECTOR AND PROVIDE THE REQUIRED DOCUMENTATION TO THE SATISFACTION OF THE COUNTY PUBLIC WORKS DEPARTMENT.



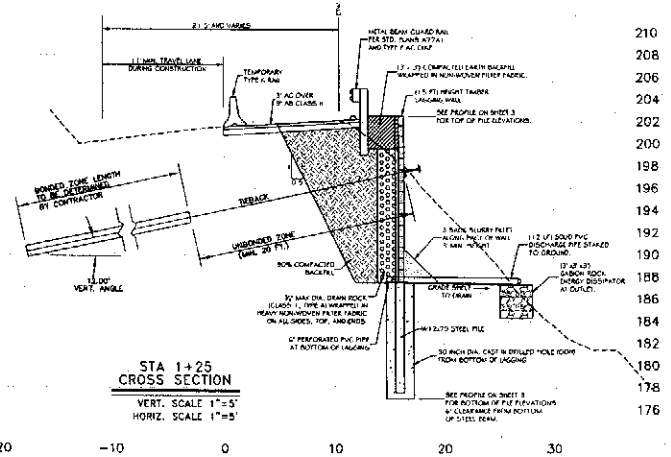
2 TIE BACK CONNECTION TO STEEL WALER

SCALE: NOT TO SCALE



TIMBER LAGGING WITH STEEL PILE DETAIL

SCALE 1"=2'



STA 1+25
CROSS SECTION

VERT. SCALE 1"=5'
HORIZ. SCALE 1"=5'

WORKING STRESS DESIGN

REINF. CONC.	f'_c =	3,000 PSI
	f_c =	1,350 PSI
STRUCTURAL STEEL & BAR REINF. STEEL	f_y =	60,000 PSI
	f_s =	34,000 PSI
TREATED TIMBER DOUGLAS FIR #1 (MINIMUM)	f_b =	1,750 PSI

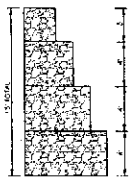
ALL CONCRETE AND BAR REINF. STEEL CONST. SHALL CONFORM TO THE PROVISIONS OF THE CURRENT AMERICAN CONCRETE INST. CODE (ACI). ALL STEEL CONSTRUCTION SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONST. (AISC) RESPECTIVELY.

TIEBACK GROUTING SCHEDULE*

CABLE/ROD DIA.	MIN. UNBONDED LENGTH	*EST. BONDED LENGTH (6" DIA GROUT)	*EST. BONDED LENGTH (6" DIA GROUT)
1 INCH**	20 FT.	15 FT.	12 FT.

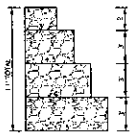
* NOTE: THE ABOVE SPECIFIED TIEBACK BONDED LENGTHS HAVE BEEN CALCULATED AND ARE THE ESTIMATED MINIMUM LENGTHS. ACTUAL BONDED LENGTHS WILL BE BASED ON PULL-OUT TEST RESULTS AT THE SITE DURING INSTALLATION. TIEBACK DESIGN TENSION IS 92 KIPS. EACH TIEBACK SHALL BE FIELD TESTED TO 64 KIPS. FINAL LOCKOFF TENSION SHALL BE A MINIMUM OF 31 KIPS. MAXIMUM ALLOWABLE VERTICAL AND HORIZONTAL TIEROD DEFLECTION SHALL BE ± 2.5" FROM THE DESIGN ALIGNMENT OF TIEBACK TO FACE OF WALL. UNDER A PERFORMANCE TEST, CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR DETERMINING BONDED ZONE AND REQUIRED BONDED LENGTH. THE CO. DESIGN ENGR. SHALL BE NOTIFIED 24 HRS IN ADVANCE AND BE ON SITE DURING TIEBACK PRE-DRIVANCE TESTING.

** AS DETERMINED BY INSTALLER/MFGR.



GABION END CLOSURE
STA 1+24

SCALE 1"=5'



GABION END CLOSURE
STA 1+70

SCALE 1"=5'

SHEET NAME: X-SECTION DRAWING NAME:

DATE	BY	REVISION

COUNTY OF SANTA CRUZ - DEPARTMENT OF PUBLIC WORKS

PROJECT ENGINEER: STEVEN B. WIESNER

SWANTON ROAD PM 3.5
STORM DAMAGE REPAIR PROJECT

DRAWN: TN
CHECKED: SBW
DATE: 4/08
SCALE: NOTED
JOB NO. 76283
SHEET 4 OF 5

Environmental Review Initial Study
ATTACHMENT 2 Exh F
APPLICATION 06-0134

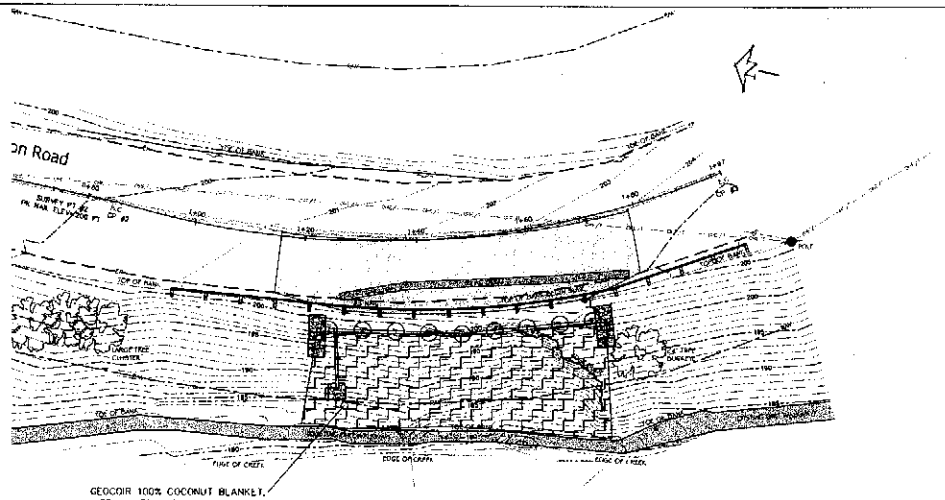
LEGEND

HYDROSEEDING WITH STRAW ROLLS

Entire slope shall be hand graded, Install Geocoir blanket on 3:1 slope or greater. Install straw rolls 10'–15' o.c., anchored with 3' long wood stakes and alternate with willow 3' long pole cutting stakes 3' o.c. Entire area to be hydroseeded and cover with duff

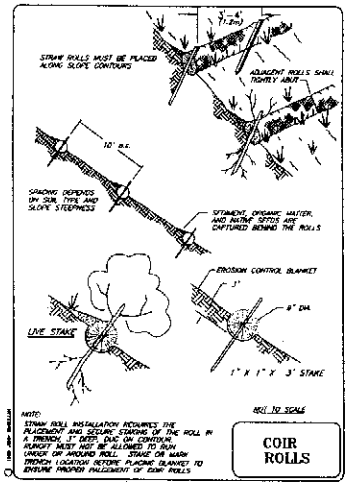
EROSION CONTROL SEED MIXTURE

30 lbs. Bromus carinatus cucamonga – Cucamonga Brome
6 lbs. Vulpia microstachys – Three Weeks Fescue
4 lbs. Trifolium wildenovii – Tomcat Clover
25 lbs. Sterile Hybrid Wheatgrass or Barley



GEOCOIR 100% COCONUT BLANKET, INSTALL STRAW ROLLS AND HYDROSEED. SPREAD DUFF OVER THE ENTIRE SITE.

PLAN VIEW
SCALE 1"=10'



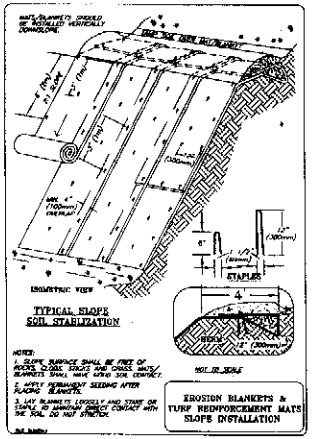
COIR ROLLS

COIR ROLLS

INSTALL PER MANUFACTURES SPECIFICATIONS. THIS INCLUDES THE FOLLOWING: PREPARE THE SLOPE BEFORE THE INSTALLATION PROCEDURE IS STARTED. DIG 3–INCH DEEP TRENCHES ACROSS THE SLOPE ON CONTOUR TO PLACE THE ROLLS IN. START BUILDING TRENCHES FROM THE BOTTOM OF THE SLOPE AND WORK UP. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF 10 FEET APART.

