

## CALIFORNIA COASTAL COMMISSION

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**F 17e****STAFF RECOMMENDATION****ON CONSISTENCY DETERMINATION**

Consistency Determination No.	<b>CD-40-03</b>
Staff:	MPD-SF
File Date:	5/6/2003
45th Day:	7/5/2003
60th Day:	7/20/2003
Commission Meeting:	6/13/2003

**FEDERAL AGENCY:**      **National Park Service**, Golden Gate National  
Recreation Area (GGNRA)

**PROJECT**  
**LOCATION:**                      Easkoot Creek, Stinson Beach, Marin County (Exhibits 1-3)

**PROJECT**  
**DESCRIPTION:**              Restoration of 755 ft. segment of Lower Easkoot Creek  
(Exhibits 5-9)

**EXECUTIVE SUMMARY**

The National Park Service has submitted a consistency determination for the restoration of a portion of Lower Easkoot Creek, adjacent to the Stinson Beach parking lot in Marin County. Past channelization and development adjacent to the creek constrain and encroach both upstream and downstream segments. The restoration goals focus on two important limiting factors for fish production: (1) the absence of pool habitats with associated large woody debris; and (2) lack of natural riparian habitat. The Park Service proposes to restore the creek to a stable, more natural, and non-uniform, meandering channel, install woody debris, plant native riparian vegetation, remove non-native vegetation, and create a floodplain area. The project would improve and increase the extent of riparian and wetland vegetation and improve steelhead trout and coho salmon habitat in the creek.

The project is an allowable use for stream alteration, as it is an activity whose primary function is the improvement of fish and wildlife habitat. The primary issues raised are the need to assure that the restoration benefits will outweigh the temporary impacts from altering the creek's wildlife and flow, that the project will not cause flooding downstream, that water quality impacts will be minimized during construction activities, and that construction staging will not reduce parking at the popular Stinson Beach parking lot.

The Park Service has developed mitigation to address short term impacts (Exhibit 10). The biological mitigation measures include conducting bird and frog surveys before and during construction activities, protecting existing native trees and shrubs, removing non-native vegetation, limiting in-channel construction activities to the low-flow period (to avoid spawning, adult in-migration, and juvenile outmigration), piping or culverting the any stream flows if flowing water is present (to allow juvenile fish movement downstream), installing fish barriers (to prevent fish from entering the work area), daily monitoring by a fishery biologist (who will have the authority to halt work and recommend measures for avoiding adverse effects), and, where creek flow occurs, remove juvenile coho and steelhead (by a qualified fishery biologist) and relocate them to a suitable location outside the project area. The measures also include use of Best Management Practices to protect water quality (see pp. 12-13), short- and long-term monitoring to assure restoration success (see pp. 13-14), and the "Conservation Measures and Terms and Conditions" contained in the National Marine Fisheries Service Biological Opinion (Exhibit 11).

With these measures, the project represents the least environmentally damaging feasible alternative, would provide net habitat benefits, includes habitat avoidance, minimization, and monitoring efforts, and is consistent with the applicable stream alteration (Section 30236), and the wetland, environmentally sensitive habitat, and water quality policies (Sections 30233, and 30240, and 30231) of the Coastal Act. The project will avoid reducing available parking at the heavily used Stinson Beach parking lot during construction, and the Park Service will improve the recreational experience with the additional of interpretive features. The project is therefore consistent with the public access and recreation policies (Sections 30210-30214) of the Coastal Act. The project will avoid increasing downstream flooding in the residential area between this creek segment and Bolinas Lagoon, and the project is therefore consistent with the flooding/geologic hazard policy (Section 30253) of the Coastal Act.

## **STAFF SUMMARY AND RECOMMENDATION**

**I. Project Description.** The National Park Service (NPS, or Park Service), Golden Gate National Recreation Area (GGNRA), has submitted a consistency determination for the restoration of a 755 ft. long portion of Lower Easkoot Creek in the town of Stinson Beach, Marin County (Exhibit 1). This restoration effort is an outgrowth of the National Park Service's mission of restoring and protecting natural resources within NPS lands. The project is intended to benefit habitat for federally threatened species as well as restore the area's native vegetation and floodplain, through restoring natural ecosystem functions and features that have been previously disrupted by human activities.

Easkoot Creek is a small perennial stream flowing into Bolinas Lagoon through Stinson Beach, draining a watershed of 1062 acres. Much of the upper watershed is in public ownership, while the lowest reach (downstream of the proposed project) flows through mostly private lands. From its headwaters along the western slopes of Mt. Tamalpais, the Creek flows westward through the town of Stinson Beach into the Stinson Beach Park (Exhibits 3-4), which is a public beach operated by GGRNA, including parking lots (just south of the creek), restrooms, and a small maintenance facility. Lower Easkoot Creek flows through a portion of the GGNRA's Stinson Beach Park, and then north to Bolinas Lagoon.

The primary goal of the proposed habitat restoration project is to improve summer and winter rearing habitat within the watershed for the threatened Central California Coast steelhead trout (*Oncorhynchus mykiss*) and coho salmon (*O. kisutch*). The project seeks to address two important limiting factors for fish production: (1) the absence of pool habitats with associated large woody debris; and (2) lack of natural riparian habitat. The Park Service notes that:

*This project, in conjunction with other restoration efforts upstream and downstream of the GGNRA lands, would have a long-term beneficial effect on the steelhead trout and coho salmon habitat of Easkoot Creek.*

The Park Service further states that project's habitat objectives include: (1) rehabilitating the existing creek ecosystem to the greatest extent possible (given present day physical constraints); (2) creating a creek ecosystem that functions naturally with minimal maintenance; and (3) improving habitat quality and expanding habitat areas for native plants and animals over existing conditions within the project area. To accomplish these goals, the Park Service proposes to modify the stream to establish gentle stream meanders, a low flow channel, and a connected floodplain. Rock and wood weirs would be installed (Exhibit 9), and orientation and spacing would be used to guide flows into alternating banks. Revetment structures composed of logs, boulders, and rootwads would be placed at the outside of these meander bends (Exhibit 8), with the intent of establishing self-maintaining lateral scour pools at these locations. These revetment structures would be used to create needed cover for juvenile salmonids. Up to five revetments and sixteen weir structures would be installed within the project area (Exhibits 7-9).

Non-habitat related objectives include: (1) maintaining public access to the Stinson Beach facility and avoiding effects on the recreational resources of Stinson Beach; (2) involving local landowners, community organizations, and resource agencies in the planning and implementation of restoration efforts; and (3) designing the restoration to avoid increasing flooding risk or property damage.

**II. Status of Local Coastal Program.** The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If the LCP has been certified by the Commission and incorporated into the California Coastal Management Program (CCMP), it can provide guidance in applying

Chapter 3 policies in light of local circumstances. If the LCP has not been incorporated into the CCMP, it cannot be used to guide the Commission's decision, but it can be used as background information. The Marin County LCP has been incorporated into the CCMP.

**III. Federal Agency's Consistency Determination.** The National Park Service has determined the project consistent to the maximum extent practicable with the California Coastal Management Program.

**IV. Staff Recommendation.** The staff recommends that the Commission adopt the following motion:

**MOTION:** I move that the Commission concur with consistency determination CD-40-03 that the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).

**STAFF RECOMMENDATION:**

Staff recommends a YES vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

**RESOLUTION TO CONCUR WITH CONSISTENCY DETERMINATION:**

The Commission hereby **concurs** with consistency determination CD-40-03 by the National Park Service on the grounds that the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the CCMP.

**V. Findings and Declarations:**

The Commission finds and declares as follows:

**A. Stream Alteration, Wetlands, and Environmentally Sensitive Habitat.** While the overall project goal is clearly habitat enhancement and harmonious with Coastal Act values, because the project involves stream alteration, wetland modifications within the streambed, and temporary adverse impacts to listed and environmentally sensitive species, the project must be reviewed under Sections 30236, 30233, and 30240 of the Coastal Act. Sections 30236 and 30233 limit allowable uses in wetlands and streams to "developments where the primary function is the improvement of fish and wildlife habitat" (Section 30236(3)) and "Restoration purposes" (Section 30333(a)(7)). In addition, Section 30240 limits development within environmentally sensitive habitat areas (ESHAs) to "uses dependent on those [ESHA] resources." These policies provide:

30236: *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.*

30233(a): *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to ... [eight specified uses, including]: ... (7) Restoration purposes.*

30240. (a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Past channelization and development adjacent to the creek constrain and encroach on both upstream and downstream segments of Easkoot Creek. The Park Service notes:

*Past actions have severely diminished rearing habitat for steelhead trout in lower Easkoot Creek. The channel has been straightened, dredged, and artificially confined (dredged spoils placed along top of bank, thereby restricting access to floodplain). Urban development has encroached upon the natural floodplain, and various structural bank erosion control structures exist, including riprap and concrete retaining walls. Instream wood has also been routinely removed as part of normal maintenance activities. In addition, surface water appropriations by the local water district reduce available habitat area for fish and other aquatic organisms during the summer and fall low-flow periods. Riparian vegetation consists of mostly non-native plants such as Cape ivy, Monterey cypress, and geranium (see GGRNA's Lower Easkoot Creek Steelhead Trout Habitat Restoration Project 2003).*

The Park Service further summarizes the current problems facing the health of the creek as follows:

*Easkoot Creek supports remnant, but dwindling populations of steelhead trout and has at least one-year class coho salmon (salmon returning to spawn after only one year at sea). The need for restoration is due to the decline of quality rearing habitat within the watershed. The absence of deep pools, instream and overhanging materials for cover,*

