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STAFF RECOMMENDATION

ON CONSISTENCY DETERMINATION

Consistency Determination No.	**CD-053-04**
Staff:	MPD-SF
File Date:	7/16/2004
60th Day:	9/14/2004
75th Day:	9/29/2004
Extended to:	10/15/2004
Commission Meeting:	10/14/2004

FEDERAL AGENCY: **U.S. Army Corps of Engineers**

PROJECT LOCATION: Matilija Dam, Los Padres National Forest, west of Maricopa Hwy. (Rte. 33), 16 miles from the shoreline, Ventura County (Exhibits 1-4)

PROJECT DESCRIPTION: Removal of Matilija Dam (Exhibits 5-10)

SUBSTANTIVE FILE DOCUMENTS: See page 32.

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers ("Corps") is proposing to remove Matilija Dam, a concrete arch dam located 16 miles inland of the shoreline on Matilija Creek, a tributary of the Ventura River in Ventura County. Built in the late 1940s, the 190 ft. high dam blocks steelhead trout migration and sand supply to the coast. Less than 10% of storage capacity remains in the dam, which is rapidly filling with sediment, thus limiting its effectiveness as either a flood control or water supply facility. The approximately 6 million cubic yards of sediment that have accumulated behind the dam since its construction would be removed and strategically placed in the river's flood plain, and ultimately transported to the shoreline through natural storm

Overall, the project's goals of improving terrestrial and aquatic habitat, removing a major barrier to fish passage, facilitating the migration, spawning, and rearing of southern steelhead (an endangered species), and restoring the natural sediment transport regime of Matilija Creek and the Ventura River, would be consistent with Coastal Act goals for habitat restoration and beach enhancement. The project would also improve public access and recreational fishing, both inland and at the shoreline (through the beach enhancement component). The project has the potential for temporary adverse effects on a number of coastal resources; the Corps is addressing these impacts through mitigation measures designed to protect habitat, reduce risks from flooding, protect existing vital water supplies for the region, minimize water quality impacts, and protect archaeological resources (Exhibit 24). In addition, this being the largest dam removal project in the United States to date, the Corps realizes there are a number of uncertainties in mitigating impacts and in predicting creek and river system responses to the proposal. Therefore, the Corps proposes a monitoring and adaptive management plan to respond to these uncertainties (Exhibit 25).

Because a number of the mitigation measures, the adaptive management plan, and the dam removal project itself, have not been fully designed at this time, the Corps has agreed to a "phased" consistency review (see p. 6). With the mitigation measures and the opportunity for future Commission review of subsequent mitigation and monitoring plans and design plans, and given the information available to date, the project is the least damaging feasible alternative and is consistent with the habitat and stream protection (Sections 30230, 30233 and 30240), recreational fishing (Sections 20234 and 30234.5), water quality (Sections 30231 and 30232), sand supply (Sections 30233(b) and (d)), public access and recreation (Sections 30210-30220), geologic hazards (Section 30253), and archaeological resource (Section 30244) protection policies of the Coastal Act. Through enhancing downstream beach building, the project would also lessen the region's need for construction of shoreline protective devices.

I. STAFF SUMMARY AND RECOMMENDATION:

A. Project Description. The Corps has submitted a consistency determination for the removal of Matilija Dam inland of the coastal zone on Matilija Creek, a tributary of the Ventura River in Ventura County. The Matilija Dam is a concrete arch dam (Exhibit 6) located about 16 miles from the Pacific Ocean and just over half a mile from the Matilija Creek confluence with the Ventura River (Exhibits 1-4). Sediment that has accumulated behind the dam since its construction in the late 1940s (Exhibit 5) would be removed or re-configured to improve the Matilija Creek flow regime and ultimately restore Matilija Creek to a more natural pre-dam streambed configuration. The project is intended to improve terrestrial and aquatic habitat conditions along Matilija Creek and the Ventura River for the benefit of fish and wildlife species. Removal of the dam would both: (1) eliminate a barrier to fish passage on Matilija Creek and facilitate migration, spawning, and rearing of southern steelhead, an endangered species; and (2) restore the natural sediment transport regime of Matilija Creek and the Ventura River, thereby improving downstream coastal beach sand replenishment. The

proposal would also include placing the sediments that have accumulated behind the dam within the floodplain such that they could also ultimately contribute to beach building, as well as public access and recreation improvements.

The project includes the following features:

Site Preparation activities include stripping the perimeter of the reservoir area, delta and upstream sites of most of the existing vegetation, particularly the large stands of giant reed (*Arundo donax*), along with other native vegetation that is intertwined in the giant reed. One stand of oak trees that has not been subject to significant amounts of sediment deposition will be protected in place.

Removal of 'Reservoir Area' Sediments will consist of slurrying approximately 2.1 million cubic yards of mostly silt), underlying the existing lake behind Matilija Dam, to a designated downstream disposal site. The sediment will be combined with Lake Casitas water, screened for coarse material and thickened prior to pumping, and then transported by pipeline to disposal areas located downstream. This activity will include relocating sensitive species such as the California red-legged frog and the southwestern pond turtle, and an eradication program for bullfrogs, crayfish and green sunfish.

The slurried materials will be deposited within several areas in proximity of the Highway 150 (Baldwin Road) Bridge. The areas, comprising 118 acres in the floodplain, are both upstream and downstream of the bridge and are located 3.6 to 6.3 miles downstream of Matilija Dam. The locations of the slurry disposal areas are shown in Exhibits 10 & 12-15. The thickness of placement will vary by area and range between 10 and 25 feet. Earthen (sand and gravel) containment dikes will be constructed to contain the slurried materials. Containment dike heights will range between 10-30 ft., with an average of approximately 20 feet. The areas to be diked will be cleared of vegetation to enhance percolation. Water collection systems, settlement ponds, observation and pumping wells, may also be added.

The upstream-most slurry disposal site will have riprap stone protection. The three other disposal areas, located mostly on low floodplain terraces and subject to less frequent flows, will have less extensive stone protection. Willows may also be planted on the side slopes to provide soil stabilization during larger storm events. Once the slurried materials are sufficiently dewatered, the disposal areas can be revegetated using native plants.

Management of 'Delta' and 'Upstream Channel' Area Sediments, which will take place while the slurry operation is taking place, will involve excavating a 100 ft. wide channel (in an alignment similar to the pre-dam channel) and including removing 1.1 million cubic yards of sediment, to be temporarily placed in several storage sites upstream of the dam (Exhibit 11). The excavated channel will be designed to allow for a smaller meandering channel to naturally develop in the channel bottom between storm events. Channel side slopes will be of 3H:1V in slope. Sediments within the original reservoir basin will be subject to natural erosion and

transport downstream by stream flows. Selective segments of the channel within the lower half of the reservoir basin will be protected with soil cement revetment. The purpose of the revetment is to "meter" the erosion of the finer-grained, 'Delta Area' sediments whenever the revetment is overtopped by larger flows. The revetment height has been designed to be overtopped by flows exceeding a 10- year storm event (12,500 ft^3/sec). Coarser-grained materials will remain unprotected and subject to natural erosion by stream flow.

The soil cement revetment would be removed from the site following sufficient evacuation of stored sediment from within the original reservoir limits. The removal will occur in stages over an up to 20 year period, dependent on criteria established in the monitoring and adaptive management plan (Exhibit 25) taking into account levels of sediment evacuation and limiting adverse effects downstream.

Dam Demolition will include construction of a small cofferdam to direct flows away from the dam during demolition. The portion of the dam at the left abutment will be demolished early to improve access to Highway 33. Following dredging of the Reservoir area, the remainder of the structure above the original streambed (approximate elevation 975 ft.) will be removed through controlled blasting, in approximately 15-foot vertical increments. Concrete rubble (77,000 cu. yds.) will be processed after blasting as required for transportation to a commercial concrete recycling plant.