MARK TRENCH LOCATION PRIOR TO INSTALLATION OF COIR ROLLS AND PRIOR TO HYDROSEEDING AND INSTALLATION OF EROSION CONTROL BLANKET (SEE HYDROSEEDING AND EROSION CONTROL BLANKET NOTES AND DETAIL FOR INSTALLATION METHODS). MARKING OF TRENCH LOCATION SHALL BE IN SUCH A WAY THAT THE CONTRACTOR CAN EASILY FIND THE TRENCH LOCATION AFTER THE BLANKET HAS BEEN INSTALLED. TRENCH SHALL BE MARKED WITH FLAGGING OR WOOD STAKES AT INTERVALS OF 10' O.C.

INSTALL COIR ROLL AFTER EROSION CONTROL BLANKET IS INSTALLED AND BEFORE HYDROSEEDING. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL, EROSION CONTROL BLANKET AND THE COIR ROLL. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE MATTLE AND INTO THE SOIL FOR THE POLE CUTTING OR WOODEN STAKES. DRIVE THE STAKE THROUGH PREPARED HOLE INTO THE SOIL. LEAVE ONLY 1–2 INCHES OF STAKE EXPOSED ABOVE ROLL. INSTALL STAKES AT LEAST EVERY 4 FEET APART. ALTERNATE STRAIGHT LIVE POLE WILLOW CUTTING STAKES, ¾ INCH DIAMETER; ALTERNATE WITH WOODEN STAKES



EROSION CONTROL NOTES

1. ALL OPERATIONS SHALL CONFORM TO REQUIREMENTS OF THE COUNTY EROSION CONTROL ORDINANCE. THE DESIRED END RESULT OF THE PROPOSED MEASURE IS TO CONTROL SITE EROSION AND TO PREVENT SEDIMENT TRANSPORT OFF THE SITE INTO LOMPICO CREEK. IT IS THE CONTRACTORS RESPONSIBILITY TO INSTALL AND MAINTAIN TEMPORARY EROSION CONTROL MEASURES TO MEET THIS GOAL AND TO PREVENT SILT RUNOFF.
2. DISTURBANCE TO NATURAL VEGETATION SHALL BE MINIMIZED WITHIN AREA BELOW COUNTY R/W LINE A - A.
3. BETWEEN OCTOBER 15 AND APRIL 15, EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. DURING CONSTRUCTION SUCH PROTECTION SHALL CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF PROJECT ANY EXPOSED SOIL OR DISTURBED SLOPES SHALL BE PERMANENTLY PROTECTED FROM EROSION
4. SLOPE STABILIZATION SHALL CONSIST OF:
   1) REMOVAL OF ALL DEBRIS FROM SLOPE INCLUDING ASPHALT & CONCRETE.
   2) HAND RAKING TO SMOOTH OUT THE UNIT SURFACE OF THE SLOPE.
   3) SEEDING THE ENTIRE SLOPE WITH AN APPROVED GRASS SEED MIXTURE.
   4) PLACING EROSION CONTROL BLANKET OVER THE SEEDED AREA. ALL BLANKET SHALL BE SECURED WITH HEAVY GAUGE WIRE STAPLES.
5. ANY EXCESS MATERIAL SHALL BE DISPOSED OF OFF–SITE, OR SHUKPILED IN A MANNER TO AVOID RUNOFF ONTO ADJOINING PROPERTIES AND LOMPICO CREEK.
6. ANY MATERIAL STOCKPILED DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC
7. CONTRACTOR SHALL NOTIFY COUNTY OF SANTA CRUZ EROSION CONTROL/GRADING DIVISION, (454–3168) AT LEAST 48 HOURS BEFORE ANY EARTHWORK IS BEGUN.
8. EARTHWORK BETWEEN OCTOBER 15 AND APRIL 15 IS AUTHORIZED ONLY WITH A WINTER GRADING APPROVAL HAS BEEN ISSUED BY ENVIRONMENTAL PLANNING.

NOTE:
TEMPORARY STOCK PILES OF SUITABLE MATERIAL FROM EXCAVATION MAY OCCUR IN THE ROADWAY RIGHT–OF–WAY AREA AS DIRECTED BY ENGINEER. ALL UNSUITABLE EXCAVATED MATERIAL SHALL BE DISPOSED OF ON A DAILY BASIS AS DIRECTED BY THE ENGINEER.

EROSION CONTROL PLAN

SHEET NAME: EROSION DRAWING NAME:

REVISION	BY	DATE

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS

PROJECT ENGINEER: STEVEN B. WIESNER

SWANTON ROAD PM 3.5
STORM DAMAGE REPAIR PROJECT

DRAWN:	TN
CHECKED:	SBW
DATE:	4/08
SCALE:	1"=10'
JOB NO.	76283
SHEET	5 of 5

Environmental Review Initial Study
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APPLICATION 08-0134

Final Biological Assessment for USFWS

Swanton Road and Slope Repair

Santa Cruz County

FEMA-1646-DR-CA, PW #63

April 2007

Environmental Review Inital Study
ATTACHMENT 3, 1 of 31
APPLICATION 03-0134

FEMA

U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, California 94607

This document was prepared by

Nationwide Infrastructure Support Technical Assistance Consultants
A *Joint Venture of URS Group, Inc., and Dewberry & Davis LLC*

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Oakland, California 94612

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Task Order No. HSFEHQ-06-J-0004

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Acronyms

BA	Biological Assessment
BMPs	Best Management Practices
CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
County	County of Santa Cruz
cy	Cubic Yards
°F	degrees Fahrenheit
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
ft	feet
NMFS	National Marine Fisheries Service
OES	Office of Emergency Services
PA	Public Assistance
ppt	parts per thousand
PW	Project Worksheet
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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The County of Santa Cruz (County), through the Governor's Office of Emergency Services (OES), has requested Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program funding to repair an embankment of Swanton Road that was damaged during the declared disaster event.

This Biological Assessment (BA) documents potential adverse effects to species listed as endangered, threatened, proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) that are regulated by the U.S. Fish and Wildlife Service (USFWS).

The action area is located in a rural area of the northern coast of California, approximately 13 miles north of the city of Santa Cruz, California at Mile Post 3.5 on Swanton Road (Figure 1). The proposed action consists of repairing the outside corner of Swanton Road, which incurred damages to the slope during the FEMA declared disaster event, FEMA 1646-DR-CA. The applicant has proposed to repair the damaged facility with a steel soldier pile and timber lagging retaining wall.

As a result of the field reconnaissance and background review, it was determined that the action area provides habitat suitable to support two federally listed species under the USFWS' jurisdiction: the tidewater goby (*Eucyclogobius newberryi*), which is listed as endangered, and the California red-legged frog (*Rana aurora draytonii*), which is listed as threatened.

After a literature review, site reconnaissance, communication with individuals knowledgeable about the species, and consideration of the proposed activities, FEMA has determined that the proposed action is not likely to adversely affect the endangered tidewater goby or the California red-legged frog. Measures are proposed in this document that will avoid or minimize the potential for mortality, disturbance, habitat degradation, and other potential adverse effects on the tidewater goby and the California red-legged frog.

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The County of Santa Cruz (County), through the Governor's Office of Emergency Services (OES), has requested Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program funding to repair a damaged section of roadway in the northwest area of the county, which is adjacent to Scott Creek.

FEMA has prepared this Biological Assessment (BA) to evaluate potential effects of the proposed action on species that are listed or proposed for listing under the Endangered Species Act (ESA) that are regulated by the United States Fish and Wildlife Service (USFWS). Potential effects on federally listed species are evaluated in accordance with the legal requirements set forth under Section 7 of the ESA (16 U.S.C. 1536). Criteria used to determine which species were considered for this BA and potential adverse effects to those species from project activities are presented. In addition, this report proposes measures to avoid and/or minimize take or disturbance to potentially affected species.

This report is organized into seven sections. The remaining portion of Section 1 describes the purpose and need for the proposed action. Section 2 describes the action area and proposed action. Section 3 describes the affected environment, including the study methods, habitat description, and the species that are relevant to the proposed action. Section 4 evaluates the potential effects on the tidewater goby and the California red-legged frog and presents measures to avoid and minimize for potential adverse effects on those species. Potential cumulative effects are presented in Section 5. References are listed in Section 6, and the list of preparers for this report is provided in Section 7.

1.1 PURPOSE AND NEED

Under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended and Title 44 CFR, the PA Program provides supplemental aid to states and communities to help them recover from major disasters as quickly as possible. Specifically, the program provides assistance for the removal of debris, the implementation of emergency protective measures, and the permanent restoration of public infrastructure. The program also encourages protection from future damage by providing assistance for mitigation measures during the recovery process. Therefore, the purpose of this proposed action is to provide funding to Santa Cruz County to permanently repair a small area of Swanton Road that is currently a public safety hazard and is susceptible to future storm events.