*native riparian vegetation and sufficient in-stream flows limit the value of lower Easkoot Creek as juvenile salmonid rearing habitat. One of the primary factors contributing to the listing of steelhead and coho as threatened species is the loss of habitat complexity in streams. In particular, the loss results from reduction in number and depth of deep pools from sedimentation and removal of pool-forming structures such as boulders and large wood.*

To restore the creek habitat, the Park Service proposes:

*Instream Design*

*To address factors limiting natural fish production, the design would be utilized to establishment gentle meanders, a low flow channel, and connected floodplain. Rock and wood weirs (Figure 4 [Exhibit 9]) would be installed and orientation and spacing would be used to guide flows into alternating banks. Revetment structures composed of logs, boulders, and rootwads would be placed at the outside of these meander bends. The intent would be to establish self-maintaining lateral scour pools at these locations. The revetment structures would be used to create needed cover for juvenile salmonids. Up to five revetments and sixteen weir structures would be installed within the project area. A design drawing of these treatments is found in Figure 5 [Exhibits 7-8].*

The Park Service describes its planting plan as follows:

*Plant community types were selected based on existing habitat types within the project area [Exhibit 5]. Species composition for each plant community has been developed using analysis of remnant native vegetation around Easkoot Creek and lists of native plant species likely to occur in the area (NPS 2000). Plantings in riparian woodland areas would include Arroyo and yellow willow (*Salix lasiolepis* and *S. lucida* ssp. *lasiandra*) and red alder (*Alnus rubra*). Most of these native plants currently exist at the GGNRA. All plants would be propagated from local GGNRA sources to prevent contamination of the existing native plant gene pool.*

*An integrated weed removal strategy would be used. Hand removal techniques (ivy), brush cutters (Himalayan blackberry), and chain saws would be combined. Eradication of persistent weeds such as Cape ivy would be conducted in accordance with removal specifications used successfully for other projects throughout the GGNRA. In heavily infested areas several inches of top soil may be removed to eliminate the exotic plant seed bed. Cape ivy removal is considered a high priority management effort within the GGNRA (NPS 2000).*

*Exotic weed removal in wetland areas would follow appropriate agency guidelines for the protection of surface waters and wildlife. All removals of invasive species located within existing riparian and wetland habitats would take place from mid-August through February, outside the bird breeding season.*

Addressing long term benefits, the Park Service states:

*The preferred alternative would result in beneficial impacts to wildlife. Enhancement of the site with native vegetation and an increase in diversity of plant species would provide additional resources for native animals occurring in the region. Expansion of the creek channel would increase the area of aquatic and riparian habitat available for use by wildlife. Through improving riparian vegetation, future opportunities for birdwatching opportunities could be enhanced. Expansion of the floodplain area would enrich the habitat diversity of the creek corridor.*

*Implementation of the proposed revegetation plan would have beneficial effects. Project actions would result in an overall increase in the area of native wetland habitats and a decrease in developed or upland habitats .... Also, non-native plant removal, particularly cape ivy, would assist in the long-term recruitment of native, woody riparian species. Removal of artificial berms would allow establishment of woody flood-tolerant plants, including arroyo willow and red alders. Removal of asphalt would increase the overall acreage of the natural riparian areas. These actions would assist in the long-term beneficial impacts for riparian habitat for fish, songbirds, and small mammals.*

Because the project's primary purpose is restoration of fish and wildlife habitat improvement, the project is consistent with the allowable use tests within the applicable stream- and wetland-alteration Coastal Act policies (i.e., Sections 30236(3) and 30233(a)(7)). The project is also "dependent on the resources" as required under Section 30240 for projects in environmentally sensitive habitat areas. The remaining issues raised under these policies are the need to review whether the project is the least damaging alternative (as it will involve temporary adverse impacts during construction), the need for temporary avoidance and mitigation measures, and the need for monitoring to assure that the restoration benefits will outweigh the temporary impacts from altering the creek's wildlife and hydrology.

Addressing the alternatives test of Section 30233(a), the Park Service states:

*The No-Action Alternative is a continuation of existing conditions at lower Easkoot Creek within GGNRA. The No-Action Alternative does not subject Easkoot Creek to impacts related to construction activity but does not address the current degraded habitat conditions. Under the No Action Alternative, the habitat within that area of Easkoot Creek would continue to be of low value and would not improve over time.*

***Riparian/ Rock and Wood Weir Alternative (Preferred Alternative)***

*The preferred alternative would address the main limiting factors for production of juvenile salmonids: the unnatural absence of stream pools and lack of native riparian habitat. The intent of the preferred alternative is to restore a stable, functional channel and enhance habitat for federally threatened fish. This would be accomplished by:*



- *producing a non-uniform, meandering channel,*
- *creating natural channel dimensions,*
- *planting native riparian vegetation,*
- *removing non-native vegetation and*
- *creating a floodplain area.*

The Park Service concludes that the proposed project is the environmentally preferred alternative because it restores habitat for federally threatened species while causing minimal disturbance to the recreational values of the site. As discussed below, the Park Service considered other alternatives, but rejected them based on their inability to meet project objectives, and on issues and concerns raised by the public and regulatory agencies. The Park Service states:

***Alternatives Considered but Rejected***

- *An alternative that would utilize strictly wood structures was considered but rejected due to the proximity of near stream structures (e.g., roads and buildings) and the tendency for large wood structures to snag debris and cause sedimentation. The preferred alternative will include some large wood structures in areas where facilities are not at risk. This alternative would not have accomplished the objective of minimizing in-channel maintenance, as increased numbers of wood structures would increase the amounts of sedimentation and debris snagged.*
- *A larger project alternative was considered proposing the restoration of additional stream channel, floodplain and riparian habitat south of the pedestrian bridge. This alternative did not meet project objectives due to the close proximity of private development to the creek and relatively low amounts of viable aquatic habitat that could be created within the GGNRA boundaries per unit cost. Adjacent private properties (e.g., Parkside Café) are on the creek bank.*
- *Activities focused on the pedestrian and automobile bridges crossing the creek within the project site were eliminated from further consideration. These structures constrict channel flow and prevent natural channel meandering. Optimally, these structures might be redesigned to better accommodate the creek's natural processes. However, removal, relocation or redesign of either structure would adversely affect present visitor access. Future studies to address the constriction of the channel and visitor use should be considered in future plans involving redesign of parking facilities.*
- *An alternative involving a seep as a water source was considered. A seep was investigated in the southern part of the project area that was originally the site of an historic 2.5-acre wetland known as Poison Pond. This source of fresh water was proposed to be diverted back into Easkoot Creek to increase the amount of water available to fish. This location drains through a series of culverts where it eventually empties onto the beach. This concept was rejected at this time because rerouting the water may preclude the possible future restoration of Poison Pond.*



- *An alternative involving the removal and integration of the entrance road bus-turnaround and associated kiosk into the restored riparian habitat area was considered. The concept was later rejected for potential impacts to traffic patterns and visitor service needs.*
- *A revised road design alternative was considered that allowed an increase in the riparian corridor while providing for a regional transit bus turnaround and bus stop. This concept was dismissed because of minimal gains in quality riparian habitat per unit of cost. A similar design may be considered as part of a larger Comprehensive Transportation Management Plan.*

Addressing the project's temporary adverse effects, the Park Service proposes temporary dewatering, relocating sensitive species in the stream, and temporarily diverting the stream. A qualified biologist would oversee the dewatering and movement of species. The Park Service states:

*Excavation and Fill*

*The preferred alternative utilizes excavation to modify the existing channel within the limits shown on Figure 5 [Exhibit 8]. The current channel would be excavated at key points within the channel and along the east bank and be filled at certain points along the west bank to create a slightly more sinuous channel. Excavation would also provide for placement of wood and rock structures. Excavation of approximately 512 cubic yards (CY) of ground would occur. Of the 512 CY excavated, 313 CY would be used for fill within jurisdictional areas (150 CY used to place a flood control berm adjacent to Highway One (Figure 6 [Exhibit 6]) and 163 CY for channel modifications) and 50 CY would be used for fill outside jurisdictional areas (Figure 5 [Exhibit 8]). Approximately 10 cubic yards would be used to reinforce an existing flood control berm on the north side of the parking lot). Therefore a total of 373 CY of excavated material would be used at the site and approximately 139 CY would be removed from the site. Up to 200 CY of rock would be used to construct instream structures.*

*If the remaining unused fill materials are determined to be appropriate for reuse in other areas of the GGNRA, they would be left in an appropriate temporary storage area within the GGNRA for later use as needed. Any excavated fill materials determined to exceed applicable criteria for reuse at the GGNRA would be transported to an appropriate off-site disposal location. Most of the removed soil containing the weed seed bank would be buried within the project area. These sites would include the base of the new flood berm and recontoured riparian banks.*

*Grading and excavation would be conducted using an excavator. To protect existing habitats and facilities, grading would be confined to the limits shown in Figure 6 [Exhibit 6]. The highlighted area shows the maximum extent of grading and placement of instream structures. The excavated materials, if dry, would be placed in trucks for transport and disposal. If the excavated material is wet, the material would be de-*

*watered prior to transport. The de-watering area would be contained by a berm or otherwise managed to prevent discharge of decant water. Materials would be allowed to dry for approximately one to three weeks, depending on weather conditions. Materials would be periodically turned to allow for more efficient drying. After de-watering, excavated fill would be transported in trucks for disposal.*

The construction activities would result in the temporary loss of wildlife habitat. Grading and excavation would result in minor temporary habitat disturbance to birds, fish, and other wildlife. Grading and filling activities would occur in upland (0.39 acre) and wetland (0.62 acre) habitats. The Park Service also notes:

*Impacts to habitat would occur primarily to non-native communities. These communities are composed predominantly of species non-native to the region of the project site, and are not considered sensitive by regulatory agencies or recognized natural resource groups. Proposed revegetation activities would substantially increase the area and diversity of native plant communities along Easkoot Creek. The restoration of native plant communities would enhance habitat for birds and wildlife, with benefits increasing over time as habitat complexity and quality increase in an estimated three to five years.*

To minimize short term impacts, the Park Service has worked with the National Marine Fisheries Service, the Coastal Commission staff, and other regulatory agency staffs, and has developed a list of mitigation measures (Exhibit 10). The biological mitigation measures include:

- bird surveys, and possible delays if special-status bird species are nesting downstream of the pedestrian bridge;
- a herpetofauna survey for red-legged frogs and other (and translocation if appropriate);
- avoid removal of existing native trees and shrubs;
- limit in-channel construction activities to the low-flow period between July 1 and October 31 to avoid spawning, adult in-migration, and juvenile outmigration (in-water construction activities are not expected to occur until after September 1) ;
- if flowing water is present immediately above and below the project site, a culvert or pipe to transport flowing water through or around the work area would be required to allow juvenile fish movement downstream;
- if flowing water is present immediately above and below the project site, suitable fish barriers (e.g., cofferdam and silt fences) would be required to prevent fish from entering the work area; and
- daily monitoring by a fishery biologist to assess any unanticipated adverse effects to listed salmonids and their habitat (the fishery biologist will be empowered to halt work activity and to recommend measures for avoiding adverse effects to steelhead and their habitat).
- fish relocation, as follows:

*... all fish would be removed from the project site and relocated outside the project area or temporarily stored until construction activity ceases. When possible, work*

*would progress from downstream to upstream. In areas where creek flow occurs, prior to construction, juvenile coho and steelhead will be removed from the project area. A qualified fishery biologist will be responsible for conducting removal activities. One or more of the following methods will be used to capture steelhead and coho salmon: dip net, seine, throw net, minnow trap, and hand. Electrofishing will only be used once other methods have proven ineffective. Captured salmonids would be relocated to a suitable instream location outside the project area or temporarily removed from the project site and placed in aerated holding containers until work in the affected area ceases. Sites would be considered suitable if they have similar or better water temperature and dissolved oxygen than the construction sites.*

The Park Service has also agreed to incorporate the "Conservation Measures and Terms and Conditions" set forth in the NMFS Biological Opinion (NMFS BO, p. 24-28) (Exhibit 11). With the mitigation and monitoring measures (including those it has imposed), NMFS has issued a "no jeopardy" opinion and concluded that the project will provide long term benefits to steelhead and coho salmon habitat (Exhibit 11).

Concerning red-legged frogs, the Park Service states:

*No evidence of the California red-legged frog has been found at Stinson Beach during recent surveys for eggs and individuals. Although not considered critical habitat for the frog, potential occurrence cannot be ruled out. Potential breeding habitat, though degraded, is present. A narrow ditch adjacent to Highway One contains perennial, non-moving water and wetland plants that could serve as egg attachments sites are common. The adjacent riparian area may also serve as aestivation sites. Aestivation is a physiological state of dormancy during a period of the year which is too hot or dry for the normal maintenance of life. No filling in the ditch is proposed, so no impacts to larval frogs are anticipated. Grading activities could result in injury or mortality if aestivating frogs are present in the riparian area. Mitigation measures (Bio-15, Appendix D [Exhibit 10]) would be implemented to reduce potential adverse impacts to frogs. The overall project should increase the value of riparian habitats for the frog.*

Concerning wetland impacts, the Park Service states:

*Grading and excavation (Figure 6 [Exhibit 6]) would temporarily adversely impact approximately 0.62 acres of Cowardin [i.e., Coastal Act defined] wetlands. The project would result in an long-term net gain in the quality and area of wetlands. A flood control berm would be placed in an existing wetland (PEM/PSS [Palustrine emergent, and Palustrine scrub-shrub, respectively] habitat), resulting in a conversion to an upland site. However, the removal of an upland berm along the creek and removal of asphalt would counterbalance this. The project would result in a gain of 0.07 acres of Cowardin wetlands (1.65 acres currently, 1.72 acres proposed). The value of the wetlands would be increased through the removal of non-native vegetation. Restored floodplain function and flooding would benefit adjacent wetlands.*

Finally, the Park Service states that it will be responsible for future maintenance and monitoring of the progress of restoration activities, including collecting of stream topographic, riparian habitat, and fish data, and for monitoring the creek for the deposition of excessive debris and sediment after major rain events (including removal of material if any property is threatened). Monitoring efforts include:

**Riparian Vegetation Monitoring**

*The development of the native-plant community restoration plan was a joint effort between plant ecologists with the Golden Gate National Parks Association and GGNRA. The revegetation of native plants would be conducted in phases. After the initial planting, supplemental plantings would be required if at least 50% cover along stream bank was not achieved after one year and 80% cover in five years. Revegetated areas would be monitored on a semiannual basis for the first five years to document the percent cover and success of revegetation efforts and plant community composition. Monitoring would continue for three years after replacement plantings.*

**Overall Project Monitoring**

*Following completion of construction, GGNRA staff would be responsible for on-going maintenance and monitoring the progress of restoration activities for a minimum of 5 years. Monitoring actions would include collection of stream topographic, riparian habitat, and fish data. The stream would also be monitored for debris and deposition of sediment after major rain events. Material would be removed, under use of regulatory permits, if GGNRA determines the materials were adversely affecting habitat. Stream banks and structures would be periodically inspected for signs of undesired instability and invasive plant species would be removed.*

The Park Service further states that:

*Success of the project in providing biological value for steelhead and riparian vegetation will be evaluated as follows:*

- *Increased length and volume of pool habitats as determined through stream profile and cross-section surveys*
- *Increased amounts of instream woody materials*
- *Inundation of floodplain wetland under 1.5-year storm event*
- *Increased density and biomass of juvenile steelhead (particularly 1+ and older).*
- *Increased canopy cover of native willow riparian vegetation community in project area*
- *Decreased canopy and groundcover of invasive exotic species in project area*
- *Reduced site maintenance needs after project year one*

Although the plans have not been finalized, as discussed above, the Park Service has established general success criteria for vegetative cover including achieving a 50% vegetative cover of the stream bank after 1 year, and 80% cover after 5 years. The Park Service has also committed that before its success criteria are finalized, it will submit the plan to the Commission staff for its review and concurrence.

With the mitigation and monitoring measures discussed above, the Commission finds that the Park Service has designed the project to minimize short term adverse habitat effects and provide overall long term habitat benefits, in a manner consistent with Coastal Act goals and priorities. The Commission concludes that, with these measures, the proposed project will protect and enhance wildlife resources and be consistent with the allowable use, alternatives, and avoidance, mitigation, and monitoring requirements of the stream alteration, wetlands, and environmentally sensitive habitat policies (Sections 30233(a), 30236, and 30240) of the Coastal Act.

**B. Water Quality.** Section 30231 of the Coastal Act provides:

*30231: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The Park Service states that minor benefits to the natural hydrology may occur as a result of the removal of hardened surfaces adjacent to the channel and through allowing more bank storage and release of water to the stream. The Park Service is also working with the Stinson Beach County Water District to maintain sufficient flow conditions to protect aquatic life. Measures to protect and improve water quality are listed in Appendix D (measures WQ1-13 [Exhibit 10]) and include:

- divert flows around the work areas (except where infeasible due to a high water table);
- complete work before the rainy season;
- limit construction to de-watered areas only;
- minimize the number of equipment access points to the channel;
- use erosion controls (such as mulch, jute netting, and/or native plant materials) on disturbed creek banks (to be in place before the rainy season);
- keep stockpiled sediment 100 feet from the creek and protect creek with silt fences, straw bails, and/or other appropriate sediment catchment devices;
- use erosion controls and Best Management Practice to prevent construction debris from entering the creek;
- place drip pans or absorbent materials would be under equipment in the staging areas;

- cover potential contaminants and erodible materials stockpiled within 100 feet of the creek with tarps during construction, and store potential pollutants (e.g., fuels, etc.) with proper containment and outside of areas where contact with stormwater runoff or creek waters could occur;
- monitor for debris and deposition of sediment after major rain events (and remove any undesirable material); and
- remove a six-foot wide section of paving in the northern parking lot (closest to the creek) and replace it with a "buffer strip" intended to reduce impacts the creek currently incurs from parking lot run-off during rain events.

The Commission finds that the Park Service has designed the project to improve water quality in the long-term and has included appropriate erosion controls and other water quality measures to protect water quality in the creek during construction activities. The Commission finds that, with these measures, the proposed project is consistent with the water quality policy (Section 30231) of the Coastal Act.

**C. Public Access and Recreation.** Sections 30210-30212 of the Coastal Act provide for the maximization of public access and recreation opportunities, acknowledging that such access needs to be managed in a manner taking into account natural resource protection needs. Section 30213 provides for the protection of lower cost visitor and recreational facilities. Section 30214 provides that the public access policies of the Coastal Act need to be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case, including environmental sensitivity.