B. <u>Background</u>. The Matilija Dam was built in 1948 (Exhibit 6). Almost immediately, problems with the dam were soon evident: large volumes of sediment were deposited behind the dam, reducing water supply and flood control (Exhibit 5); the dam began to deteriorate; the fish ladder did not function and fish passage was thus blocked; the riparian and wildlife corridors between the Ventura River and Matilija Creek were lost; and sediment transport was blocked, resulting in erosion/downcutting in downstream reaches of the Ventura River, the estuary and the sand-starved beaches along the Ventura County shoreline. At this time only a relatively small and shallow reservoir remains behind the dam, presently estimated to be about 500 acre-feet or 7% of the original capacity. Approximately 6 million cubic yards of sediment (silts, sands, gravels, cobbles and boulders) have accumulated behind the dam, and the dam is subject to overtopping during storm flows (Exhibit 7).

Consequently, due to the effects of the dam blocking steelhead trout migration and sand supply to the coast, and the reductions in its effectiveness as a flood control and water supply facility, in February 2000 the Corps initiated a reconnaissance study to determine whether it would have an interest in a cost-shared feasibility study of environmental restoration and dam removal. The Corps then initiated the Matilija Dam Ecosystem Restoration Feasibility Study (with the Ventura County Flood Control District (VCFCD), the owner of Matilija Dam, as the local sponsor for the project). The Corps states:

> *The Feasibility Study investigated options for the ecological restoration of Matilija Creek and the Ventura River (USACE, 2001), with particular attention focused on*

restoring anadromous fish populations on Matilija Creek and returning natural sand replenishment to Ventura County and other southern California beaches. The federally listed endangered steelhead, which historically had abundant runs in the Ventura River system, has been blocked access to over 50 percent of its prime spawning habitat in the upper reaches of Matilija Creek by the 1948 construction of Matilija Dam (Moore, 1980; Chubb, 1997; Capelli, 1999). In addition, beaches downstream in Ventura County have narrowed since construction of Matilija Dam, which has blocked an estimated 6,000,000 cubic yards of sediment to date (BOR, 2002). With a diminished supply of river-based sand replenishment (caused by dam construction, watershed improvements, and riverbed sand and gravel mining), beaches in the region are becoming increasingly eroded, causing habitat reduction and a loss of beach sand for recreational use (BEACON, 1989).

The Corps estimates that by 2040, the reservoir will have reached an equilibrium condition and be completely filled with over 9 million cubic yards of sediment. The Corps also notes:

Historically, the Ventura River system supported a substantial number (approximately 4,000 to 5,000 spawning fish) of southern California steelhead, an endangered species of migratory trout. NOAA Fisheries most recent population estimates for steelhead are less than 100 adults for the entire Ventura River system. The steelhead habitat upstream from Matilija Dam was historically the most productive spawning and rearing habitat in the Ventura River system. It is estimated that about 17.3 miles of prime steelhead habitat was lost due to the construction of Matilija Dam.

Other physical barriers to fish passage include the Robles Diversion Dam [Exhibit 23], *less than two miles downstream of Matilija Dam on the Ventura River. This dam diverts water from Ventura River to Casitas Dam, the remaining significant surface water supply for the Ventura watershed and surrounding areas. The Casitas Municipal Water District is currently pursuing restoration for fish passage at the Robles Facility and implementation is expected by 2005.*

The problems and opportunities identified in [the Feasibility] ... study were used to describe specific planning objectives that represent desired positive changes in the without project conditions and provided focus for the formulation of alternative plans. The primary ecosystem restoration study objectives are:

- *Enhance aquatic and terrestrial habitat along Matilija Creek and the Ventura River to benefit native fish and wildlife species, particularly the endangered Southern California steelhead trout.*

- *Improve the hydrologic and sediment transport processes to support the riverine and coastal regime of the Ventura River Watershed.*

- *Enhance recreational opportunities along Matilija Creek (including U.S. Forest Service land) and the downstream Ventura River system.*

Planning constraints also have been identified through the study process, particularly during meetings with the Sponsor, resource agency representatives and other stakeholders. Some of the key constraints that were considered in formulating and evaluating alternatives included:

- *Maintain the current level of flood protection along the Ventura River downstream of Matilija Dam.*
- *Limit adverse impacts to normal water supply quantity, quality and timing of delivery to Casitas Reservoir via Robles Diversion Dam.*
- *Limit impacts to water quality in Lake Casitas by potentially turbid flows resulting from the release of Matilija Dam trapped finer sediments.*

C. 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 Commission certified the LCP and incorporated it into the CCMP, the LCP can provide guidance in applying Chapter 3 policies in light of local circumstances. If the Commission has not incorporated the LCP into the CCMP, it cannot guide the Commission's decision, but it can provide background information. The project is outside the coastal zone. The local jurisdictions in the greater project area with certified LCPs are the City and County of Ventura. The Ventura County LCP has been certified by the Commission but has not been incorporated into the CCMP. The City of Ventura's LCP has been certified and incorporated into the CCMP.

D. Procedures - Phased Review. As is common for Corps projects submitted at the "Feasibility" stage, the Corps has yet to make final design decisions on several project elements, and certain project components and mitigation/monitoring plans have not been finalized, including consultation with the U.S. Fish and Wildlife Service and NOAA Fisheries, the finalized adaptive management plan, other biological, water quality, flood protection, water supply and other mitigation and monitoring plans, and access and recreation improvements.

Section 930.37(c) of the federal consistency regulations provides:

(c) In cases where the Federal agency has sufficient information to determine the consistency of a proposed development project from planning to completion, only one consistency determination will be required. However, in cases where major Federal decisions related to a proposed development project will be made in phases based upon developing information, with each subsequent phase subject to Federal agency discretion to implement alternative decisions based upon such information (e.g., planning, siting, and design decisions), a consistency determination will be required for each major decision. In cases of phased decisionmaking, Federal agencies shall

ensure that the development project continues to be consistent to the maximum extent practicable with the State's management program.

As a result of the lack of specificity described above, the Corps has agreed to a phased review of the proposed project pursuant to 15 C.F.R. Section 930.37(c), and will submit an additional consistency determination to the Commission at a later date, prior to project finalization and implementation.

The Corps seeks this initial Commission concurrence in order to assure that federal funding will continue to be available for the project. The Commission's determination that the proposed project is consistent with the California Coastal Management Program (CCMP) is contingent on the Corps' agreement to submit a subsequent consistency determination for final project design, and on the Commission's ability to determine at that time whether the project remains consistent with the applicable resource protection policies of the CCMP described in the remainder of this document.

E. Federal Agency's Consistency Determination. The Corps of Engineers has determined the project to be consistent to the maximum extent practicable with the California Coastal Management Program.

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

MOTION: **I move that the Commission concur with consistency determination CD-53-04 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-053-04 by the U.S. Army Corps of Engineers 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.

III. Findings and Declarations:

The Commission finds and declares as follows:

A. Coastal Streams and Wetlands, Water Quality, Marine Resources, and Environmentally Sensitive Habitat. The Coastal Act provides:

> ***Section 30230***. *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*
>
> ***Section 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....*
>
> ***Section 30232.*** *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*
>
> ***Section 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 allowable uses].*
>
> ***Section 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.*

The project is intended to improve terrestrial and aquatic habitat conditions along Matilija Creek and the Ventura River for the benefit of fish and wildlife species. Removal of the dam would: (1) eliminate a barrier to fish passage on Matilija Creek, thereby facilitating the

migration, spawning, and rearing of southern steelhead (an endangered species); and (2) restore the natural sediment transport regime of Matilija Creek and the Ventura River, thereby improving downstream coastal beach sand replenishment.