In March 2006, 7 homes, 18 roadways, and utilities throughout the County were destroyed or impaired due to heavy rains causing over 9 million dollars worth of damage. The damage was compounded due to heavy rains from earlier in the season leaving soils saturated and vulnerable to sliding and slope failures.

The embankment and Swanton Road are in danger of continued damage, with the eroding material entering Scott Creek. The County has identified the need to repair and stabilize this section of Swanton Road and reinforce the embankment in a manner that would prevent future damage.

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2.1 ACTION AREA

The action area is located near the community of Swanton, California, along the northern coast of Santa Cruz County approximately 13 miles northwest of the City of Santa Cruz (Figure 1). Swanton is located approximately 2.85 miles from Highway 1 on Swanton Road. The action area is located at Mile Post 3.5 on Swanton Road (Figure 2).

2.2 PROPOSED ACTION

The proposed action consists of clearing and grubbing approximately 107 cubic yards (cy) of soil and vegetation for site preparation (48 feet [ft] x 15 ft x (8 ft/2)). The proposed steel soldier pile and timber lagging retaining wall will be set out 8 ft from the outside edge of the existing roadway. This will put the toe of the wall at an estimated height of 20 ft above the toe of slope and above the stream bank. The nine steel soldier piles are scheduled at intervals of 6 ft on center at a depth of 30 ft with 15 ft of freeboard for a total linear distance of 48 ft. Each soldier pile will be attached to the embankment with a tieback anchoring system. Timber lagging members will be placed between each steel soldier pile to construct the façade with a 15 ft freeboard. Rock gabions (3 ft x 7.5 ft x 15 ft) will be installed at each end of the retaining wall to act as enclosures for the backfill material. A total of 107 cy of structural backfill will be placed in the void between the standing wall and the existing embankment.

The area of damaged roadway will have to be saw-cut and removed and repaired to current County codes and standards. This includes the addition of a metal guardrail on the outside corner of the roadway. Non-native fill material removed from the project location will be transported and disposed of or stored at an approved County landfill or retention area, respectively.

There is adequate room at this site to install the necessary Best Management Practices (BMPs) at the base of the construction area to mitigate any potential sedimentation from exiting the construction area.

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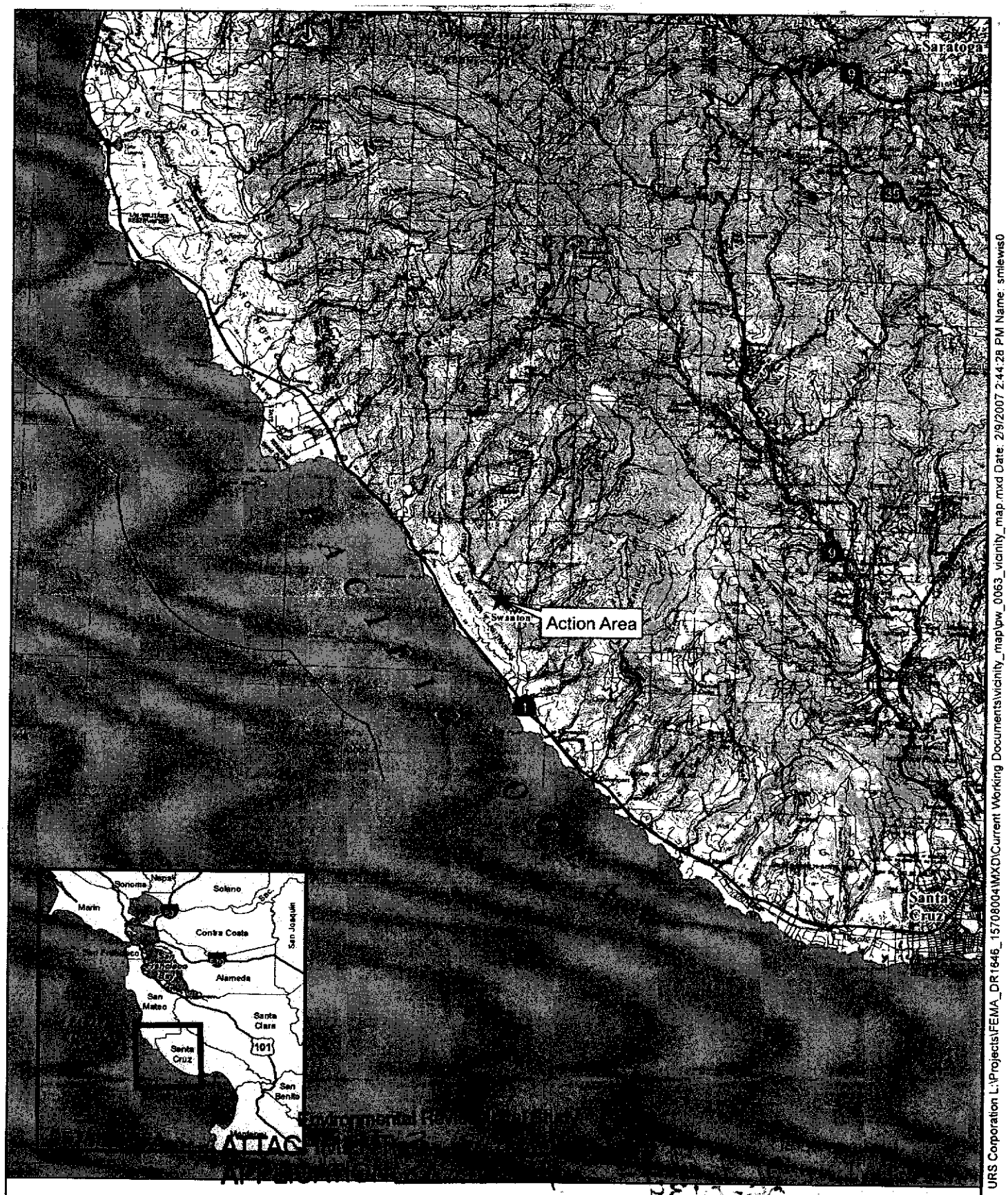

N
W E
S

0 1.5 3
1 inch = 3 miles

15708004	FEMA DR-1646 PW #63 Swanton Road & Slope Repair at PM 3.5	**Vicinity Map**	Figure 1

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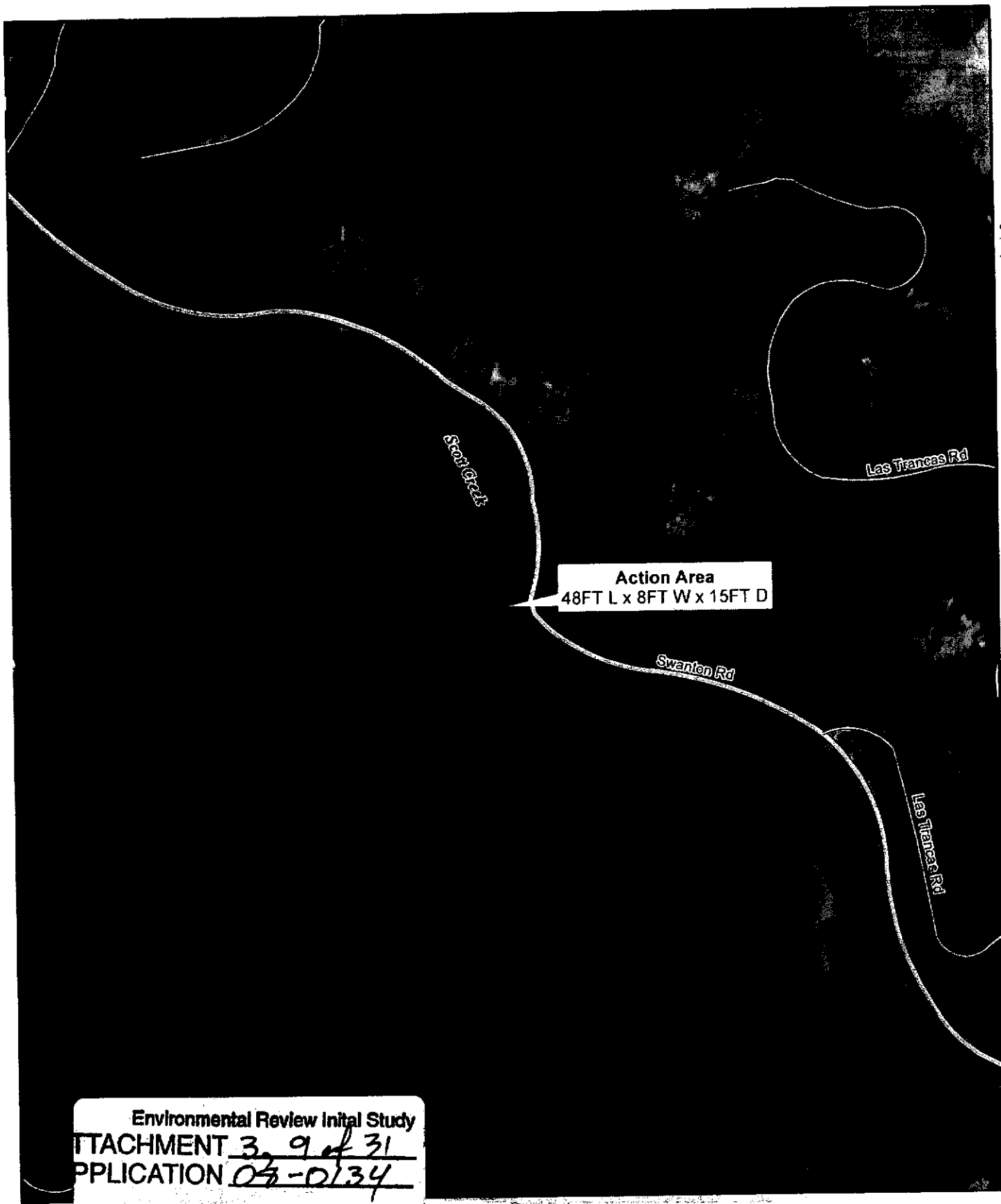