The Park Service states:

*Changes in existing visitor uses are not anticipated as part of the preferred alternative. Project implementation is not anticipated to result in significant visitor use conflicts or inconsistencies with relevant plans and policies. No long-term impacts to visitor uses are anticipated. Short-term effects on traffic, parking and access are construction-related. No long-term effects on traffic, parking and access are anticipated. There would be no change in the number of parking spaces available to Stinson Beach users.*

*Under the proposed action, signage explaining restoration activities would be provided. The project would improve the quality of the visitor experience at Easkoot Creek and increase passive recreational opportunities such as bird watching. There would likely be a positive impact on visitor education of riparian and creek resources through the installation of interpretive signage.*

*Changes in existing land use are not anticipated for the project area. Project implementation is not anticipated to result in significant land use conflicts or inconsistencies with visitor use plans and policies. No long-term impacts to recreation facilities or recreational opportunities are anticipated. A short-term impact may involve the temporarily closing of picnic areas where trees would be removed for use in the creek.*



*Enhancement areas may be temporarily fenced during the establishment of native plant communities. However, with the exception of uncontrolled access areas, trails do not currently exist in this area. Therefore, this temporary closure is not considered significant.*

The Park Service concludes that the project would have only limited short-term effects on traffic, parking and access, and that the project would ultimately improve the quality of the visitor experience at Easkoot Creek and increase passive recreational opportunities. The project would include installation of interpretive signage, which the Park Service believes would benefit visitor education and experience. The Commission agrees and finds that the project is consistent with the public access and recreation policies (Sections 30210-30214) of the Coastal Act.

**D. Geologic Hazard/Flooding.** Section 30253 of the Coastal Act provides that "New development shall: (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard." As noted previously in this report, both upstream and downstream constraints limit channel widths, downstream residents, some of who reside in dwellings very near (and in at least one case even over) the creek, have expressed concerns over potential flooding and increased hazard. The Park Service's hydrologic analysis includes:

*Flow Hydraulic computations were conducted for the model restoration reach using U.S. Army Corps of Engineers HEC-RAS simulation program for a typical slope of 1.2% under bankfull and 100-yr flow conditions (Zembsch 2003). The bankfull, or channel forming, flow is the frequent flow event that forms the typical channel geometry and is used to determine structural stabilization. The 100-yr discharge is considered in order to evaluate channel performance (i.e., excessive erosion or aggradation) and flooding potential at this infrequent, but significant, flow. The analysis indicates the proposed channel restoration would positively impact flooding characteristics of Easkoot Creek, particularly for properties immediately downstream. In particular, this alternative would have a minor reduction in water surface elevations during flood events for properties downstream. The wetland area adjacent to the creek would experience a minor increase in water surface elevations during flood events. This is a desired characteristic of the project as increased flooding in this wetland area would increase the functionality of the natural floodplain area and provide fisheries benefits by providing increased habitat during flooding conditions. A berm constructed along Highway One would protect the road from the temporary increased water levels.*

*The results indicate a reduction in WSE [Water Surface Elevations] for the 100-year and bankfull flow at the lower end of the project reach. This reduction is most likely due to:*

- 1) Improved channel hydraulic capacity*
- 2) Enhanced floodplain function due to removal of the existing berm along the west bank of the channel*
- 3) Desired increase in water surface elevations within the existing wetlands during flood events (Table 4.2 [Exhibit 13])*



Based on this hydrologic analysis, the Park Service concludes that the project would not exacerbate downstream flooding. The Commission agrees and finds that the project will reduce flooding and be consistent with the geologic hazard policy (Sections 30253) of the Coastal Act.

**VI. SUBSTANTIVE FILE DOCUMENTS:**

1. Easkoot Creek Rehabilitation Plan, Golden Gate National Recreation Area, Stinson Beach, California, National Park Service, April 4, 2003.
2. Administrative Draft Environmental Assessment, Easkoot Creek Rehabilitation Plan, Golden Gate National Recreation Area, Stinson Beach, California, National Park Service, April 4, 2003.
3. Biological Opinion, National Park Service, Golden Gate National Recreation Area, enhancement of a section of Easkoot Creek in Marin County, California, NOAA Fisheries File No. 151422-SWR-02-SR-6423, National Marine Fisheries Service, April 23, 2003.
4. Marin County Local Coastal Program, Unit 1, Chapter II (Natural Resource Protection/Stream Protection), certified June 3, 1981.