Concerning overall project benefits (and including an overview of flooding and water supply issues, and project costs), the Corps' consistency determination states:

> *Flows and sediment transport from the Ventura River affect beaches east of the river mouth by providing a sediment input to the Santa Barbara Littoral Cell, an alongshore flow pattern that delivers sediment along beaches in a west-to-east direction from Ellwood in Santa Barbara County to Point Mugu in Ventura County (BEACON, 1989). The main sources of natural sand supply are from cliff erosion and episodic delivery of sediment from the streams and rivers that discharge into the river on a five- to ten-year periodic basis. Beaches along this region are becoming increasingly eroded due to lack of replenishment from input sources. The region from Emma Wood beach to Point Mugu has a wider berm width than the eastern portion of the littoral cell, but is receiving increased erosion stress, leading to greater sand depletion and beach recession. The removal of the Matilija Dam presents a potential to not only return sediment inputs from the Ventura River closer to original levels, but also the opportunity to provide beach replenishment through the transport of sediment that has collected behind the dam (BEACON, 1989).*
>
> *The Recommended Plan is Alternative 4b. The Recommended Plan includes full dam removal in one phase. Portions of the trapped sediment will be removed by slurry line to a downstream 118-acre disposal site, in the proximity of Highway 150 Bridge, and the remaining two-thirds of trapped sediment will be contoured to restore a fish passage channel, allowing storms to naturally erode sediments downstream. Four sediment storage sites will be used in conjunction with the construction of the fish passage channel, and soil cement will protect these sites from erosion for the more frequent storm flows (less than 10 year return periods). These actions will lessen turbidity levels downstream, except for larger storm events, reducing potential adverse impacts to fish migration and water diversion activities along the Ventura River.*
>
> *Removal of Matilija Dam will cause erosion trends downstream to reverse and become depositional trends, eventually restoring more stable (equilibrium) conditions to the Ventura River reaches. The deposition would recreate a riverine morphology, in terms of channel and riverbed materials characteristics, similar to pre-dam conditions. The estimated timeframe to reach equilibrium is approximately 10 years for the Recommended Plan.*
>
> *Ecosystem restoration measures also include exotic and invasive species removal and planting of native species in the downstream reaches. Recreation measures will also be implemented involving a system of trails and interpretive centers.*

> *Ecosystem restoration benefits for this study have been prepared using a modified Habitat Evaluation Procedure (HEP) analysis. The Average Annual Habitat Units (AAHUs) have been computed over a 50-year period. The Recommended Plan will restore the Matilija Creek ecosystem to natural riverine predam conditions, thereby providing fish passage for the steelhead to over 17 miles of critical habitat. It is estimated that this can result in restoration of a healthy and sustainable adult steelhead population, similar to what existed prior to the construction of Matilija Dam.*

While designed to improve coastal resources overall, due to the project's temporary impacts on a number of downstream coastal resources, Coastal Act analysis under the above-(and later-) referenced Coastal Act policies (including Sections 30231, 30233, 30240, 30253 and 30254) requires an alternatives analysis to determine the least environmentally damaging feasible alternative way to implement the project's goals. The Corps performed an extensive alternatives analysis, summarized as follows:

> *A full array of structural and non-structural measures were formulated to address identified problems and opportunities, including measures related to dam removal, no dam removal, mechanical and natural sediment transport, stabilization of deposited sediments, levee and bridge modifications, protection of existing water supply facilities, recreation, and exotic and invasive species management.*

The Corps refined this analysis to review in detail a final array of seven alternatives: six action alternatives and the No Action plan. The Corps states:

> *Criteria used in the evaluation include impacts related to sediment deposition and turbidity, flooding, beach nourishment, changes to the dam site topography, biological and cultural resources, water supply, and air quality noise and traffic. Features common to each alternative include removal of Matilija Dam; restoration of fish passage; reestablishment of natural hydrologic and sediment transport processes from the upper Matilija Creek watershed; management of the sediment trapped behind the dam; removal of exotic and invasive species, particularly giant reed (Arundo donax) from the reservoir basin, upstream of the basin, and in the downstream reaches of the Ventura River, and non-native predatory species from the dam lake and immediately downstream of the dam, particularly largemouth bass, sunfish, catfish and bull frogs; and mitigation measures for impacts to flooding and to water supply. Recreation measures include trails and associated facilities.*

Under the "No Action" alternative, the dam would remain in place and monitored for safety purposes, but no modifications would be made. Under this alternative, the Corps estimates an additional 3 million cubic yards of sediment would accumulate behind the dam over the next 35 years, resulting in about 9 million cubic yards of sediment trapped behind the dam by 2038. The existing reservoir would disappear by 2020, downstream water diversion operations would

be adversely affected, giant reed (*Arundo donax*) would continue to overtake existing native species, steelhead would not have access to prime spawning and juvenile rearing habitat above Matilija Dam, and no maintained recreation trails would be created around Matilija Dam.

Alternative 1 would be full dam removal in one phase and mechanical removal of the trapped sediment, with the marketable portion of the trapped sediment (3.0 million cubic yards) processed and sold on-site as aggregate. Non-marketable, fine-grained sediments (2.1 million cubic yards), would be slurried downstream. Additional fine-grained residual sediment remaining after the completion of the aggregate processing operation (770,000 cubic yards) would be trucked to the same disposal site. To convey creek flows and to protect the aggregate operation, a 60-foot wide channel (base width) would be constructed along the west side of the reservoir basin. The bottom of the channel would be similar to the pre-dam channel bottom to allow natural gradients easily accessible by fish. The channel would be protected on the east side with soil cement along the side slope extending 13 feet above the channel bottom and 5 feet below. The channel capacity would contain a 100-yr storm event. The soil cement, constructed using on-site aggregate, would be removed following completion of the aggregate sale operation.

Alternative 2a would be full dam removal in one phase and natural (fluvial) transport of a portion of trapped sediment. The fine sediment deposited beneath the existing lake (2.1 million cubic yards) would be slurried downstream. The remaining trapped sediment would be allowed to be eroded downstream by storm events and natural fluvial processes. To convey flows, a shallow pilot channel not exceeding 10 feet deep would be excavated through the reservoir basin.

Alternative 2b would be full dam removal in one phase and natural (fluvial) transport of all of the trapped sediment. The trapped sediment would allowed to be eroded downstream by storm events and natural fluvial processes. To convey flows, a shallow pilot channel not exceeding 10 feet deep would be excavated through the reservoir basin.

Alternative 3a would be incremental removal of the dam and natural (fluvial) transport of a portion of trapped sediment. The dam demolition would be conducted in two phases. In Phase 1, the fine sediment deposited beneath the existing lake (2.1 million cubic yards) would be slurried downstream, followed by the removal of the dam structure to an elevation of 1000 ft. To convey flows, a shallow pilot channel (not exceeding 10 feet deep) would be excavated through the reservoir basin. Phase 2 removal of the remaining portion of the dam would begin once the sediment level in the reservoir reached (by natural fluvial erosion) an equilibrium condition with the modified dam height resulting from Phase 1.

Alternative 3b would be incremental removal of the dam and natural (fluvial) transport of all of the trapped sediment. The dam demolition would be conducted in two phases. In Phase 1, the dam would be removed to an elevation of 1030 ft. All materials excavated for the removal of this portion of the dam would be placed upstream in the reservoir basin. To convey flows, a shallow pilot channel not exceeding 10 feet deep would be excavated through the reservoir

basin. Phase 2 removal of the remaining portion of the dam would begin once the sediment level in the reservoir reached an equilibrium condition with the modified dam height resulting from Phase 1.

Alternative 4a would be full dam removal in one phase and long-term storage of a portion of the trapped sediment within the reservoir basin. The fine sediment deposited beneath the existing lake (2.1 million cubic yards) would be slurried downstream. A 100 ft. wide channel (base width), following a pre-dam alignment, would be excavated in the reservoir basin to an elevation similar to pre-dam levels. The channel, lined with riprap stone protected side slopes extending 11 feet above channel bottom and 5 feet below, would have a design capacity to convey the 100-year flood event. Excavated materials would be permanently stockpiled in storage areas located within the reservoir basin.

Alternative 4b (the proposed alternative) is full dam removal in one phase and short-term storage of a portion of the trapped sediment within the reservoir basin. The fine sediment deposited beneath the existing lake (2.1 million cubic yards) is slurried downstream to the site shown in Exhibits 10-15. A 100- foot wide channel (base width), with a pre-dam alignment, is to be excavated through the reservoir basin to the pre-dam invert (streambed) elevation. The channel side slopes in the lower half of the reservoir basin would be lined with soil cement, approximately 7 feet high. The revetment height would be overtopped by flows exceeding 12,500 ft^3/sec (10-yr storm event). Excavated materials are to be stockpiled in storage areas located within the reservoir basin. Soil cement revetment would offer a higher level of protection in portions of the basin where trapped sediment, or the adjacent stockpiled sediment, contain more fines content. All soil cement would be removed from the site following sufficient removal by erosion of the trapped sediment. The removal would be performed in stages.