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W E S

0 400 800

1 Inch = 400 Feet

15708004

FEMA DR-1646
PW #63
Swanton Road & Slope
Repair at PM 3.5

Action Area

Figure 2

URS Corporation L:\Projects\FEMA_DR1646_15708004\MXD\Current Working Documents\Action_Area\pw_0063_action_area.mxd Date: 2/12/2007 3:31:00 PM Name: smlewis0

3.1 VEGETATION COMMUNITIES

The action area is adjacent to Scott Creek, which is a small perennial stream that does not have a large riparian influence on the adjacent vegetation. The riparian influence on the vegetation may only extend 50 ft beyond the stream bank on either side. Typical vegetation within the riparian channel include: white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), California bay (*Umbellularia californica*), California buckeye (*Aesculus californicus*), blue elderberry (*Sambucus mexicana*), cow parsnip (*Heracleum lanatum*), Himalayan blackberry (*Rubus discolor*), giant chainfern (*Woodwardia fimbriata*) and rattlesnake grass (*Briza major*). The vegetation community outside of the riparian influence can by typified as a north coast coniferous forest. Species in this plant community include: Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), coastal live oak (*Quercus agrifolia*), California bay, poison oak (*Toxicodendron diversilobum*), California buckeye, and Pacific blackberry (*Rubus ursinus*).

The action area has been removed of woody riparian or upland species from the slope failure and is dominated now by annual forbs and grasses and by weedy perennial species.

3.2 STUDY METHODS

FEMA obtained a list of species that are listed as endangered, threatened, and proposed for listing as endangered or threatened under the ESA that may occur in the action area from the following sources:

- The California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDB) records within the following seven U.S. Geological Survey (USGS) 7.5-minute quadrangles that include the action area and vicinity: Davenport, Ano Nuevo, Big Basin, Castle Rock Ridge, Felton, Franklin Point and Santa Cruz (CDFG 2006).
- An official species list for each of the above USGS 7.5-minute quadrangle maps from the USFWS Ventura Field Office (USFWS 2006a).

The 12 listed wildlife species and 9 listed plant species identified by these sources as having potential to occur in the vicinity of the proposed action that are regulated by the USFWS under the ESA are listed in Appendix A, Table A-1. Kristiaan Stuart of NISTAC, FEMA's consultant, conducted a site reconnaissance survey of the action area on October 25, 2006, to ascertain the potential presence of these species. General habitat characteristics of the action area were evaluated during the reconnaissance survey. Qualitative assessments of each habitat were used to determine whether each of the species identified in Appendix A, Table A-1, are likely to occur in the action area. NISTAC also reviewed available literature to identify the habitat requirements and distribution of the species included in Table A-1. FEMA is consulting separately with the National Marine Fisheries Service (NMFS) for potential adverse effects to species listed and proposed for listing that are under the jurisdiction of that agency and have the potential to occur in the action area.

As a result of the field and background review, FEMA determined that the action area provides habitat suitable to support two federally listed species regulated by the USFWS under the ESA:

- Tidewater goby (*Eucyclogobius newberryi*)
- California red-legged frog (*Rana aurora draytonii*)

3.3 FEDERALLY LISTED SPECIES

The life histories for the tidewater goby and California red-legged frog are described below.

3.3.1 Tidewater Goby

The tidewater goby is listed as endangered under the ESA. 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 (USFWS 2006b). Now, the tidewater goby is 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 (USFWS 2006b).

Tidewater gobies are relatively small and rarely exceed 2 inches in length. They are generally found in shallow lagoons and lower stream reaches where the water is slow-moving or fairly still, but not stagnant, with fairly high dissolved oxygen levels. Gobies prefer water that is brackish to fresh but are capable of living in saline water ranging from 0 to over 50 parts per thousand (ppt) salinity and at temperatures of up to 73 degrees Fahrenheit (°F). Reported water depth for goby habitat ranges from 10 to 39 inches. Suitable water conditions for nesting have been reported as 5 to 10 ppt salinity and 64 to 72°F, with a sand and/or mud substrate with abundant emergent and submerged vegetation.

The breeding season of the tidewater goby 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 in clean coarse sand. The females then deposit the eggs into the burrows. The males remain in the burrows to guard the eggs. The vertical burrow is approximately 4 to 8 inches into a sandy substrate, usually in water 10 to 20 inches deep, in which the female deposits her eggs. Larvae emerge in 9 to 10 days, at which time they become benthic. The males frequently forgo feeding during this period, possibly contributing to the mid-summer mortality noted in some populations.

Tidewater gobies feed on small invertebrates, usually mysids, amphipods, ostracods, snails, and aquatic insect larvae, particularly dipterans. Young tidewater gobies probably feed on unicellular phytoplankton or zooplankton (USFWS 2006b).

3.3.2 California Red-legged Frog

California red-legged frog is listed as threatened under the ESA. The historical range of the red-legged frog extended on the coast from the vicinity of Point Reyes National Seashore, and inland from the vicinity of Redding southward to northwestern Baja California, Mexico (USFWS 2004). This species has sustained a 70 percent reduction in its geographic range in California (USFWS 2004). Currently, California red-legged frogs are primarily limited to small coastal drainages between Santa Barbara and areas just north of San Francisco (Jennings and Hayes 1994). The largest extent of currently occupied habitat is found in Monterey, Santa Cruz, and Santa Barbara Counties (USFWS 2004).

Continuing loss of fresh water habitat and the introduction of non-native predatory fish species and bullfrogs are attributed to the continuing population decline of this species. Much evidence

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indicates that the introduced bullfrog may prey upon and displace red-legged frogs through competition for resources. Loss of riparian and emergent vegetation results in increased water temperature, which favors bullfrog reproduction (USFWS 2004).

Red-legged frogs are generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bull rushes dominate, and water quality is good. Typical habitat for this species is a combination of dense, shrubby or emergent riparian vegetation closely associated with deep water (more than 2.3 ft deep) and the absence of predatory fish and bullfrogs. Upland habitats with dense vegetation may be important sheltering habitat during winter. During the dry season, red-legged frogs occupy small mammal burrows and moist leaf litter. This species has been found up to 100 ft from water in adjacent riparian vegetation.

Breeding sites occur along watercourses with pools that remain long enough for breeding and the development of larvae. Breeding time depends on winter rains but is usually between late November and late April (Jennings 1988; Zeiner et al. 1988). Breeding sites require water that remains long enough for breeding purposes and larval development (CDFG 2005). Egg masses are laid in permanent bodies of water.

Eggs hatch in 6 to 14 days, and approximately 3.5 to 7 months later, the tadpoles develop into frogs. Red-legged frogs must have 11 to 20 weeks of permanent water for larval development, as well as appropriate refugia for aestivation periods. Appropriate refuge for red-legged frogs include small mammal burrows, downed logs or vegetation, or dense vegetation/litter layer.

Tadpoles and young frogs depend mainly on invertebrates as a food source, while the diet of adult frogs consists of Pacific tree frogs (*Hyla regilla*), California mice (*Peromyscus californicus*), and insects. Adult frogs are mainly active at night and may be active year-round in areas with permanent water.

Critical habitat for red-legged frog was finalized in April 2006 (USFWS 2006c). There are three designated critical habitat areas in Santa Cruz County for the California red-legged frog (USFWS 2006c). The proposed action is not located within any of these critical habitat areas.

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This section evaluates the potential effects of the proposed action to the tidewater goby and the California red-legged frog and proposes measures to avoid and minimize potential adverse effects.