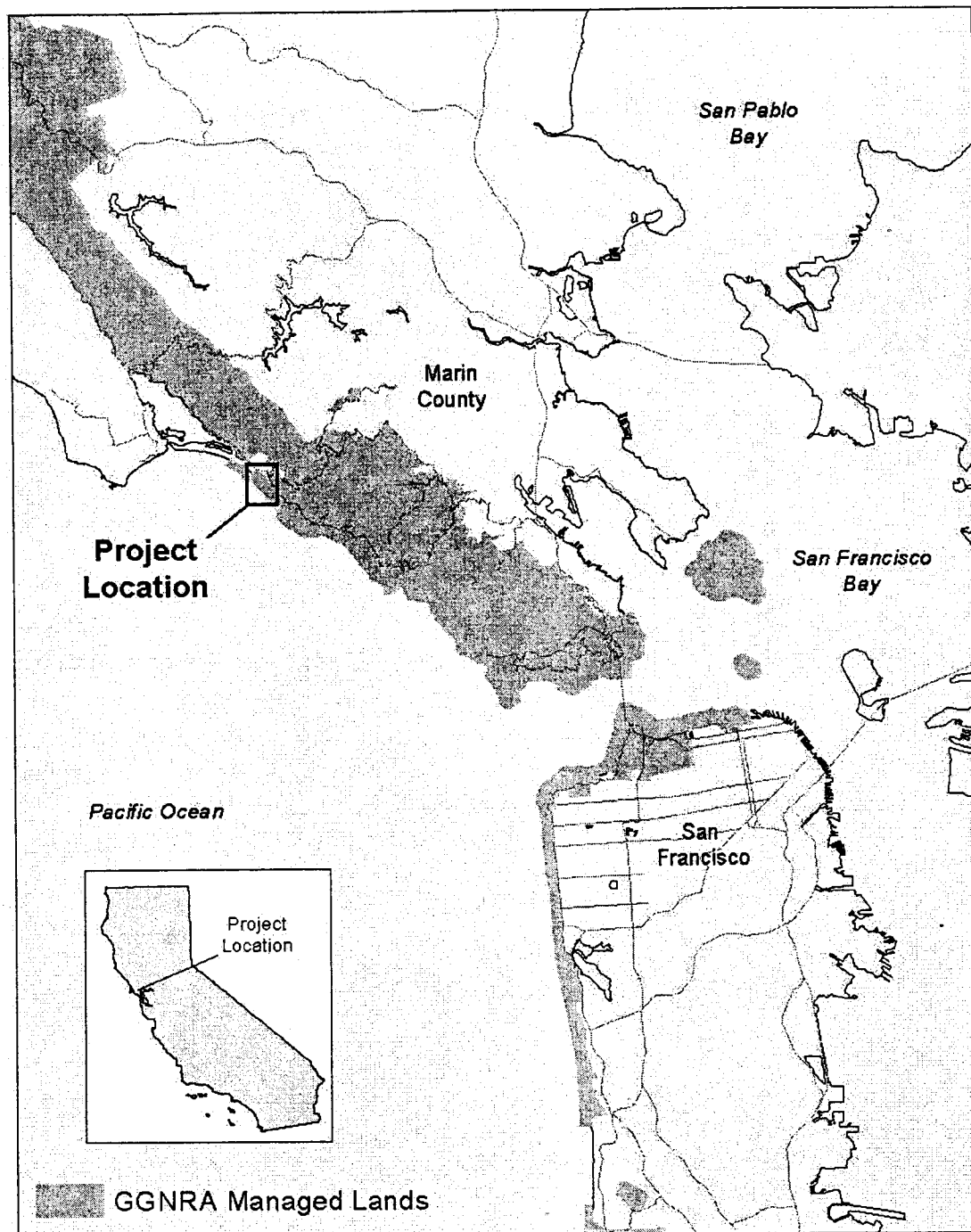


Figure 1: GGNRA Boundary

EXHIBIT NO.	1
APPLICATION NO.	
	CD-40-03



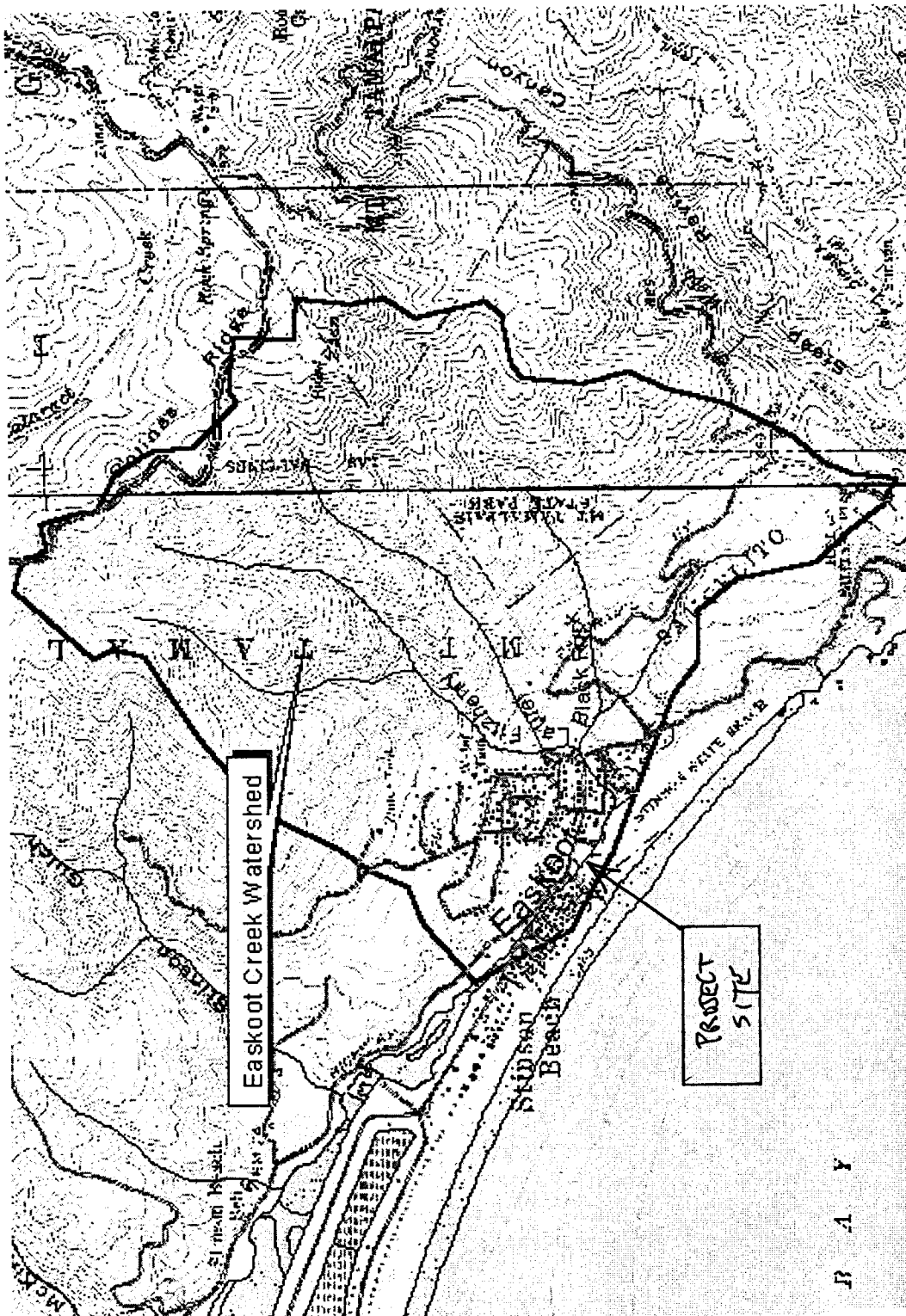
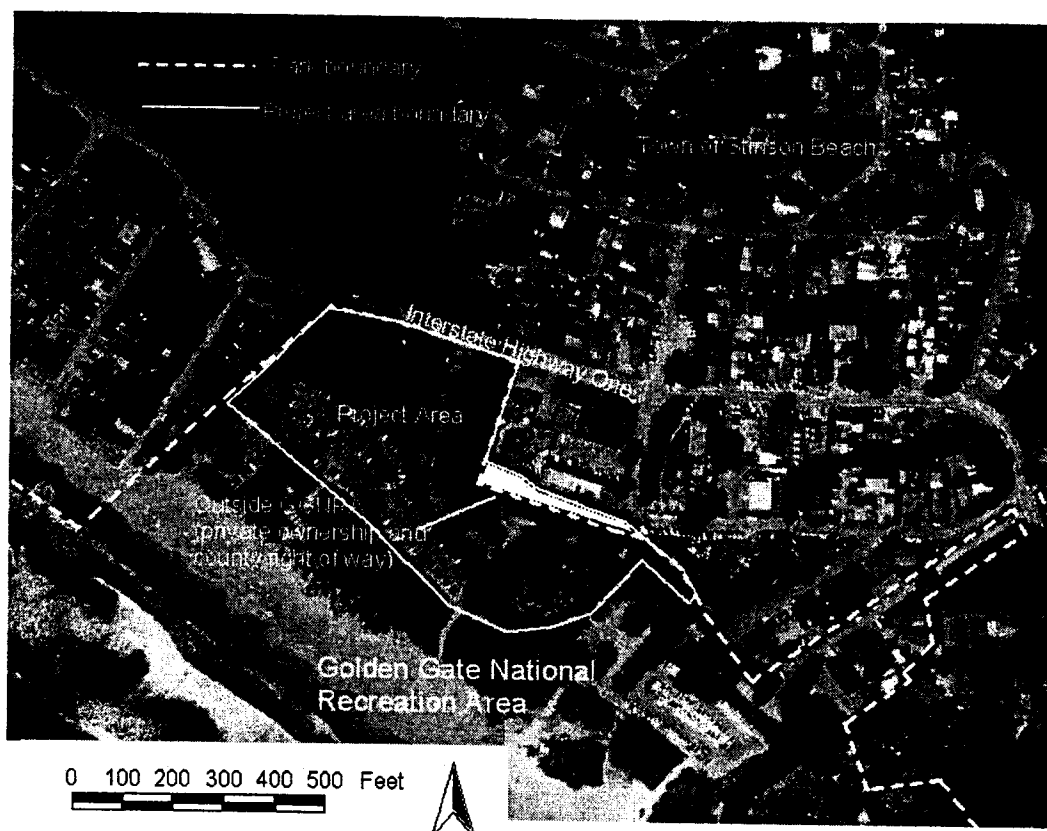


Figure 2: Easkoot Creek Watershed

EXHIBIT NO. 3
APPLICATION NO.
CD-40-03



**Figure 3 Project Area**

EXHIBIT NO. 4
APPLICATION NO.
CD-40-03



0 100 200 300 400 500 Feet

Wetland Classification (Cowardin et al, 1979)

- |  |  |
|--|--|
|  | Palustrine emergent marsh (native)                   |
|  | Palustrine emergent marsh/scrub-shrub (native)       |
|  | Palustrine scrub-shrub (native)                      |
|  | Palustrine forested (non-native)                     |
|  | Palustrine forested (native)                         |
|  | Riverine (non-native)                                |
|  | Developed (landscaping, roads, parking, picnic area) |
|  | Upland (landscaping and non-native forest)           |

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Figure 7: Project Area Habitat Types

EXHIBIT NO. 5
APPLICATION NO.
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0 90 180 270 360 450 Feet

- Max. extent of grade/fill in Cowardin wetland  
(0.52 a native palustrine; 0.10 a non-native palustrine)
- ▨ Max. extent of grade/fill in upland  
(0.39 a)

MAXIMUM EXTENT OF GRADE/FILL.....1.01 a



Figure 6: Grading

EXHIBIT NO. 6  
APPLICATION NO.

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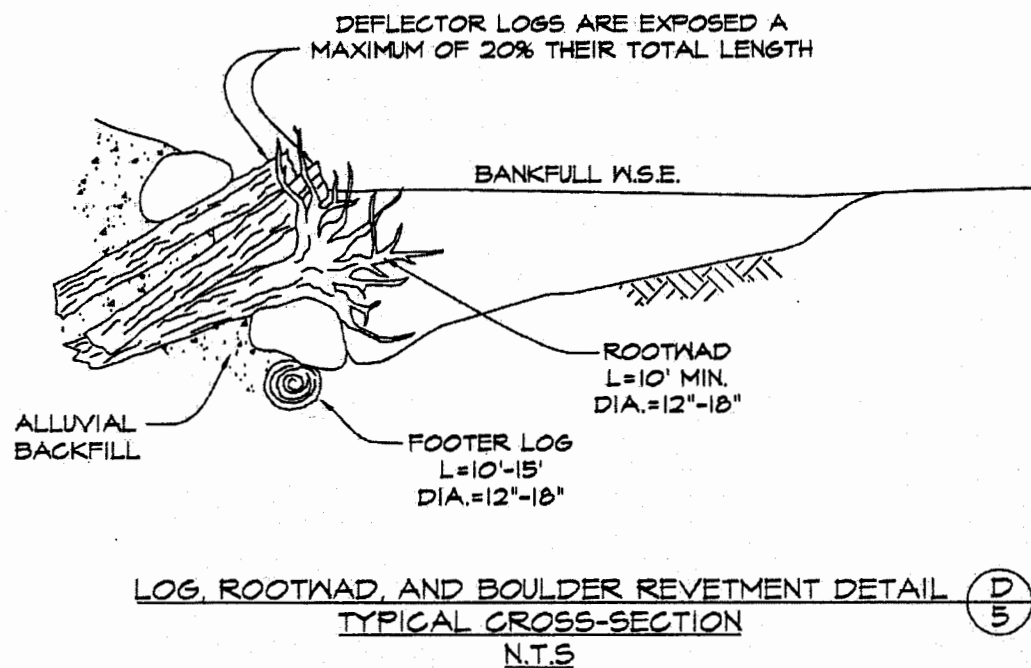


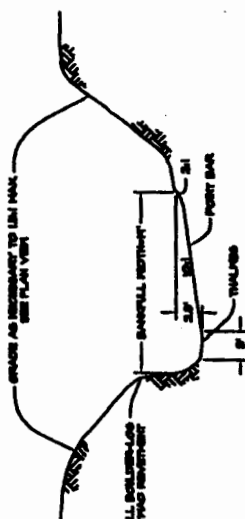
Figure 4: Revetment Cross-Section

EXHIBIT NO. 7

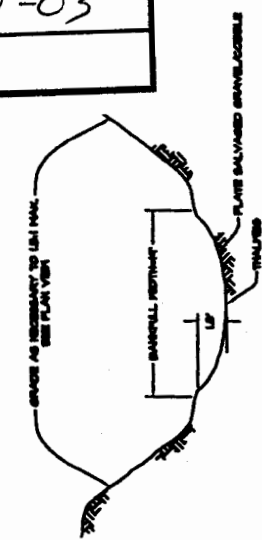
APPLICATION NO.

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CHANNEL DESIGN PARAMETERS	
Bentthill Discharge:	76 cfs
Bentthill Discharge Width:	14'
Mean Bentthill Discharge Depth:	2.8'
Mean Bentthill Discharge Depth:	1.8'
Bentthill Crested Bentthill Area:	24 sq. ft.
Meaner Flowlength:	200' - 210'
Bend Slope:	0.012
Mean Velocity:	2 - 4 ft/sec

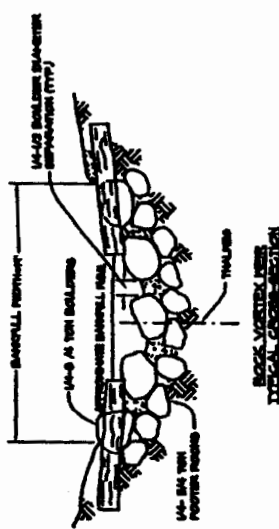


PLAN OF BENTTHILL STRUCTURE  
TYPICAL CROSS-SECTION  
N.E.