Comparing the alternatives, the Corps states:

> ***Comparison and Evaluation of Alternative Plans***
>
> *Removal of Matilija Dam would cause erosional trends in the Ventura River to reverse and become depositional trends, and finally a balanced condition (equilibrium) to occur. The deposition would re-create a riverine morphology, in terms of channel and riverbed materials characteristics, more similar to pre-dam conditions. The time to reach equilibrium is different for the alternatives. Alternatives 1 and 4a would reach equilibrium in 50 years, while Alternatives2a, 2b, 3a, 3b within 10 years, and Alternative 4b within approximately 20 years. For the future without-project conditions (No Action Alternative), equilibrium would occur within approximately 100 years. Erosional trends are still likely to continue, though at a slower rate depending on the action alternative, between river mile 5 and 3. The main cause for this is channel constriction by bridges and the presence of Casitas Dam and San Antonio Creek Watershed debris basins.*

Sediment delivery to the ocean, and resulting benefits to beach nourishment, would occur sooner for the action alternatives as compared to the No Action Alternative. Time frames would be similar as those described for the establishment of riverine equilibrium. Over a period of 50 years, increases in sediment delivery volumes would be approximately one- third greater than the No Action Alternative for sand, gravel, and cobble-sized sediment. The Beach Erosion Authority for Control Operations and Nourishment (BEACON) has estimated that a cubic yard of sand roughly equates to a square foot of dry sand on the beach. Detrimental effects related to the restoration of increased sediment transport to the shoreline include the short-term impacts of fine sediments on local crustaceans, and the potential increase in future dredging at the Ventura and Channel Islands Harbors due to longshore transport of increased sediments from the Ventura River. Since the increase in volumes of fines and sands are relatively small when compared to the No Action Plan, the detrimental impacts are not considered significant for this study.

The associated effects of releasing trapped sediment downstream, i.e. increased riverine sediment deposition and turbidity levels, will cause short-term adverse impacts to riparian communities, aquatic wildlife and habitats. The impacts however are considered beneficial overall since the system would recover with time.

The process of returning the river to pre-dam conditions will increase the flood risk to infrastructure that has developed along the river corridor since the construction of the dam. As a result, flood control improvements are necessary. Alternatives 2a, 2b; 3a, 3b, and 4b will require more flood protection ("higher level") than Alternatives 1 and 4a ("lower level") since trapped sediments from the dam will be released downstream. Both levels of protection assume purchase of the Matilija Hot Springs property, purchase and removal of Camino Cielo structures, removal and replacement of the Camino Cielo Bridge and restoration of the channel width at the current location, and extension of the Santa Ana Bridge with local channel widening. Improvements also include constructing new and raising existing levees and floodwalls. Locations will include Meiners Oaks (up to 3 feet maximum above the river bank for the "lower level" and 5 feet for "higher level"), Live Oak Acres (up to 2 feet maximum above the existing levee for the "lower level" and 6 feet for "higher level") and Casitas Springs (up to 2.5 feet maximum above the existing levee for the "lower level" and 5 feet for "higher level"). The levee and floodwall at Meiners Oaks will be new features. The source for earth fill materials for the levees is assumed to be from Matilija Dam reservoir basin.

Impacts to water supply due to elevated sediment levels (both coarse- and fine-grained) at the Robles Diversion Dam and Foster Park would require some mitigation. At the Robles diversion facility, a sediment bypass (consisting of four radial gates) would be constructed at the existing sediment basin to allow increased sediment loads to be flushed downstream of the facility. This would be required for all of the action alternatives. The radial gate system would allow for diversion operations to be maintained at a wider range of river flows. Additional modifications would also be necessary to the existing weir (timber crib) structure.

For two of the alternatives (2b,3b), even with a high-flow sediment bypass in place, the impacts from fine sediment in the initial years (and potentially longer in case of a drought period) would overwhelm the facility by clogging the fish screen in the diversion canal and causing operations to cease for the respective season while maintenance cleanout could be performed. These alternatives would necessitate replenishment of the losses to Lake Casitas safe yield by purchase of replacement water from an outside purveyor.

For Alternative 2a and 3a, it is expected that turbidity impacts at Lake Casitas will likely result in water quality problems including prolonged duration of algal bloom production and potential increases in water treatment efforts. Because of the uncertainties related to level and duration of impacts, especially in a drought scenario (where low flows could still transport turbid loads), a desilting basin to settle out fines prior to conveyance to Lake Casitas would be included.

For Alternative 4b [the proposed alternative], *turbidity impacts at Robles Diversion Dam are expected to be much less than Alternative 2a or 3a due to the presence of channel protection (soil cement revetment) in a portion of the reservoir basin where sediments contain higher levels of fines. The soil cement revetment will assure that flow levels less than the 10-year event will not allow erosion of the protected finer materials. Turbidity levels associated with these levels of flow events would therefore be similar to existing conditions. Even during a drought situation, turbidity levels would not be aggravated. For flow events larger than the 10-year event, the soil cement revetment would be overtopped, and flows would have access and cause erosion of the finer materials. The increase in turbidity levels would be of limited duration and would likely be within the natural variability of existing conditions levels. Eventual staged removal of the revetment will cause increases in turbidity levels to possibly higher limits for a temporary period. The removal time frame would be based on monitoring and adaptive management and would not coincide in periods of on-going drought when Lake Casitas levels would be lower than normal.*

For Alternative 4b, as part of a locally preferred betterment, a desilting basin has been included. At Foster Park, two additional groundwater wells would be constructed to offset the losses from interruption of surface water diversion operations when turbidity levels are above the maximum limit of 10 NTU [Nephelometric Turbidity Units]. *The wells would only be necessary for Alternatives 2a, 2b, 3a, 3b and 4b. At this time, the wells are also included for Alternatives 1 and 4a due to the susceptibility to erosion and loss of fines associated with one of the slurry disposal areas.*

Alternative 1 has the highest impacts to the community in terms of truck traffic resulting from aggregate sale operations.

In selecting Alternative 4b as the proposed alternative, the Corps states:

The benefits associated with the alternatives are presented in non-monetary terms (Habitat Units). Ecosystem restoration benefits for this study have been prepared using a modified HEP [Habitat Evaluation Procedure] *analysis. The Average Annual Habitat Units (AAHU) have been computed over a 50-year period. Alternative 4b provides the*

most net benefits to the ecosystem based on the HEP analysis with an overall increase of 731 AAHU when compared to the baseline conditions (No Action Alternative). The outputs for Alternative 2a, 2b, 3a, and 3b however are in a relatively close second position with benefits of 678 AAHU. There is a more distinct separation with the next lower value associated with Alternative 1 (609 AAHU), followed by Alternative 4a (554 AAHU).

Alternative 4b has the lowest average annual cost per AAHU. From a cost effectiveness perspective, an alternative is cost effective if there are no other alternatives that provide the same output at a lower cost. Therefore Alternative 4b is the most cost effective alternative. An incremental cost analysis is not necessary since there are no changes in output levels to be compared and levels to be selected except for the No Action Alternative. The incremental average annual cost per incremental average annual habitat unit is $8,890. It is recommended that Alternative 4b be considered as the NER plan.

The Corps also states:

In a consensus decision, the Sponsor and the majority of the stakeholder participants of the Plan Formulation Group have identified Alternative 4b as the preferred plan. In addition however to the NER plan, a desilting basin will be included as an additional feature to Alternative 4b. The desilting basin is considered a project betterment.

The Corps concludes:

Recommended Plan

Alternative 4b with the addition of a desilting basin as a local betterment has been chosen as the recommended plan. The total project cost is $110,000,000. This includes recreation costs ($1,000,000) and the betterment feature (desilting basin) at the Robles diversion facility ($5,700,000).