4.1 POTENTIAL ADVERSE EFFECTS TO THE TIDEWATER GOBY

No habitat suitable to support the tidewater goby is present in the immediate action area. The tidewater goby inhabits brackish shallow lagoons with salinity levels from zero to 10 ppt. This habitat type does not occur in the action area. The proposed action area is located approximately 0.9 mile from mapped tidewater goby habitat (CDFG 2006, USFWS 2005) and 2.5 miles from the coastal lagoon where Scott Creek flows into the Pacific Ocean. Tidewater gobies were observed in 2005 in this lagoon and Queseria Creek, which is a small tributary to Scott Creek approximately one mile upstream from the lagoon area (USFWS 2005). Although direct effects to the tidewater goby would not occur, indirect effects to the tidewater goby are possible, as explained below.

4.1.1 Erosion and Sedimentation

Sediment from Scott Creek during construction or after the proposed action is constructed could degrade the water quality in reaches of the stream where tidewater gobies are known to be present at 0.9 mile downstream. Therefore, avoidance and minimization measures would be implemented during project construction and implementation as described below in Section 4.2.

4.1.2 Hydrology

The proposed action would not substantially change the hydrology of Scott Creek. The proposed structure would be outside the ordinary high water mark and would not have an impact to hydrology at normal stream flows. The proposed action does not involve any in-water work.

4.2 AVOIDANCE AND MINIMIZATION MEASURES FOR THE TIDEWATER GOBY

To reduce potential erosion and discharge of sediment into Scott Creek and eventually into the lagoon, the following measures will be implemented by the County.

4.2.1 Erosion and Sedimentation Prevention Measures

The County will implement standard BMPs and erosion control measures during construction to minimize possible discharge of sediment into aquatic habitats. These measures include, but are not limited to, installing and maintaining silt fences immediately downgradient of disturbed areas and installing and maintaining erosion control blankets on all disturbed ground. Revegetation at the two ends of the structure would take place after construction has been completed.

Construction vehicles and equipment will be maintained to prevent contamination of soil or water (from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease). Equipment will be refueled and serviced at designated construction staging areas. The County will prepare a plan for the emergency clean up of any spills of fuel or other material and will make this plan available on site for inspection during construction.

4.2.2 Summary of Potential Adverse Effects to the Tidewater Goby

There is no habitat suitable for the tidewater goby in the immediate action area. Construction and implementation of the proposed action would not remove habitat or cause displacement, mortality, or direct injury of tidewater gobies. Implementation of the erosion control measures and BMPs described above during construction and post-construction would avoid mortality of tidewater gobies or degradation of habitats downstream of the action area utilized by this species. For all these reasons, the proposed action is not likely to adversely affect the tidewater goby.

4.3 POTENTIAL ADVERSE EFFECTS TO THE CALIFORNIA RED-LEGGED FROG

Scott Creek adjacent to the action area provides habitat suitable to support the California red-legged frog. The creek has a gravelly bottom (substrate ≤ 9 inches) with low gradient riffles intermixed with small pools. Pool habitat is located adjacent to the action area, which is approximately 35 ft from the action area. The riparian vegetation along Scott Creek is dominated by white alder, California bay, Oregon ash, cow parsnip, and Himalayan blackberry. Red-legged frogs were observed in 1999 in Scott Creek from the mouth of the creek to 4 miles upstream, northwest of Davenport (CDFG 2005). The extent of this occurrence is inclusive to the stream segment adjacent to the action area.

4.3.1 Take and Disturbance

Red-legged frogs are known to occur in Scott Creek. Therefore, the proposed installation of a steel soldier pile and timber lagging retaining wall in the creek bank could result in disturbance, injury, and/or mortality. During construction of the retaining wall, incidental take of adult and juvenile frogs could occur. Construction noise may also disturb frogs in the vicinity of the action area.

4.3.2 Erosion and Sedimentation

Red-legged frogs could be indirectly affected by potential erosion and sedimentation during construction activities. Erosion control measures such as silt fence would be implemented encompassing the perimeter of the action area or as a catch basin at the toe of slope of the action area during construction.

4.3.3 Adverse Effects on Habitat

Post construction impacts could include a net loss in hiding and foraging habitat due to the conversion of the existing earthen wall to the proposed steel soldier pile and timber lagging retaining wall (48 ft x 15 ft). Riparian habitat in the action area potentially provides foraging and hiding habitat for red-legged frogs.

4.4 AVOIDANCE AND MINIMIZATION MEASURES FOR THE CALIFORNIA RED-LEGGED FROG

The County will implement the following measures to avoid and reduce adverse effects to California red-legged frogs and their habitat.

4.4.1 Take and Disturbance

- Construction activities in Scott Creek and the riparian habitat will be timed to occur during the latter part of the dry season (non-breeding season for red-legged frogs) (typically from April 15 to October 15) to minimize take of dispersing frogs. However, because FEMA is also consulting with NMFS regarding the proposed action and has recommended a time restriction to protect anadromous fish, the project construction window is reduced to June 15 to October 15.
- A USFWS-approved biologist will conduct preconstruction surveys of all ground disturbance areas within riparian habitats to determine if California red-legged frogs are present prior to the start of construction. These surveys will be conducted less than 2 days prior to start of construction activities in the riparian zone. If California red-legged frogs are found during any preconstruction surveys, the USFWS-approved biologist will contact the USFWS to determine if moving them is appropriate. If the USFWS gives approval for relocation, the USFWS-approved biologist will be allowed sufficient time to move the California red-legged frogs from the work site before activities begin.
- A USFWS-approved biologist will monitor construction activities that involve vegetation removal and installation of rock slope protection along the channel bank. If California red-legged frogs are found that are likely to be killed or injured by work activities, the USFWS-approved biologist will be allowed sufficient time to move them from the site before work activities resume. The USFWS-approved biologist will relocate the California red-legged frogs the shortest distance possible to suitable habitat that will not be affected by activities associated with the proposed action. Only California red-legged frogs that are at risk of injury or death by project activities may be moved.
- Only USFWS-approved biologists will participate in activities associated with capture, handling, and monitoring of California red-legged frogs. The County will request and receive the USFWS' approval of any other biologist it wishes to employ to conduct activities with California red-legged frogs.
- If more than two (2) California red-legged frogs are found dead or injured within a 12-month period, inclusive of the revegetation and 3 -year vegetation monitoring programs, the County will contact the USFWS immediately so the USFWS can review the project activities to determine if additional protective measures are needed.
- Exclusion fences comprised of silt fence material will be installed at the margins of the work area to prevent workers from encroaching into adjacent habitat and to prevent California red-legged frogs from entering the construction area. The fence will be monitored periodically. A fine (less than 1 centimeter) mesh will be used to avoid entrapment of amphibians in the silt fence. The silt fence will be monitored periodically during construction to evaluate its effectiveness. All fencing in this area will be maintained for the duration of construction and removed on project completion.
- To avoid attracting predators, food-related trash will be kept in closed containers and removed regularly from the action area.
- To avoid transferring disease or pathogens, the USFWS-approved biologist will follow the Declining Amphibian Populations Task Force Fieldwork Code of Practice (USFWS 2005).

- Prior to construction, a qualified biologist will conduct training sessions to familiarize all construction personnel with the following: identification of California red-legged frogs, their habitat, general provisions and protections afforded by the ESA, measures implemented to protect the species, and a review of the project boundaries. This training will also be provided within 30 days of the arrival of any new worker.
- If an injured California red-legged frog is found, the contractor will have a USFWS-approved biologist determine the extent of the injury. If the injury is minor and the frog is likely to survive without treatment, the biologist will document the injury and release the frog in an appropriate location previously designated by the USFWS. However, if the injured frog would require professional treatment to survive, the biologist will transport the frog to the location where a qualified professional can provide the needed treatment. The location of a qualified professional to assist the frog would have been documented prior to the start of construction. The treated frog will be released at an appropriate location as soon as its recovery will allow. Within three working days, the injured frog incident will be reported to the USFWS and reported information will include date of injury, extent of injury, and action(s) taken. If a frog were to die while being treated or a dead frog was to be located within the action areas, the USFWS will be contacted within three working days. At that time, the USFWS would also provide instructions regarding the deposition of the frog.
- The County will provide the USFWS a report on the impacts of the proposed action to California red-legged frogs. The report will provide the results of biological surveys and sighting records, and also document the following: the number of California red-legged frogs relocated from the action area or killed or injured during the proposed action; the dates and times of capture, mortality, or injury; specific locations of capture, mortality, or injury; approximate size and age of individuals; and a description of relocation sites.

4.4.2 Erosion and Sedimentation

- Standard BMPs and erosion control measures will be implemented during construction to minimize possible discharge of sediment into aquatic habitats. These measures include, but are not limited to, installing and maintaining silt fences immediately downgradient of disturbed areas and installing and maintaining erosion control blankets on all disturbed ground.