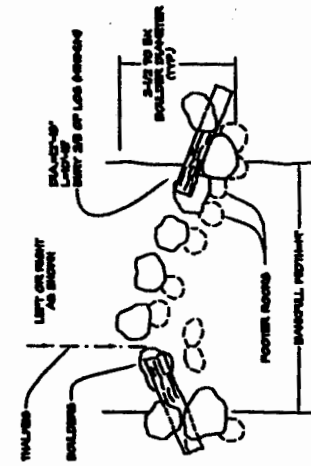


PLAN OF BENTTHILL STRUCTURE  
TYPICAL CROSS-SECTION  
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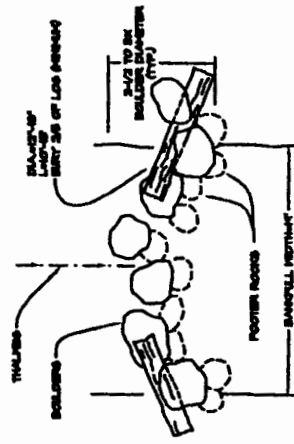
EXHIBIT NO. 8
APPLICATION NO.
CD-40-03



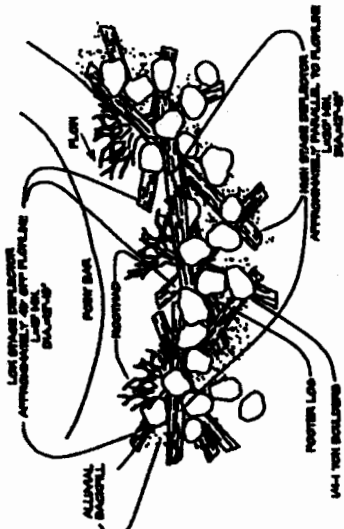
PLAN OF BENTTHILL STRUCTURE  
TYPICAL CROSS-SECTION  
N.E.



PLAN OF BENTTHILL STRUCTURE  
TYPICAL CROSS-SECTION  
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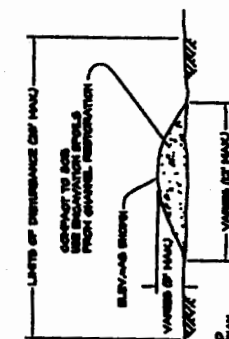
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## Appendix C Mitigation Table

### MITIGATION MEASURES INCLUDED AS PART OF THE SELECTED ALTERNATIVE

Topic	Mitigation Number/ Responsible Agency	Mitigation
<b>HYDROLOGIC, GEOMORPHIC, WATER QUALITY, AND GEOLOGIC RESOURCES</b>		
Flow Diversion	Mitigation Measure WQ-1/ NPS	If flowing water is present, flow will be diverted around the work areas. Standing water, however, may remain in the work areas due to the high water table at the sites.
Erosion and Sediment Control	Mitigation Measure WQ-2 NPS	In-water work would cease on or before October 31. Work on the banks would cease on or before November 15.
Erosion and Sediment Control	Mitigation Measure WQ-3 NPS	The number of equipment access points to the channel will be minimized to reduce the effects of equipment access of channel banks.
Erosion and Sediment Control	Mitigation Measure WQ-4 NPS	Erosion control materials, such as mulch, jute netting, and/or native plant materials, will be placed on disturbed creek banks. Erosion control would be in place by October 31
Erosion and Sediment Control	Mitigation Measure WQ-5 NPS	Stockpiles of excavated sediment (from that would remain after completion of the project would be at least 100 feet from the creek and would be contained using silt fences, straw bails, and/or other appropriate sediment catchment devices.
Erosion and Sediment Control	Mitigation Measure WQ-6 NPS	To prevent construction debris from entering the creek, appropriate best management practices set forth in the California Storm Water Best Management Practice Handbooks will be employed.
Erosion and Sediment Control	Mitigation Measure WQ-7 NPS	In upland work areas, barriers will be placed between the construction area and the creek to prevent construction debris or surface runoff from entering the creek.
Erosion, Sediment, and Pollution Control	Mitigation Measure WQ-8 NPS	Potential contaminants and erodible materials stockpiled within 100 feet of the creek will be covered with tarps during construction, and potential pollutants (e.g., fuels, etc.) will be stored with proper containment and outside of areas where contact with stormwater runoff or creek waters could occur.
Erosion and Sediment Control	Mitigation Measure WQ-9 NPS	Water pollution and sedimentation prevention measures used during construction. Erosion control measures to prevent detachment and transport of soil will be used. For any instream construction work, silt fences will be placed instream and below working areas.
Erosion and Sediment Control	Mitigation Measure WQ-10 NPS	Temporary fills and coffer dams may be established to divert flow around areas where construction activities will occur. Materials used for coffer dams will be completely removed after construction.
Erosion and Sediment Control	Mitigation Measure WQ-12 NPS	The stream will be monitored for debris and deposition of sediment after major rain events. Undesirable material will be removed, if present.
Erosion and Sediment Control	Mitigation Measure WQ-13 NPS	During excavation activities, any sediment piles left overnight on the site will be covered completely with tarps to prevent airborne migration and watering will occur as needed to prevent windborne dust.
<b>BIOLOGICAL RESOURCES</b>		
Wildlife Resources	Mitigation Measure BIO-1 NPS	A bird survey will be conducted within 5 days prior to construction, if necessary. If special-status bird species are observed nesting on the project site downstream of the pedestrian bridge, construction activities will be delayed until nesting is completed.
Wildlife Resources	Mitigation Measure BIO-2 NPS	A pre-construction herpetofauna survey by a qualified biologist will be conducted in areas of excavation and filling. The biologist will search the litter layer and downed woody cover for presence of herps. If found, individuals would be translocated to undisturbed, adjacent riparian sites
Riparian/Plant Resources	Mitigation Measure BIO-3 NPS	Construction activities will avoid removal of existing native trees and shrubs. In areas where removal of non-native trees and shrubs are proposed, nearstream native shrub and trees species would be

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		replanted.
Special Status Species	Mitigation Measure BIO-4 NPS	In-channel construction activities will occur during the low-flow period between July 1 and October 31 to avoid spawning, adult in-migration, and juvenile outmigration. Riparian and other work outside the bed and banks of the creek may occur until November 15 as long as sediment control measures are installed at the site to prevent sediment entry to the creek during late fall rains.
Special Status Species	Mitigation Measure BIO-5 NPS	In-channel construction activities will occur during the low-flow period between July 1 and October 31 to avoid spawning, adult in-migration, and juvenile outmigration. Riparian and other work outside the bed and banks of the creek may occur until November 15 as long as sediment control measures are installed at the site to prevent sediment entry to the creek during late fall rains.
Special Status Species	Mitigation Measure BIO-6 NPS	In areas where creek flow occurs, prior to construction, juvenile coho and steelhead will be removed from the project area. A qualified fishery biologist will be responsible for conducting removal activities. One or more of the following methods will be used to capture steelhead and coho salmon: dip net, seine, throw net, minnow trap, and hand. Electrofishing will only be used once other methods have proven ineffective. Captured salmonids would be relocated to a suitable instream location outside the project area or temporarily removed from the project site and placed in aerated holding containers until work in the affected area ceases. Sites would be considered suitable if they have similar or better water temperature and dissolved oxygen than the construction sites. NPS will comply with the Conservation Measures and Terms and Conditions set forth in the NMFS Biological Opinion. ***
Special Status Species	Mitigation Measure BIO-7 NPS	If flowing water is present immediately above and below the project site, a culvert or pipe to transport flowing water through or around the work area would be required to allow juvenile fish movement downstream.
Special Status Species	Mitigation Measure BIO-8 NPS	Once fish are removed from a work area, the work area would be dewatered (if flowing water is present) and any pumped water would be returned to the creek with appropriate siltation controls at the discharge end.
Special Status Species	Mitigation Measure BIO-9 NPS	If flowing water is present immediately above and below the project site, suitable fish barriers (e.g., cofferdam and silt fences) would be required to prevent fish from entering the work area.
Special Status Species	Mitigation Measure BIO-10 NPS	A fishery biologist shall monitor the project on a daily basis for the purpose of assessing any unanticipated adverse effects to listed salmonids and their habitat. The fishery biologist will be empowered to halt work activity and to recommend measures for avoiding adverse effects to steelhead and their habitat.
Special Status Species	Mitigation Measure BIO-11 NPS	NPS will prepare a biological monitoring report documenting project impacts to salmonids and their habitat. It will be submitted within one month following the completion of the project.
Special Status Species	Mitigation Measure BIO-12 NPS	When possible, work would progress from downstream to upstream. ***
Special Status Species	Mitigation Measure BIO-13 NPS	Just prior to construction, a biological monitor familiar with identification of the red-legged frog would search the project site and adjacent areas, for the presence of red-legged frogs and other herps. Should any frogs be observed, authorized take would be required to move individuals safely outside of the construction area to similar habitats. Construction activities will be temporarily suspended in the area of the observed frogs.
<b>CULTURAL RESOURCE IMPACTS</b>		
Cultural Resources	Mitigation Measure Cult-1 NPS	If paleontological resources are encountered during construction, work in the immediate vicinity of the find will be stopped and a GGNRA archaeologist will be called to inspect the finds. The recommendations of the archaeologist with regard to on-site preservation, recovery and/or documentation of the resources will be implemented before construction re-commences.