The efforts for the Matilija Dam Ecosystem Restoration Recommended Plan encompass a watershed scale and would restore essential physical and natural processes responsible for creating and sustaining habitats and ecosystem functions that support a wide variety of native species, including listed species. The Plan would also benefit current weak stocks of southern steelhead by providing the species access to historically high quality spawning and rearing steelhead habitat.

Concerning temporary habitat impacts during the dam removal project, the Corps' consistency determination states:

Vegetation and Wildlife Habitat. *The removal of the Matilija Dam would potentially result in short term significant impacts to vegetation and wildlife habitat occurring in the Matilija Reservoir. Specifically, impacts to riparian vegetation and wildlife habitat would occur during demolition of the dam, vegetation clearing within Matilija*

reservoir and the Ventura River, levee expansion and construction, and the establishment of slurry disposal sites and desiltation basins. Impacts associated with these activities are fully described in the EIS/EIR. Demolition of the Matilija Dam would require the removal of all existing riparian vegetation located within the Matilija Reservoir and sections of giant reed infestation within the Ventura River. Habitat within this area would be temporarily lost and impacts would be considered significant. However, these impacts are expected to be short-term and revegetation of the area after dam removal would ultimately provide quality upland and riparian wildlife habitat and restore several miles of prime steelhead spawning habitat along Matilija Creek. Therefore, the benefits that would occur over time in this area, including the removal of non-native plant and animal species, would likely offset any initial adverse impacts that would occur during dam removal. Further, the implementation of project mitigation measures including clearing vegetation outside the breeding season, trapping and relocating wildlife prior to and during construction, and monitoring vegetation clearing in sensitive areas, would minimize impacts to wildlife.

Impacts to vegetation and wildlife habitat from development of the desiltation basin and slurry disposal site would be considered adverse but not significant. The removal of invasive giant reed from the Ventura River would also temporarily affect wildlife habitat but would be considered a short-term impact and would ultimately provide for the enhancement of riparian and wildlife habitat. No project related impacts to vegetation or wildlife habitat would occur in the estuary, adjacent beach, or inter- tidal zones.

Concerning potential downstream impacts to the marine environment, the Corps' consistency determination states:

***Marine Plants**. No marine plants or algae would be directly or indirectly affected by construction activities associated with the removal of Matilija Dam. Macro-algae including feather boa kelp and giant brown kelp occurs in limited quantities near the mouth of the Ventura River. The benthos in this area contains a mixture of sand and cobble with sparse populations of algae. Wave action continually tumbles the cobble and boulders and creates a harsh environment that limits the recruitment of algal species in this area. The closest established kelp beds are located approximately four miles west of the estuary (Section 4.3 of the EIS/EIR). Sediment transported downstream of the dam is not expected to substantially alter the benthos in this area. Direct and indirect impacts to the estuary, inter-tidal zone, and marine plants and algae due to sediment transport are not expected, as sediment would be stored in upland sections of the river. Upstream reaches of the river are currently sediment starved and would accumulate any downstream transport of sediment (BOR, 2003). Benefits to the estuary by increased sediment transport are not expected to occur for approximately 20 years (VCWPD, 2004). The distances of the kelp beds offshore from*

the mouth of the Ventura River are sufficiently great that significant impacts to marine plants are unlikely to occur as a result of the project. Therefore, these impacts would be considered less than significant.

No impacts are expected to occur to marine fishes as a result of dam removal activities. As discussed above, sediment would be stored in upland areas and would only be washed downstream during significant storm events. In addition, the Ventura River is sediment starved and would accumulate the majority of sediment in upstream reaches of the river. This would limit the amount of material that would wash downstream and potentially affect marine fishes. Therefore, impacts to marine fishes would not be considered significant.

Concerning impacts on and benefits to fish in Matilija Creek and the Ventura River, the Corps' consistency determination states:

Fishes. *Temporary impacts to the fish community located within the Matilija Reservoir would result from demolition activities including draining of aquatic habitat, vegetation clearing, and during the removal of Matilija Dam. However, this habitat would eventually be eliminated as the reservoir continues to fill with sediment. Although native rainbow trout may occur in the reservoir, exotic predatory fish and amphibians including largemouth bass, green sunfish, and bullfrogs dominate the impoundment located behind the dam. There is some potential for downstream impacts to native fishes from the release of exotic fish species during dam removal. By draining the reservoir prior to dam removal and implementation of mitigation measures, including an exotic species removal program, impacts to native fishes would be reduced to less-than-significant levels. Potentially significant impacts to native fishes could also occur as a result of mechanical smothering, abrasion, or loss of rearing habitat due to sediment deposition in reaches below the dam. These impacts would be considered significant but short term, and would not likely jeopardize the continued existence of native fishes. In addition, long-term benefits from dam removal and the eradication of exotic predatory species would provide overall beneficial impacts to native fishes. Potential impacts could also occur during the removal of giant reed or levee expansion. These impacts would be considered adverse but less than significant with mitigation. Mitigation would include pre-construction surveys for sensitive species, conducting work during the dry season, and implementation of best management practices to reduce impacts from downstream sediment transport.*

Essential Fish Habitat (EFH). *Project activities associated with removal of the Matilija Dam are not expected to impact EFH in marine or estuarine habitats and would not affect any Fishery Management Plan (FMP) species. Impacts to EFH for steelhead may temporarily occur in upstream reaches of the Ventura River and in Matilija Creek. Dam removal may result in downstream sediment transport resulting in the temporary loss of breeding habitat, mechanical smothering, loss of foraging*

> *habitat, and increased predation rates. These effects would be short term, and removal of Matilija Dam would allow access to 16 miles of prime steelhead spawning habitat. Because the removal of Matilija Dam is required to provide access to these historic spawning grounds, the proposed project would be considered a beneficial effect despite potentially significant short-term impacts to steelhead.*

Concerning loss of reservoir habitat for birds, the Corps acknowledges that removal of the dam and reservoir would reduce the amount of lacustrine habitat available for a variety of shore and water birds. However it notes that as the reservoir continues to fill with sediment, this habitat: "... would eventually be reduced or eliminated within several years." The Corps notes that the proposed removal of exotic species including giant reed, which currently dominates the vegetation within the reservoir, would benefit native riparian vegetation and a return to natural stream dynamics. The Corps also states that:

> *"... studies have indicated that following dam removal fish and wildlife diversity dramatically increase in formerly impounded streams. Therefore, the overall benefits to shore and water birds in this area by removing Matilija Dam outweigh the loss of this artificial habitat. In addition, suitable lacustrine habitat occurs at nearby Lake Casitas.*

In terms of impacts to shorebirds, the Corps also points out that future beach-enhancing benefits from the proposed dam removal should provide expanded areas for shorebird resting and foraging.

Concerning threatened and endangered species, the Corps states that the project has the potential to affect approximately 35 species of threatened, endangered, rare, or of special concern status (including the California red-legged frog, southwestern pond turtle, steelhead, arroyo chub, osprey, and peregrine falcon), but that only eight federal- or State-listed as threatened or endangered species and six federal or State species of special concern "have a high likelihood or occurring in the proposed project area." The Corps states:

> *Short-term construction-related impacts could occur as a direct result of demolition activities associated with dam removal, vegetation clearing, and excavation of sediments. Other potential sources of direct mortality to wildlife may include ground disturbance activities and access by construction vehicles during pipeline construction. Clearing, grading, excavating, and/or burying habitats could also lead to mortality of small mammals, reptiles, and nesting birds with eggs or young. Impacts to wildlife and water quality may also occur as a result of accidental fuel spills.*

While the project is intended to benefit steelhead habitat in the long term, short term impacts to steelhead could be adverse; the Corps notes:

> *One species has the potential to be significantly impacted by project construction. Short-term significant impacts to the steelhead may result from the dispersion of sediments into the water column during dam removal and sediment stabilization activities. Sediments could damage spawning grounds and negatively impact water, habitat, and food quality. Large sediment pulses may partially or completely fill channels, resulting in temporary or permanent changes to the channel course. Sediment and fine particulate matter can also lower the oxygen content in nesting gravels resulting in mortality to egg masses and emerging steelhead. Increases of sediment may also fill in pools and spawning habitat, clog gill structures, reduce visibility, and result in abrasions to migrating fish. Although potentially significant impacts to this species may occur, these effects would be short-term and the removal of Matilija Dam would allow access to 16 miles of prime steelhead spawning habitat. Demolition of Matilija Dam is required to provide access to these historic spawning grounds, and the proposed project would be considered a beneficial effect despite potentially significant short-term impacts.*