4.4.3 Adverse Effects on Habitat

- The County will revegetate all disturbed areas and implement a 3-year vegetation monitoring program. The County would revegetate the action area with native plant species, which includes tree replacement at a ratio of 3:1.

4.4.4 Summary of Potential Adverse Effects to the California Red-legged Frog

In sum, the total impacts of the proposed action on California red-legged frogs would be minor and restricted to a small portion of the Scott Creek watershed and Central Coast Recovery Unit. The small amount of bank and riparian habitat to be removed by this project alone would not affect the ability of the species to persist in Scott Creek. California red-legged frogs are known to occur elsewhere in Scott Creek and in 247 other streams or drainages throughout its

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range (USFWS 2005). Therefore, the small impacts incurred at this action are not considered to have an appreciable effect on the continued existence of this species. FEMA has determined that with the implementation of the avoidance and minimization measures identified in Section 4.3, the proposed action is not likely to adversely affect the California red-legged frog or its designated critical habitat.

Cumulative effects as defined by the ESA are those effects of future state or private activities that are reasonably certain to occur within the proposed action area [ESA, Section 402.14 (g)(4)]. Cumulative effects to species federally listed and proposed to be listed addressed in this report would not be likely to occur in association with other projects near Swanton Road.

The proposed steel soldier pile and timber lagging retaining wall in combination with one other project in the area would not contribute to cumulative effects on federally listed species.

FEMA 1646-DR-CA, Project Worksheet (PW)# 426 is located at Mile Post 4.99 on Swanton Road where the action area is located on the uphill side of the roadway. This site is located approximately 1.5 miles (northwest) up Swanton Road from the action area presented in this report. Swanton road deviates from Scott Creek approximately 0.5 mile before the location of PW# 426 and is outside the Scott Creek riparian corridor and mapped California red-legged frog habitat. The scope of work for project PW# 426 involved removing five trees that had become undermined during FEMA 1646 storm event and had to be removed for public safety concerns on an uphill embankment of Swanton Road. Due to the insignificant size and scope of this project and its distance to known California red-legged frog and tidewater goby habitat this project will not have any cumulative impacts.

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FEMA Region IX

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APPENDIX A
SPECIES FEDERALLY LISTED AND PROPOSED FOR LISTING WITH POTENTIAL TO OCCUR IN THE VICINITY OF SWANTON

Appendix A
Species Federally Listed and Proposed for Listing with Potential to Occur in the Vicinity of the Swanton Road Project

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Amphibians				
Rana aurora draytonii	California red-legged frog	T	Dense, shrubby riparian vegetation associated with deep (≥ 0.7 meter), still or slow-moving water.	Known to occur in Scott Creek adjacent to the action area. Red-legged frogs were observed in March of 1999 in Scott Creek (CDFG 2006).
Reptiles				
Thamnophis sirtalis tetrataenia	San Francisco garter snake	E	Inhabits densely vegetated areas of ponded freshwater areas that are adjacent to sunny hillsides for basking. Other areas of lesser quality have been known to be occupied if prey species are present, namely Pacific tree frogs (*Hyla regilla*) and California red-legged frog (*Rana aurora draytonii*). Historical range extends south from the San Francisco peninsula along the foothills of San Mateo County and terminating at Waddell Creek in northwestern Santa Cruz County.	Not likely; marginal feeding habitat characteristics are present in the action area. Action area is located outside of this species historical range. Southern most extent of subspecies range is 3 miles north of the action area at Waddell Creek in Santa Cruz County (USFWS 2006b).
Birds				
Charadrius alexandrinus nivosus	Western snowy plover	T	Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees and gravel bars.	No potential to occur; appropriate habitat characteristics are not present in the action area. Closest known occurrence is at the estuary area of Scott Creek and the Pacific Ocean approximately three miles downstream from the action area (CDFG 2006).

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Brachyramphus marmoratus	Marbled murrelet	T	Nesting sites are typically found within 50 miles of the ocean in redwood or Douglas fir forests that comprise a dense and multilayered canopy. Typical nesting trees are 36 inches in diameter at breast height or greater in diameter with perpendicular branches ≥ 11 inches (Hamer and Nelson 1995).	Not likely; forest around the action area is not predominated by either redwood or Douglas fir trees that meet the size requirement or density of this species. The closest occurrence of this species to the action area is 6.5 miles to the north (CDFG 2006).
Fish				
Eucyclogobius newberryi	Tidewater goby	E (PD)	Brackish shallow lagoons and lower stream reaches where the water is fairly still but not stagnant; found in water with salinity levels from zero to 10 ppt, temperature levels from 35 to 73 degrees Fahrenheit, and water depths from 5 to 7.5 feet.	Not likely; appropriate habitat characteristics are not present in the action area. The action area is approximately 0.9 miles from the furthest upstream extent of the CNDDB's GIS species specific polygon which also corresponds to map data from USFWS (USFWS 2005b). The most recent observance site was in 2005 (USFWS 2005b) approximately 2.5 miles downstream of the action area in a lagoon area of Scott Creek (CDFG 2006).

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Oncorhynchus kisutch	central California coast Coho salmon	T	Requires beds of loose, silt-free, coarse gravel for spawning and also cover, cool water, and sufficient dissolved oxygen. Coho salmon spend approximately the first half of their life cycle rearing in streams and small freshwater tributaries. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean prior to returning to their stream of origin to spawn and die. Most adults are 3-year-old fish, however, some precocious males known as "jacks" return as 2-year-old spawners.	Known to occur in Scott Creek adjacent to the action area. Spawning habitat is present adjacent to the action area. FEMA is consulting with NMFS on this species under a separate cover.
Oncorhynchus mykiss irideus	central California coast steelhead	T	Pacific Ocean, spawns in coastal streams and rivers, over gravel beds. Pool depth, volume, amount of cover, and proximity to gravel for spawning play key roles.	Known to occur in Scott Creek adjacent to the action area. Spawning habitat is present adjacent to the action area. FEMA is consulting with NMFS on this species under a separate cover.
Invertebrates				
Cicendela ohlone	Ohlone tiger beetle	E	Coastal terrace habitat with Watsonville loam (Santa Cruz mudstone) (at < 1,200 feet elevation), especially remnant stands of native grassland characterized by plant species such as Danthonia californica and Nassella pulchra. Only five populations known to exist, each population is localized to an area less than 5 acres. Currently, the extent of potentially suitable habitat is estimated at only 200 to 300 acres in Santa Cruz County.	No potential to occur; appropriate habitat characteristics are not present in the action area. Closest known occurrence was observed in 1994 approximately 11 miles south of the action area.

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Euphilotes enoptes smithi	Smith's blue butterfly	E	Coastal sand dunes, extending one kilometer inland in a westward direction from the Pacific Ocean (mean higher high tide line), bounded by Del Rey Creek on the south and the Salinas River on the north in Monterey County.	No potential to occur; appropriate habitat characteristics are not present in the action area. Project location is outside of species known range. No known occurrences were found near the action area.
Polyphyla barbata	Mount Hermon june beetle	E	Restricted to Zayante sand soils in the Felton USGS Quadrangle. Can persist in moderately-developed areas with suitable soils. Habitat areas are characterized by the plant species Pinus ponderosa and Arctostaphylos silvicola.	No potential to occur; appropriate habitat characteristics, namely the presence of Zayante soils, are not present in the action area. Project location is outside of species known range. No known occurrences were found near the action area.
Trimerotropis infantillis	Zayante band-winged grasshopper	E	Restricted to the Zayante sand hills ecosystem endemic to inland marine sand deposits in the Santa Cruz Mountains. Narrowly distributed, known only from seven patches of sand parkland.	No potential to occur; appropriate habitat characteristics, namely the presence of Zayante soils, are not present in the action area. Project location is outside of species known range. No known occurrences were found near the action area.
Mammals				
Eumetopias jubatus	Steller (=northern) sea-lion	T	Pacific Ocean. Occupies marine rookeries and terrestrial haulouts.	No potential to occur; appropriate habitat characteristics are not present in the action area. Project location is outside of species known range. No known occurrences were found near the action area.
Plants				
Arenaria paludicola	Marsh sandwort	E	Freshwater-marsh habitats; 3 - 170 meters. Blooming period from May through August.	No potential to occur; appropriate habitat characteristics are not present in the action area.