<b>UTILITIES IMPACTS</b>		
Utility	Mitigation Measure Util-1 NPS	Prior to excavation for the stream channel and floodplain, utilities will be identified and protected from damage.
<b>VISITOR USE AND EXPERIENCE</b>		
Visitor Use	Mitigation Measure VUE-1 NPS	Re-stripe a section of parking spaces in North Parking Lot such that there is no significant impact to parking uses.
Visitor Use	Mitigation Measure VUE-2 NPS	To avoid potential accidents related to construction, public access to construction areas will be prevented.
Visitor Use and Experience	Mitigation Measure VUE-2 NPS	Signs will be placed at access points to the creek to inform park visitors about project-related construction activities.
Visitor Use	Mitigation Measure VUE-4 NPS	A public meeting will be held prior to implementation of the project to discuss proposed measures to minimize construction impacts and to provide the local residents a work schedule.
<b>Air Quality and Noise Impacts</b>		
Noise	Mitigation Measure AQN 1 NPS	Construction activities will be limited to weekdays between 7 a.m. and 7 p.m.
Noise	Mitigation Measure AQN 2 NPS	Select equipment capable of performing the necessary tasks with the lowest sound level and the lowest acoustic height possible.
Noise	Mitigation Measure AQN 3 NPS	Operate and maintain construction equipment to minimize noise generation. Equipment and vehicles will be kept in good repair and fitted with "manufacturer-recommended" mufflers.
Air Quality	Mitigation Measure AQN 4 NPS	Cover trucks hauling soil, sand and other loose materials, or require haul trucks to maintain at least two feet of freeboard.
Air Quality	Mitigation Measure AQN 5 NPS	Sweep paved surfaces at the project construction site daily with appropriate sweepers; this mitigation would be required during dust-creating operations and in locations/routes where dust would be generated as a result of project construction. Surface debris shall not be swept into the creek.
Air Quality	Mitigation Measure AQN 6 NPS	Construction activities will cease if visible dust clouds form.
Air Quality	Mitigation Measure AQN 7 NPS	Trucks hauling or moving soil shall not idle for more than five minutes.

## Impact on Critical Habitat

### CCC coho salmon critical habitat

Much of the critical habitat designated for CCC coho salmon is currently in a degraded condition that does not provide conditions for robust salmonid populations. The immediate and temporary impacts of the proposed project are further degradation of a small portion of this habitat.

However, the detrimental impacts of this project are temporary. After the project is complete, instream habitat conditions for salmonids are expected to improve, including pool number and depth. Therefore, NOAA Fisheries does not believe the proposed restoration project will appreciably diminish the value of the habitat for the survival and recovery of CCC coho salmon. In addition, cumulative effects from non-federal actions are expected to provide the opportunity for better protection of salmonid habitat in the action area.

## CONCLUSION

After reviewing the best scientific and commercial data available, the current status of CCC coho salmon, CCC coho salmon critical habitat, and CCC steelhead, the environmental baseline, the effects of the proposed project, and the cumulative effects, it is NOAA Fisheries' biological opinion that the proposed project action is not likely to jeopardize the continued existence of CCC coho salmon and CCC steelhead, nor is it likely to destroy or adversely modify CCC coho salmon critical habitat.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NOAA Fisheries as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the GGNRA for the exemption in section 7(o)(2) to apply. The GGNRA has a continuing duty to regulate the activity covered by this incidental take statement. If the GGNRA fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to

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monitor the impact of incidental take, the GGNRA must report the progress of the action and its impact on the species to the NOAA Fisheries as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

### **Amount or Extent of Take**

NOAA Fisheries anticipates that incidental take of CCC coho salmon and CCC steelhead is likely to occur as a result of implementation of the proposed project. The best available information has been used to estimate the number of CCC coho salmon and CCC steelhead likely to be taken.

NOAA Fisheries anticipates that the following take is likely to occur:

- 1) No more than 320 juvenile coho salmon will be captured and relocated from the work area. Only a small subset of this number, 10 are likely to be killed during relocation.
- 2) No more than 490 juvenile <sup>steelhead</sup> ~~coho salmon~~ will be captured and relocated from the work area. Only a small subset of this number, 15 are likely to be killed during relocation.

Take is anticipated based on the specific construction procedures described by the GGNRA for the proposed project (GGNRA 2001). NOAA Fisheries anticipates that take of salmonids will only occur during fish relocation. Construction of the project in a manner different than described, or resulting effects to instream habitat that exceed NOAA Fisheries' expectations as outlined in this opinion, may increase the level of take for listed salmonids. Therefore such changes in the proposed project may require reinitiation of consultation.

### **Reasonable and Prudent Measures**

NOAA Fisheries believes the following reasonable and prudent measures are necessary and appropriate to minimize and monitor incidental take of listed salmonids that may occur in the action area during the enhancement project and flood control maintenance at the site in 2004.

1. Downstream passage of juvenile salmonids shall be assured.
2. A qualified fisheries biologist shall be on site to: 1) relocate any coho salmon and steelhead that may be present in the immediate construction area, and 2) monitor work activities to avoid harm to listed salmonids.
3. The GGNRA shall determine if any accumulated woody debris can be left at the site.
4. Biological monitoring reports shall be submitted to NOAA Fisheries no later than 2 months following the completion of the project.

Ext. 11, p. 2

## Terms and Conditions

The GGNRA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring conditions. These terms and conditions are non-discretionary.

The following term and condition implements reasonable and prudent measure No. 1.

The GGNRA shall dewater the action area and no construction equipment shall enter flowing water during instream work. Where flowing water occurs in the action area, a culvert or pipe to transport these waters through the action area shall be installed during instream work. The pipe or culvert must be appropriate to allow juvenile salmonid movement downstream.

The following terms and conditions implement reasonable and prudent measure No. 2.

- 1) The GGNRA's fishery biologist shall monitor placement and removal of sandbag cofferdams used to dewater the work area or portions of it. Prior to cofferdam installation, the biologist shall capture any steelhead that may be in the area to be dewatered. Salmonids will be relocated to a suitable instream location upstream or downstream of the work space. To prevent overcrowding of off site release areas, the GGNRA may place some fish in sites where work has been completed if suitable sites upstream and downstream are unavailable. Water quality conditions in these areas (temperature, dissolved oxygen, and turbidity) will be monitored to insure they are similar or better than sites away from the project where fish are being placed.
- 2) During and after fish relocation, fish shall not be allowed to enter the work area. Block nets or the coffer dams themselves shall be set up at the upstream and downstream extent of the relocation area to prevent immigration salmonids during relocation and project construction. If used, block nets shall be removed once coffer dams or other dewatering materials are fully in place.
- 3) The GGNRA shall insure that a fishery biologist shall be on site during all relocation activities. The fishery biologist shall ensure that the proper number of trained individuals are present to conduct fish relocation in a timely manner at the site. Methods for removing fish shall be those that minimize impact to salmonids. Methods for removal such as seining shall be used and exhausted prior to the use of electrofishing methods. The use of electrofishing for moving or herding fish shall not be used. Seining and electrofishing shall be conducted in accordance to the following guidelines:

ExH. 11, p. 3

### Seining Methods:

- A. Seining must be conducted by experienced individuals. After seining, individuals should monitor habitat areas and check for fish that were not captured during initial seining efforts, and repeat efforts if necessary.
- B. Captured fish will be released to adjacent stream areas as soon as possible.

### Electrofishing Methods:

- A. Electrofishing efforts should start with voltage, pulse width, and pulse rate set at the minimum values needed to capture fish. Settings should gradually be increased only to the where fish are immobilized for capture.
  - B. Individuals that are netting immobilized fish should remove fish immediately from the water, and not allow the fish to remain in the electrical field for an extended period of time.
  - C. Stream water temperature in the stream and in containers holding captured fish should not exceed 18°C at any time during the relocation effort. Buckets will be aerated.
  - D. Captured fish will be released to adjacent stream areas as soon as possible. Fish will not be held in buckets while construction is completed.
  - E. The GGNRA shall provide NOAA Fisheries with a report within 2 months of fish relocation activity. This report can be incorporated into the biological monitoring report for this project (see below). The report shall include the methods used during the fish relocation efforts, number and species captured, and the number of mortalities by species.
- 4) The fisheries biologist shall be present on site during installation and removal of any sandbag coffer dams. During this time, the fisheries biologist shall estimate the downstream extent of any turbidity that occurs by visual observation from the bank or dry portions of the channel bed. The fisheries biologist shall monitor the project on a weekly basis for the purpose of assessing any unanticipated adverse effects to salmonids and their habitat. The fishery biologist shall be empowered to halt work activity and to recommend measures for avoiding adverse effects to salmonids and their habitat.
- 5) Work shall cease and NOAA Fisheries shall be contacted at once if more than 15 steelhead or 10 coho salmon are killed during relocation or other project activities. The purpose of the contact shall be to review the activities resulting in take and to determine if additional protective measures are required. To contact NOAA Fisheries, call Eric Shott at 707-575-6089 regarding the above. If Eric Shott is not available, NOAA Fisheries Protected Resources Division in Santa Rosa shall be contacted at 707-575-6050.

The following term and condition implements reasonable and prudent measure No. 3.

If conducting flood control maintenance during summer 2004, the GGNRA shall:

- A. Prepare a flood control maintenance plan for the site that specifies the amount of woody debris that can be left in the stream for fish cover after flood control maintenance activities are conducted. This report shall be submitted to NOAA Fisheries prior to any flood control maintenance conducted during the summer of 2004.
- B. The GGNRA shall replace any native vegetation removed to facilitate heavy equipment access at a 3:1 ratio.