To address the project's short-term habitat impacts, the Corps has coordinated with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), and the California Department of Fish and Game (CDFG). A preliminary "Planning Aid Report" (July 2003) from the USFWS recommends the following habitat protection measures:

- *Continued surveys for Federal endangered least Bell's vireo and southwestern willow flycatcher should be conducted in the present study area.*

- *To avoid impacts to nesting birds, a monitoring program for such activity should be developed in the project area, particularly in the vicinity of the reservoir.*

- *Surveys for bats should be conducted in the vicinity of the dam.*

- *An Arundo eradication project should be initiated prior to initiation of dam removal. Tamarisk and other non-native invasive plants encountered should also be removed. Measures to prevent the spread or introduction of these species, such as avoiding areas with established native vegetation, restoring disturbed areas with native species, and post-project monitoring and control of exotic species should be developed.*

- *An intensive eradication program for bullfrogs, crayfish, and green sunfish should be completed prior to initiation of a dam removal project both within the reservoir and downstream of the dam. Eradicating these species from the reservoir prior to dam removal will prevent any downstream relocation. Downstream eradication of non-native species may result in lower mortality to native species.*

- *A relocation plan for the California red-legged frog, southwestern pond turtle, coastal whiptail, two-striped garter snake, and other special status species should be developed and initiated prior to initiation of a dam removal project. Other native species should also be considered for possible relocation out of the project area.*

- *Revegetation and stream restoration programs should be developed prior to the start of any dam removal activities. A native plan nursery should be developed at or near the project site to provide a source of plants and trees for revegetation. Cultivation of locally native tree species should be initiated as soon as possible to help incorporate multiple age class forests in the revegetation plan.*

- *A wildlife care facility should be contracted to treat sick, injured, or orphaned animals found in the study area.*

- *A reintroduction program for arroyo toad and California red-legged frog into the study area should be evaluated.*

- *There should be no-net loss of in-kind natural habitat.*

- *Mortality and injury to species within the project site could be reduced by minimizing and clearly demarcating the boundaries of the project areas and equipment access routes and locating staging areas outside of sensitive areas. Avoiding work activities during the breeding season would reduce adverse impacts to sensitive species.*

- *Improper handling, containment, or transport of individual species should be reduced or prevented by use of qualified biologists.*

- *The creation of nuisance ponds in the project area that may render native species vulnerable to predatory species should be avoided.*

- *Project workers should be informed of the importance of keeping the project site free of trash to avoid attracting predators to the project site, which could harass or prey on aquatic species.*

- *Project workers should be informed of the importance of preventing hazardous materials from entering the environment. Locating staging and fueling areas a minimum of 65 feet from riparian areas or other water bodies, and by having an effective spill response plan in place could reduce harmful effects and mortality to wildlife.*

- *Best management practices should be implemented and the area to be disturbed should be reduced to the minimum necessary to assist in reducing the amount of sediment that is washed downstream as a result of project activities.*

- *Project workers should be informed of the presence of species and the measures that are being implemented to protect them during project activities.*

- *In the event that the project proceeds forward with an alternative that releases sediments downstream of the dam, this recommendation is offered. Monitoring of benthic invertebrates, amphibians, reptiles, fishes, birds, vegetation, and wetlands should be considered downstream of the dam in Matilija Creek, Ventura River, and Ventura River estuary.*

In addition to these measures, concerning water quality impacts the Corps has included a number of water quality mitigation measures (listed in Exhibit 24 - Measures ER-1 to ER-4), including development of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices (BMPs). The Corps has also included measures to protect water quality from risks of spills, including preparing a Spill Prevention, Containment and Countermeasures Plan that will specify fueling procedures, equipment maintenance procedures, and containment and cleanup measures to be followed in the event of a spill. At a minimum, this plan will include: (a) measures to control handling and storage of construction and maintenance fluids; (b) immediate control, containment and cleanup of fluids released because of spills, equipment failure (broken hose, punctured tank) or refueling; (c) proper disposal of any contaminated materials; (d) refueling of portable equipment shall occur within a contained areas; (e) where needed, barriers placed around sites where the fuel nozzles enter fuel tanks; (f) monitoring refueling activities; and (g) an environmental training program to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, to all field personnel. The Corps will also implement an overall monitoring program to ensure that the plans are followed throughout the construction period.

Concerning removal of invasive species, the Corps has also agree to prepare a "Giant Reed Eradication Plan," which will include *Arundo donax* removal and monitoring, and which will be submitted to the CDFG and USFWS for review and comment prior to implementation. The plan will include measures to prevent permanent or temporary impacts to wetlands and associated, sensitive vegetation and wildlife during herbicide treatments of giant reed. The plan would provide that all activities requiring herbicide treatment will: (a) ensure that herbicides are not applied during the wet season (November 1st to April 15th); (b) ensure that only water-safe and surfactant-free herbicides are used (treatments shall use a glyphosate-based herbicide including Rodeo® and/or Aquamaster®, both of which are labeled for use within water); (c) ensure that herbicides are applied at concentrations that are considered safe for biological resources within and adjacent to the project area; (d) ensure that herbicides are mixed with non-toxic water soluble dye of low toxicity that highlights treated areas; (e) minimize overspray of herbicides onto on-target species by restricting herbicide spraying when wind velocities exceed 6 mph; (f) minimize trampling of native vegetation by establishing marked trails prior to project implementation; (g) remove dead giant reed material that was foliar treated and left in place to avoid fire hazard potential prior to the beginning of the fire season; and (h) have a licensed professional conduct or oversee herbicides applications.

In addition to these preliminary recommendations and measures, the Corps will ultimately need to obtain a final Coordination Act Report and Biological Opinion from the USFWS and NOAA Fisheries. The Corps states:

> *Through the implementation of project mitigation measures (fully described in the EIS/EIR), impacts to other listed species including tidewater goby), brown pelican, snowy plover, and California least tern would either be avoided or reduced to less-than-significant levels. Mitigation measures include, but are not limited to, pre-construction biological surveys, trapping and relocating sensitive species such as red legged frog and southwestern pond turtles, conducting initial vegetation clearing outside the breeding season for sensitive birds, construction monitoring by qualified biologists, an exotic species removal program, implementation of construction best management practices to minimize downstream sediment transport, and long-term monitoring of the riparian ecosystem downstream from Matilija Dam. The removal of the dam, exotic predatory species, giant reed, and a return to natural fluvial dynamics would provide an overall net benefit to sensitive species occurring in the Ventura River and estuary. Therefore, long-term significant impacts to sensitive species are not expected.*

While clearly acknowledging these long-term benefits and supporting the project's overall goals and objectives (Appendix A), NOAA Fisheries states that a number of assumptions and mitigation measures remain untested and/or incomplete, including: (1) the justification, analysis of impacts, and review of alternatives for proposed sediment placement in the floodplain, desiltation facilities, water supply facilities, and levees and floodwalls; (2) habitat protection, revegetation plans, and specific locations for areas planned to receive temporary sediment placement; (3) fine sediment impacts to existing gravel beds and river geomorphology, and fish passage facilities being constructed at the downstream Robles Diversion Dam; (4) protocols and remediation efforts to be included within the proposed adaptive management plan (Exhibit 25); (5) analysis of the possible need to modify fish passage facilities at Robles Diversion Dam during high river flows; (6) an alternatives analysis for the proposed replacement of the Santa Ana River bridge; (7) plans for invasive species (*Arundo donax*) removal; and (8) consideration of interpretive facilities.