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Chorizanthe pungens var. hartwegiana	Ben Lomond spineflower	E	Ben Lomond sandhills community from Big Basin State Park to Felton area in Santa Cruz Mtns. Mostly on private lands.	No potential to occur; appropriate habitat characteristics are not present in the action area.
Chorizanthe robusta var. hartwegii	Scotts Valley spineflower	E	Endemic to Purisma sandstone and Santa Cruz mudstone in Scott's Valley in the Santa Cruz Mountains. The entire range of the Scotts Valley spineflower occurs on four parcels, all in private ownership, and covers a range of 1.5 miles in northern Scotts Valley. < 300 m Coastal sand, scrub	No potential to occur; appropriate habitat characteristics are not present in the action area.
Chorizanthe robusta var. robusta	robust spineflower	E	Historically occurred from Alameda to Monterey counties, but is currently known only from sandy and gravelly soils along and adjacent to the coast of southern Santa Cruz and northern Monterey counties. The only known extant populations occur northeast of the city of Santa Cruz and near Sunset and Manresa State Beaches.	No potential to occur; appropriate habitat characteristics are not present in the action area.
Cupressus abramsiana	Santa Cruz cypress	E	The only grove in San Mateo County grows on Butano Ridge. In Santa Cruz County, groves occur near Bonny Doon, Eagle Rack, and Braken Brae Creek, and between Majors and Laguna Creeks. Predominantly on privately owned lands. Significant portion of the Butane Ridge stand is within Pescadero Creek County Park. past disturbance by construction (Bracken Brae and Majors). Closed cone coniferous forest, chaparral, lower montane coniferous forest on sandstone or granitic soils. Elev. 280-800 meters	No potential to occur; appropriate habitat characteristics are not present in the action area.

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Erysimum teretifolium	Santa Cruz wallflower	E	Endemic to pockets of sandstone deposits in the Santa Cruz Mountains. Presently known from the area generally bounded by the communities of Ben Lomond, Glenwood, Scotts Valley, and Felton, with one outlying population occurring in the Bonny Doon area, 5 miles west of Felton. One population occurs at Quail Hollow Ranch. All other populations are on privately-owned lands.	No potential to occur; appropriate habitat characteristics are not present in the action area.
Holocarpha macradenia	Santa Cruz tarplant	T	Grassy coastal terraces and prairies below 330 feet. Once found in most San Francisco Bay Area counties and south to Monterey County. Development has resulted in the extirpation of all natural populations in the counties surrounding the Bay. The species is now limited to 12 natural occurrences in Santa Cruz and Monterey counties.	No potential to occur; appropriate habitat characteristics are not present in the action area.
Pentachaeta bellidiflora	white-rayed pentachaeta	E	Grows in serpentine bunchgrass habitat. Historically, it was known from at least nine sites in Marin, San Mateo, Santa Cruz and Monterey counties. Now known from only one confirmed location in San Mateo County, in the "Triangle" area and adjacent Edgewood County Park.	No potential to occur; appropriate habitat characteristics are not present in the action area.

Table A-1
Species Federally Listed and Proposed for Listing With Potential To Occur in the Vicinity of Swanton

Scientific Name	Common Name	Federal Status	Preferred Habitat	Likelihood of Occurring in the Action Area
Polygonum hickmanii	Scotts Valley polygonum	E	Occurs on gently sloping to nearly level fine-textured shallow soils over outcrops of Santa Cruz mudstone and Purisma sandstone with the Scotts Valley spineflower and other small annual herbs in patches within isolated relictual grasslands. Elevation of the sites is from 700 to 800 feet. Four colonies are known from two sites about one mile apart at the northern end of Scotts Valley. Occupied habitat comprises less than one acre total.	No potential to occur; appropriate habitat characteristics are not present in the action area.

Federal Endangered Species Act

E - Endangered

T- Threatened

Source: USFWS species list for Santa Cruz County and CNDDB search for seven quadrangles surrounding the action area.

APPENDIX B
SITE PHOTOGRAPHS

Photograph 1. Slope Failure at Edge of Swanton Road

Photograph 2. View of Slope Failure and Scott Creek

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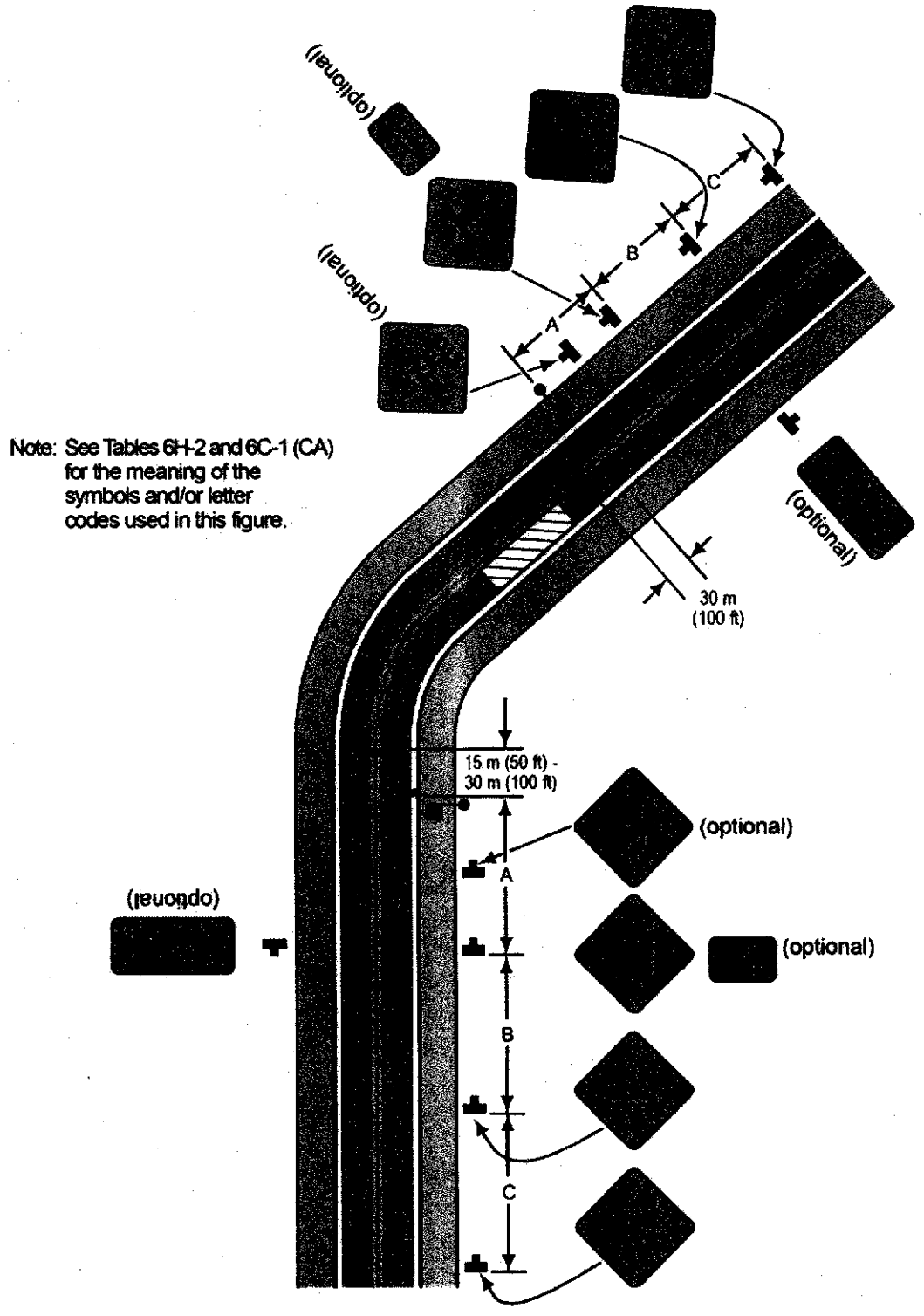
Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

SWANTON ROAD PM 3.5 STORM DAMAGE REPAIR PROJECT

TRAFFIC CONTROL SYSTEM.

The traffic control system shall consist of closing the south bound traffic lane only and controlling traffic in the remaining north bound lane continuously for the full term of the construction contract in accordance with the details shown on the plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under Section 10-1.05, "Maintaining Traffic," of these special provisions, these special provisions and an approved Traffic Control Plan.

Signs for traffic control system shall conform to the provisions under Section 10-1.03, "Construction Area Signs," of these special provisions.

24 hour traffic control for the duration of the construction work is mandatory.

The provisions of this section will not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions of Section 7-1.09, "Public Safety," of the Standard Specifications.

The Contractor shall immediately repair or replace any component in the traffic control system that is damaged, displaced, or ceases to operate or function as specified.

Upon completion of the work requiring lane closure, all components of the traffic control system that are the responsibility of the Contractor to install and maintain shall be removed from the site of the work and shall become the property of the Contractor.

The contract lump sum price paid for Traffic Control System shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, repairing, moving to new locations, replacing and disposing of the components of the traffic control system as shown on the plans, including temporary 'K' rail, in accordance with the provisions of the Standard Specifications and these special provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

(F) EROSION CONTROL AND REVEGETATION.