The following term and condition implements reasonable and prudent measure No. 4.

The GGNRA shall prepare a biological monitoring report documenting project impacts to salmonids and their habitat. This report shall be submitted to NOAA Fisheries no later than 2 months following the completion of the enhancement project. If flood control work occurs in 2004, a similar report shall be prepared and submitted within the time frame described above. At a minimum, the report shall contain:

- A. Pre- project, post project, and construction color photographs showing the project site in Easkoot Creek and the stream habitat directly upstream and downstream of the site.
- B. Documentation of the number and species of fish collected and relocated, including the number of fish killed or injured during relocation activities, the methods used, and conditions (water temperature, time of day, etc.) at the collection and release sites.
- C. Documentation of any sediment or chemical discharges to the creek and the methods used to contain, control, and correct them.
- D. Documentation of any other impacts to salmonids or their habitat requiring the fisheries biologist to provide assistance at the project site.

### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. NOAA Fisheries recommends that the GGNRA continue to work with other organizations, both public and private, to improve habitat conditions for salmonids in Easkoot Creek.

2. NOAA Fisheries recommends that the GGNRA provide stormwater pollution control at the Stinson Beach parking lots it manages. As noted under toxic chemicals in the "Effects of the Action" section of the biological opinion for this project, oils and metals can have a wide variety of harmful effects on listed salmonids. These substances are commonly found in stormwater runoff from parking lots and streets. NOAA Fisheries staff observed at least one Stinson Beach parking lot pipe which drains directly to Easkoot Creek.

3. NOAA Fisheries recommends that the GGNRA consult programmatically with NOAA Fisheries on flood control activities. The purpose of this consultation would be to minimize and avoid impacts to listed salmonids and their critical habitats during the GGNRA flood control maintenance activities and to reduce both agencies' paperwork by tiering future GGNRA flood control activities to a programmatic consultation.

### REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the project proposal (GGNRA 2001). In addition to the reinitiation events noted above, as provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

### LITERATURE CITED

- Alexander, G.R., and E.A. Hansen. 1986. Sand bed load in a brook trout stream. North American Journal of Fisheries Management 6:9-23.
- Alley, D.W. 2000. Comparisons of juvenile steelhead densities, population estimates and habitat conditions for the San Lorenzo River, Santa Cruz County, California, 1995- 99; with an index of adult returns. Prepared for the City of Santa Cruz Water Dept., Santa Cruz County Environmental Planning and the San Lorenzo Valley Water District. Project# 150-03. June 2000.
- Baker, P., and F. Reynolds. 1986. Life history, habitat requirements, and status of coho salmon in California. Report to the California Fish and Game Commission.

**Table 3-3**  
**Threatened and Endangered Species of West Marin County**  
**Special Status Species Potentially Occurring near the Project Site**

Common Name	Scientific Name	Federal Habitat /State Status	Habitat Present?	Notes
<b>PLANTS</b>				
Sonoma alopecurus	<i>Alopecurus aequalis</i> <i>var. sonomensis</i>	FE,-	Freshwater marshes and swamps; riparian scrub; wet meadows	YES Rare in Point Reyes marshes
Tiburon mariposa lily	<i>Calochortus</i> <i>tiburonensis</i>	FT, ST	Serpentine areas in valley and foothill grassland	NO
Tiburon paintbrush	<i>Castilleja affinis</i> <i>ssp. neglecta</i>	FE,-	Serpentine areas in valley and foothill grassland	NO Known only from Tiburon peninsula. Nicasio area
Sonoma spineflower	<i>Chorizanthe valida</i>	FE, SE	Sandy areas in coastal prairie	NO
soft bird's-beak	<i>Cordylanthus mollis</i> <i>ssp. mollis</i>	FE, SR	Coastal salt marsh	NO Found in Bolinas Lagoon
Baker's larkspur	<i>Delphinium bakeri</i>	FE, SR	Coastal scrub	NO
Marin dwarf-flax	<i>Hesperolinon congestum</i>	FT, ST	Serpentine areas in chaparral, valley and foothill grassland	NO Found in Presidio, Nicasio, and San Francisco Water District areas
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	FT, ST	Clay soils in coastal prairie and valley and foothill grassland	NO
beach layia	<i>Layia carnosa</i>	FE, SE	Coastal dunes	NO Extensive dune habitat adjacent to project along Stinson Beach
clover lupine	<i>is tidestromii</i>	FE, SE	Coastal dunes	NO Extensive dune habitat adjacent to project along Stinson Beach

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Common Name	Scientific Name	Federal Habitat /State Status	Habitat Present?	Notes
white-rayed pentachaeta	<i>Pentachaeta bellidiflora</i>	FE, SE	NO	CNDDB notes general Oakwood Valley location
Tiburon jewelflower	<i>Streptanthus niger</i>	FE, SE	NO	
showy Indian clover	<i>Trifolium amoenum</i>	FE, -	No	Historic locales at Stinson Beach and Olema from 20 to 200 feet above sea level. Last seen 1969.
<b>INVERTEBRATES</b>				
Monarch butterfly	<i>Danaus plexippus</i>	- , -	Yes	One of the largest wintering sites for monarch butterflies is present within the town of Stinson Beach. The roost trees are located outside the project area. During the winter, up to 10,000 monarch butterflies can be found at the in-town roost site (NPS 2000). None of the large trees within the project area are used as wintering sites.
California freshwater shrimp	<i>Syncaris pacifica</i>	FE, SE	Maybe	Lagunitas Creek watershed. Not found in invert surveys. Unlikely to be present.
Myrtle's silverspot butterfly	<i>Speyeria zerene myrtilae</i>	FE, -	No	

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Common Name	Scientific Name	Federal Habitat /State Status	Habitat Present?	Notes
Ricksecker's water scavenger beetle	<i>Hydrochara rickseckeri</i>	SC, - Larvae must hold prey above water to feed; thus they are found in relatively calm, shallow water	Yes	Not found in surveys.
San Francisco fork-tailed damselfly	<i>Ischnura gemina</i>	- , - Associated with small seeps, shallow ponds, and sluggish streams in the San Francisco Bay Area (Hafernik and Mead 1992). Most individuals move little as adults (Hafernik and Mead 1992).	Yes	Not found in surveys.
Tomales asellid	<i>Caecidotea tomalensis</i>	- , - Usually associated with shallow waters, less than a meter deep, and under rocks, vegetation, and debris	Yes	Not found in surveys. Found within Bolinas Lagoon watershed
<b>Fish</b>				
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE, - While generally found in coastal embayments, gobies are also known to occur in streams.	Maybe	Not found in surveys. Upstream from brackish habitats.
Pacific lamprey	<i>Lampetra tridentata</i>	SC, - Spawning and juvenile rearing habitat in flowing streams	Yes	Not found in surveys
Coho salmon	<i>Oncorhynchus kisutch</i>	FT,SE Streams draining to bay/ocean with migratory corridors, spawning and juvenile rearing habitat	Yes	One year class observed in Easkoot Crk. Two-year classes in Pine Gulch Crk.
Steelhead trout	<i>O. mykiss</i>	FT, - Streams draining to bay/ocean with migratory corridors, spawning and juvenile rearing habitat	Yes	Present. Resident and anadromous forms possible.
<b>Reptile/Amphibian</b>				
Western pond turtle	<i>Clemmys marmorata</i>	SC, - Resident at both permanent and seasonal water bodies. Turtles may winter up to 250 meters from a watercourse seeking estivation or over-wintering sites in leaf litter or under	No	Likely present historically, habitat no longer present.

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Common Name	Scientific Name	Federal Habitat /State Status	Habitat Present?	Notes
		logs (Holland 1991).		
California red-legged frog	<i>Rana aurora draytonii</i>	FT, - Adult require a dense, shrubby or emergent riparian vegetation closely associated with deep (>0.7 meters) still or slow-moving water.	Maybe	The closest known breeding locality for the frog is located a couple miles north near Wilkins Gulch. Likely present historically.
Foothill yellow-legged frog	<i>Rana boylei</i>	SC, - Shallow streams with rocky substrates	No	Observed on Marin Municipal Water District Lands
<b>Birds</b>				
Western snowy plover	<i>Charadrius alexandrinus</i>	FT, - Sandy spits/beaches	No	Observed on Bolinas Lagoon spit
California black rail	<i>Laterallus jamaicensis coturniculus</i>	-, ST Tidal marsh with pickleweed, freshwater and brackish marsh	Maybe	Isolated palustrine emergent marsh. Unlikely to be present. Not observed.
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE,SE Tidal salt marsh and brackish marsh	No	Observed in Bolinas Lagoon
Northern spotted owl	<i>Strix occidentalis caurina</i>	FT, - Northern spotted owls typically live in mature, undisturbed Douglas fir and mixed conifer forests.	No	No known breeding habitat is within 0.5 miles of project area

KEY: FE- federally endangered, FT-federally threatened, SE-state endangered, ST-state threatened, SC-federal species of concern, SR-state rare.

EXH. 128.4

**Table 4.1 100-year Flood Flow Water Surface Elevation Values for Existing and Post-Project Conditions**

Station	Water Surface Elevation Existing Conditions	Water Surface Elevation Design Channel
0+70	15.20'	14.85'
1+62	16.07'	16.09'

**Table 4.2 Bankfull Water Surface Elevation Values for Existing and Post-Project Conditions**

Station	Water Surface Elevation Existing Conditions	Water Surface Elevation Design Channel
0+70	13.00'	12.63'
1+62	13.62'	13.88'

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FLOODING CALCS