The work performed in connection with temporary permanent erosion control measures and highway planting shall conform to the provisions of Section 20, "Erosion Control and Highway Planting," of the Standard Specifications, the contract plans and these special provisions.

A. TEMPORARY EROSION CONTROL. Temporary erosion control shall consist of, but not to be limited to, constructing such facilities and taking such measures as are necessary to prevent, control, and abate water, siltation and mud, and erosion damage to public and private property resulting during the construction of this project. Appropriate measures shall be taken as are necessary to prevent siltation and runoff from entering the watershed. Surface runoff resulting shall be routed away from or around the work site and eroded or graded areas during all construction activities. Any erosion and siltation problems that arise during construction, such as rilling and gully erosion shall be brought to the Engineers attention and mitigated immediately.

Conformance with the requirements of this section shall in no way relieve the Contractor from his responsibilities, as provided in Section 7-1.01G, "Water Pollution," Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The requirements in said Section 7-1.01G shall apply during implementation of temporary and permanent erosion control work. The program for water pollution control to be submitted shall include the Contractor's plans for erosion control measures for all phases of the work including silt fences within the creek waterway for control of tributary surface storm runoff and potential siltation.

By October 15 approved temporary erosion control measures that are necessary to prevent damage during the forthcoming winter season shall be put into place complete and functioning. If earthwork operations in any area has not progressed to a point where all or part of the erosion control measures for that area have not been constructed, the Contractor shall construct such supplementary temporary erosion control facilities as are necessary to protect adjacent private and public properties and the watershed as directed by the Engineer.

1. The Contractor shall conduct his operations in such a manner that storm runoff will first be detained in storm water detention facilities within the project area and then safely channeled into the creek bypass system which serves the runoff area with no increased turbidity to the watershed. Said detention/bypass facilities shall be designed by the Contractor or his engineer and submitted to the County Resident Engineer for approval prior to implementation.

2. Mud and silt shall be settled out of the storm runoff before said runoff enters the storm drain system.

3. Contour graded areas shall be protected against erosion and the resulting siltation of downstream facilities. Temporary measures shall prevent increased turbidity and may include, but shall not be limited to, filter fabric fences to filter silt and sediment from runoff.

Compensation for Temporary Erosion Control shall be included in the contract lump sum price paid for Erosion Control and Revegetation, including full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing temporary erosion control measures, complete in place, including water pollution control measures as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

B. PERMANENT EROSION CONTROL. Permanent erosion control shall conform to the details shown on the plans, the provisions in Section 20-3, "Erosion Control," of the Standard Specifications, the contract plans and these special provisions.

Permanent erosion control measures shall be applied to the area(s) delineated on the contract plans and any other disturbed earth areas resulting from the Contractors operations.

TOPSOIL

Native existing topsoil shall be striped and collected from the project work site as follows:

1. Select a location for a stabilized temporary stockpile site that will not erode, block drainage, or interfere with work on the site.
2. Strip topsoil only from those areas that will be disrupted by excavation, filling, road building, or compacting by equipment. A 4"-6" stripping depth is common, but depth varies depending on the site. Topsoil shall be store at the stockpile site.
3. The contractor shall protect topsoil stockpiles by temporarily covering with plastic sheeting as soon as possible to assure the stored material is not exposed and allowed to erode.
4. When the project is completed and before seeding commences, scarify the subsoil and uniformly distribute topsoil to a minimum depth of 3".
5. Topsoil shall not be spread if frozen or muddy or when the subgrade is wet or frozen. Correct any irregularities in the surface that result from placing topsoil or other operations to prevent the formation of depressions or water pockets is required. Compact

the topsoil enough to ensure good contact with the surface and underlying soil.

6. Agricultural grade topsoil can be incorporated into or replace nutrient deficient topsoil.
7. Compost alternative: compost can be substituted for topsoil (contact the County of Santa Cruz @ (831) 427-3452 for suppliers in the area).

STRAW ROLLS

Biodegradable natural jute fiber straw rice wattle, 9" diameter (1.6 lbs/ft.) from Earth Saver Erosion Control Products, Yolo, CA 866/ 928-8537 or approved equal shall be used where shown on the contract plans. Install straw rolls after blanket installation and per the manufactures specifications and instructions.

EROSION CONTROL FABRIC BLANKET

Erosion control fabric blanket shall be Geocoir BC7, 100% Coconut fiber, 700 grams/square meter or approved equal. The blanket shall be secured with 12" long 8-gauge steel, square head, wire staples, per manufactures recommendations from Bothers Coir Mills Pvt. Ltd. or approved equal. Available through: Reed & Graham, Inc. Geosynthetic Division (916) 381-9900

EROSION CONTROL SEED

Composition, purity and broadcast rate of the particular seed mix shall be as shown and specified on the project erosion control plans. Submit a 4-ounce sample of seed mix to the Engineer with certification for approval prior to placement. Seed mix can be obtained from Pacific Coast Seed, Livermore, CA 800/733-3462 or approved equal.

EROSION CONTROL INSTALLATION

Placement of permanent erosion control measures shall conform to the details shown on the plans, the provisions in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

A hydroseed specialist under the direction of the Contractor shall conduct hydroseeding of the site. This work will be done prior to the installation of the container stock. The Contractor shall minimize ground disturbances to hydroseeded areas.

HYDROSEEDING WORK

The Contractor shall be responsible for the following work items:

a. Application of seed, mulch, fertilizer and tackifier on all work related disturbed soil areas, as depicted on the Erosion Control Plan.

b. The final graded earth surfaces shall be smooth (less than four

inches deviations form an even plane surface, with no "tenting" of the placed erosion control blanket

SEEDING LOCATIONS

The locations of the seeding areas are for planning purposes only and may be adjusted in the field at the direction of the Engineer prior to installation. The Contractor shall take care to install seed and related materials to provide optimum growth conditions and maximum aesthetics. Seeded material shall not be installed so as to obstruct drainage patterns or harm existing native vegetation. The Contractor shall notify the Engineer should any conflicts arise. Prior to seeding, the Contractor shall flag the boundaries of the areas to be sedded, demarcating the application area for the specified seed mixes. The Engineer shall review and approve all seeding locations prior to the seeding operations

MATERIALS

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

The Contractor shall be responsible for supplying all materials for the seed application, including seed, mulch, tackifier, fertilizer, as specified, and delivery of the materials to the site. The Engineer shall review and approve all materials, prior to their installation. The Contractor shall be responsible for replacement with approved alternate material(s) if original submitted material(s) are not as specified or are rejected by the Engineer. The Contractor shall ensure that all seed are true to name, with seed mixes identified with the botanical name, application rate, purity and germ, and that the seed and/or seed mix contains no extraneous or noxious weeds. All seeds shall be of the genus and species shown on the plans. Under no conditions will there be any substitution of species, except with the express prior written consent of the Engineer. If the specified material is not available, the Contractor shall secure approved suitable substitution materials in a timely fashion to meet the project schedule.

SEEDING SCHEDULE

Seeding shall occur following all final site grading work and when the seed bed has been prepared. Seeding shall occur prior to blanket installation.

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Seeding shall consist of a 2-step hydroseeding process, applied by a professional hydroseeder. Seed, fertilizer, mulch, and tackifier will be sown at the rate specified on the plans. Prior to hydroseeding, the seed mixture will be pre-mixed by a mechanical mixer. Prior to the application of the hydroseed/mulch mixture, the applicator will clean and rinse all equipment to preclude the application of weeds or other species not intended for the site. The hydroseeding application will follow a two-step process: 1) Hydro-spray seed and 500 lbs./acre of hydraulic fiber mulch and 2) Apply 1500 lbs./acre hydraulic fiber mulch,

fertilizer and tackifier.

The second step shall consist of installing the erosion control blanket over the seed and commercial fertilizer application as follows:

Erosion control blanket strips shall be securely placed on the slope with direct contact with finished grade and the longitudinal joints parallel to the slope contour lines. Longitudinal joints of blankets shall be overlapped over adjacent strips and stapled. Staples shall be driven perpendicular to the slopes, and shall be located and spaced in accordance with the manufacturer's instructions. Ends of the blankets shall be secured in place by burying them in the soil a minimum of 6" in depth. Refer to installation detail on the drawings and manufacturer's instructions for installation methods.

Once erosion control work is started in an area, all applications of the erosion control work shall be completed in that area on the same work day. Infill all gullies to ensure direct contact with the soil and hand seed all repair areas at the completion of the project.

PAYMENT

Compensation for Permanent Erosion Control shall be included in the lump sum contract price paid for Erosion Control and Revegetation and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing permanent erosion control measures, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer and no additional compensation will be allowed therefore.

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