The Corps acknowledges that for a project of this magnitude and precedence, a number of uncertainties about the effectiveness of the proposal and the mitigation measures remains. The Corps states:

> *For the Recommended Plan there is considerable uncertainty regarding the transport of sediments and their impacts on ecosystem and other mitigation features of the project including downstream water quality, impacts to ecosystem restoration features, and flooding and water supply impacts. The effectiveness of revegetation efforts and eradication of exotic species are also uncertainties that need to be monitored with respect to project performance and achieving output objectives. The monitoring of*

sediment transport and revegetation and exotic species eradication shall be accomplished through yearly surveys of sediment deposits and quantities to assure unforeseen performance results do not degrade the restored ecology or increase flooding or water supply impacts. Adaptive management measures to address unforeseen sediment transport impacts to be considered include partial or complete removal of deposits as well as further stabilizing sediment sources in the reservoir areas. Additional eradication of exotics and revegetation may also be needed to achieve project performance objectives.

Considerable uncertainty exists regarding removal of dams and sediment impacts as related to achieving restoration objectives and minimizing adverse impacts. This is because very few such projects involving dam removal, especially large projects of the magnitude of Matilija Dam removal, have been completed to date. Given the lack of precedent and scarcity of empirical data regarding restoration of natural historic ecology riparian systems there is a great degree of uncertainty regarding a number of aspects of the design, construction and operation of the recommended alternative.

Uncertainty exists regarding:

- *The volumes and frequency of sediment transport and downstream deposition and turbidity.*
- *The densities of initial revegetation and the associated success rates.*
- *The frequency of flood events and their impacts on restored habitat.*
- *The effectiveness of certain exotic species such as arundo.*
- *Planned invasive plant management activities and schedules.*
- *The effectiveness of relocating certain species such as red-legged frogs and species of significance presently existing in the reservoir lake area.*

To address these uncertainties, the Corps proposes an adaptive monitoring and management plan which will: "... evaluate the effectiveness of the restoration measures implemented in this project and make adaptive changes, if required, to obtain project objectives." Accordingly, the Corps states:

The Monitoring and Adaptive Management Plan for the Recommended Plan has been developed by the Environmental Working Group, with input from the Technical Studies Working Group. The goal of this effort is to restore the pre-dam natural ecology of Matilija Creek and allow species to have unobstructed access to and from the upper watershed habitat and achieve other natural habitat and ecosystem improvements. It is expected that the habitat value of the restored natural river regime will have good to above average quality. It is also expected that the restored habitat will be suitable for native wildlife. The quality of the habitats (i.e., average or high) is expected to dictate the abundance or density of wildlife. Additional goals of the Monitoring and Adaptive Management Plan include, but are not limited to, the following actions: 1) monitor deposition and erosion in the riverine system and at the estuary and to take necessary

actions to reduce any adverse impacts including blockage to fish passage and increase to flooding risks; 2) monitor erosion of trapped sediment from the reservoir basin, performance of the soil cement protection, and plan and execute staged removal of soil cement; 3) monitor turbidity levels and suspended sediment concentrations with the intent to minimize impacts to water supply; 4) monitor water quality for regulated substances potentially transferred to the water by trapped sediments associated with Matilija Dam, and provide any necessary mitigation measures in accordance with consultations with the Regional Water Quality Control Board; and 5) monitoring effects of sediment bypass to sediment deposition and diversion operations at the Robles Facility, and also effects to the fish passage facility function and operation, with the intent to minimize any impacts to current operating criteria of the diversion facility. Further refinement and/or additional goals will be established during the PED phase.

The Monitoring and Adaptive Management Plan will provide a description of: the habitats to be restored, the density and composition of the plantings to restore habitat, surveys to monitor the expected, natural re-introduction of native wildlife into the restored habitats, the monitoring protocols, and the performance or criteria and monitoring protocol to evaluate success of the restoration effort. The plan will also present adaptive management actions (or maintenance activities) that may be performed to ensure a successful restoration effort and reporting requirements.

The Monitoring and Adaptive Management Plan covers monitoring and adaptive management actions during the first 5 years after initial construction. After the first 5 years, monitoring and/or adaptive management becomes the responsibility of the Local Sponsor. During the PED phase, more specific monitoring details (e.g., exact monitoring transect locations, reference site locations, more specific performance/success criteria, more specific monitoring protocols, etc.) will be added to the Monitoring and Adaptive Management Plan.

The Corps and/or the non-Federal Sponsor will be responsible for collecting monitoring data and preparing annual Monitoring Reports. A Technical Committee consisting of, at least, U.S. Fish and Wildlife Service, National Marine Fisheries, California State Fish and Game, and possibly other agencies or organizations, will assist in collection of monitoring data, review monitoring data results, and provide recommendations of possible adaptive management measures. The Technical Committee will recommend adaptive management measures to the existing project's design should habitat not achieve the identified goal and objectives. If designed vegetation species composition are not achieved: replanting, additional irrigation, and/or removal of vegetation (especially exotics) may be necessary. Annual Monitoring Reports and any adaptive management measures recommended by the Technical Committee will be forwarded to an Executive Committee that will consist of, at least, a representative of the non-Federal Sponsor and Matilija Dam Ecosystem Restoration Feasibility Study the U.S. Army Corps of Engineers. The Executive Committee will

decide whether to adopt adaptive management measures recommended by the Technical Committee.

The Commission concludes that the project's overall goals of improving terrestrial and aquatic habitat, particularly the improvement of steelhead migration through removing a major barrier to fish passage, facilitating the migration, spawning, and rearing of southern steelhead (an endangered species), and restoring the natural sediment transport regime of Matilija Creek and the Ventura River, would be consistent with Coastal Act goals for habitat restoration and beach enhancement. The Commission further finds, to the extent the project's design has been completed, that the proposed project represents the least environmentally damaging feasible alternative. The Corps' commitments for habitat protection, monitoring and adaptive management, combined with its commitments to conduct a phased review and to continue to coordinate the evolving mitigation measures with (and report the monitoring results to) the Commission, enable the Commission to find the proposed project consistent with the environmentally sensitive habitat protection, marine resource, water quality, and wetlands policies (Sections 30230, 30231, 30232, 30233, and 30240) of the Coastal Act.

B. Sand Supply. Sections 30233(b) and (d) of the Coastal Act provides:

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

The Matilija Creek subwatershed supplies approximately 24% of the Ventura River's sediment load. The Corps notes: "In the last eighty years, sand supplies from the Ventura River watershed have been markedly reduced due to dam construction, watershed improvements, and riverbed sand and gravel mining." Based on information from the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) (1989), the Corps estimates the Ventura River delivers 70% of its former natural yields of sand to the ocean. The Corps also estimates that without the dam removal, it would take about 100 years for sediment supply to the ocean from Matilija Creek to reach pre-dam conditions. With the project, only storms in excess of 10-yr. storms will reach finer grained sediments and transport them downstream. In addition, the soil

cement protection will reduce mobilization of fine sediments, and the Corps estimates conveyance of fines during the larger storm events to be within the range of natural fluctuations. The Corps also states:

> *During the staged removal of soil cement revetment (starting from the downstream end) to allow for the eventual complete erosion of the remaining protected sediment, it is estimated that turbidity levels could temporarily increase by a factor of 2 to 10 above baseline conditions. The duration and level of turbidity would depend on how much fine sediment is exposed to a given magnitude of flow event. During lower flow conditions, flows would remain in the active channel thereby limiting any access to the finer sediment (hence increased turbidity effects) along the unprotected portion of the bank. Following the final staged removal of the revetment, turbidity levels would be expected to stabilize to levels similar to the No Action Alternative after one or two average storm flow events pass through the reservoir basin. The staged removal of the revetment would be tied to a monitoring/adaptive management program designed to minimize impacts downstream.*

The Corps estimates that, with the project: "Under average hydrological conditions, ... the riverine system could reach equilibrium conditions within 20 years." The Corps further estimates that the sediments behind the dam include approximately 1.7 million cu. yds. of beach compatible sand, and 2.7 million cu. yds. of material "...that would meet the minimum gradation requirements for beach placement (sands and gravels)." The sediments have been tested for contaminants, and as the watershed is fairly pristine and unaffected by human uses, the Corps concludes that the sediments are uncontaminated. Approximately 2.1 million cubic yards of sediment will be slurried to a designated downstream disposal site and deposited within several areas in proximity of the Highway 150 (Baldwin Road) Bridge (Exhibit 13). The thickness of this placement will vary by area and range between 10 and 25 feet. While the slurry operation is taking place, excavation operations will commence in the more upstream areas behind the dam to construct a channel with an alignment similar to the pre-dam channel. Approximately 1.1 million cubic yards of these sediment will be temporarily placed in several storage sites within the reservoir basin as shown in Exhibit 11. The Corps states:

> *Sediments within the original reservoir basin will be subject to natural erosion and transport downstream by stream flows. Selective segments of the channel within the lower half of the reservoir basin will be protected with soil cement revetment. The purpose of the revetment is to "meter" the erosion of the 'Delta Area' sediment whenever the revetment is overtopped by larger flows. The height of the revetment will extend 7 feet above the channel invert and 5 feet below the invert to prevent undermining of the structure. The revetment height will be overtopped by flows exceeding a 10- year storm event (12,500 ft^3/sec). At the upstream end of the soil cement revetment, a tie-in to the adjacent canyon slope or road embankment will be required to prevent circumventing of the structure by breakout channel flows. The tie-in*

may consist of either soil cement or larger boulders (collected from on-site). Coarser-grained materials within the reservoir basin located upstream of the revetment will remain unprotected and subject to natural erosion by stream flow.

Thus, the project has been designed to implement the Coastal Act "sand supply" policies in two ways: (1) through the removal of the sediment-capturing dam and thus restoring sediment flows to downcoast beaches, which have been experiencing serious erosion problems in recent decades; and (2) through strategically placement of the approximately 6 million cubic yards of sediment that have accumulated behind the dam since its construction, in a manner designed to allow natural storm conveyance to ultimately transported the sediments to the shoreline and help rebuild eroding beaches. The Commission therefore finds the proposed project consistent with the sand supply policies of Sections 30253(b) and (d) of the Coastal Act.

C. Public Access and Recreation. The Coastal Act provides for the maximization and protection of public access and recreation opportunities and for the protection and recognition of the economic, commercial, and recreational importance of fishing activities:

Section 30210. *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30214. *(a) The public access policies of this article shall 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 ....*

Section 30220. *The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

Section 30223. *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Section 30234. *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

> ***Section 30234.5.*** *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

The project's two primary emphases, restoration of steelhead habitat and restoration of sediment supply to downcoast beaches, would both be consistent with the letter and intent of these Coastal Act policies. The Corps states:

> *The entire Matilija Canyon lies within the Los Padres National Forest, although there are extensive non-Federal in-holdings as well, totaling over 2,245 acres, including the 442-acre Ventura County Watershed Protection District Matilija Reservoir site. Additionally, Matilija Canyon habitats support a number of federally listed species of animals that are sensitive to human activities, including recreational activities. Therefore, private interests and environmental resources have been important considerations in developing a recreation plan in conjunction with the Recommended Plan.*
>
> *Matilija Canyon has been a favorite destination for outdoor enthusiasts since the 1865, and a favorite haunt of trout fishers since the establishment of a private resort near the mouth of Matilija Canyon in 1872. The construction of Matilija Dam, and the VCWPD operation of the once-private Matilija Hot Springs, altered the nature and intensity of recreational use of this popular canyon within the Los Padres National Forest. Removing Matilija Dam and restoring the reservoir site and downstream reaches of Matilija Creek and the Ventura River has the potential to provide opportunities for regional open space/recreation network connectivity. There are many opportunities to integrate the project site into a broader, regional network of open space, recreational and educational amenities, providing links between existing trail systems from the Los Padres National Forest to trails near the Ventura River.*

In addition, the Corps has incorporated a number of construction-related measures to further minimize temporary access and recreation impacts from the dam removal activities. These measures include defining limited staging areas, marked and guarded to ensure public safety, and located to avoid noise impacts to sensitive receptors, advance notice by mail to all residents and property owners, published notice of the impending construction in local newspapers, identification of a public liaison, and implementation of noise reduction devices where appropriate. The Corps concludes:

> *Implementation of the proposed project is not anticipated to have any significant adverse effects on recreational resources on the lower reaches of the Ventura River or the ocean shoreline in the vicinity of the Ventura River estuary. Over time, it is expected that a pattern of erosion and deposition along the mainstem of the river, at the river delta, and along nearby ocean beaches will return to a more natural, pre-dam condition. The deposition of sediment is not expected to have a dramatic impact on the Ventura River or the estuary, although portions of Matilija Creek near the dam may*

experience substantial topographical changes from erosion/deposition of sediment. As more sediment is allowed to migrate down river and eventually enter the littoral zone of the ocean, it could result in more deposition of sand onto local beaches and contribute to increased beach width over time, which would benefit the recreational resources associated with the coastal beaches (e. g., beach-going activities).

The Commission agrees and finds that the project will benefit coastal public access and recreation by enhancing recreational fishing throughout the Ventura River and its tributaries and by improving sediment supply to downcoast beaches. The Commission therefore concludes that the proposed project is consistent with the public access and recreation (Sections 30210-30214 and 30220-30222) and the recreational fishing (Sections 30234 and 30234.5) policies of the Coastal Act.

D. Geologic Hazards. Section 30253 of the Coastal Act provides (in part) that new development shall:

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

The Corps states:

The process of returning the river to pre-dam conditions will increase the flooding risk to infrastructure that has developed along the river corridor since the construction of the dam. The Recommended Plan includes features to mitigate the induced flood risk including removal of structures, replacement of a bridge, and raising and extending downstream levees and floodwalls.

The Corps further states:

Justification for Mitigation of Downstream Damages

Flood mitigation measures to protect against structural damages include construction of levees/floodwalls (new, or raising/extending existing structures) and bridge modifications. Where protection is not possible, due to engineering, social, legal, or economical reasons, land must be acquired. Mitigation for occasional damages to croplands, beyond without-project conditions, will also require compensation. Table 4-1 summarizes the mitigation.

The primary mitigation measures for flood protection (listed on Exhibit 24) are purchasing properties that cannot be protected, adding levees at Meiner's Oak and Live Oak (Exhibits 16-20), increasing the levee height at Casitas Springs, and modifying or replacing downstream bridges (Camino Cielo and Santa Ana Bridges (Exhibit 22)). With the mitigation measures incorporated into the plan, the project will avoid exacerbating downstream flooding. While these mitigation measures have not been fully designed, and as noted by NOAA Fisheries (see Appendix A, Letter #1) may need further engineering analysis to fully justify, the Corps' agreement for adaptive management, combined with its commitments to conduct a phased review and to continue to coordinate the evolving mitigation measures with (and report the monitoring results to) the Commission, enable the Commission to find the proposed project would "minimize risks to life and property" in an area of high flood hazard are and thus be consistent with the geologic hazard policy Section 30253(a) of the Coastal Act. Moreover, through enhancing downstream beach building, the project would lessen the need for construction of shoreline protective devices and be consistent with the goal articulated in Section 30253(b) of the Coastal Act that encourages reducing the need for "construction of protective devices that would substantially alter natural landforms along bluffs and cliffs."

E. <u>Water Supply</u> Section 30254 of the Coastal Act provides:

> *New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.*

The project has the potential to both beneficially and adversely affect important regional water supplies which serve coastal development, including high priority development under the Coastal Act as defined in Section 30254 above. Potential adverse effects include: (1) sediments in water flows could inhibit existing water diversion operations; (2) sediment deposition in the flood plain, as well as the construction of levees, could reduce groundwater recharge; (3) turbidity transferred to the Lake Casitas reservoir could affect available water supplies and could reduce water storage capacity in the reservoir; (4) water quality could be affected by increased contaminants delivered to the water supply; and (5) downstream water diversions at Foster Park could be inhibited. To minimize sedimentation impacts to Robles Diversion and Lake Casitas facilities, the Corps has included in the project a sediment bypass structure and a sediment desilting basin. To reduce water supply impacts the Corps proposes the construction of two wells at Foster Park to reduce impacts to City of Ventura facilities. In

addition, the water quality mitigation measures as summarized on page 21 above would help protect area water supplies.

With the mitigation measures, the project will avoid adverse effects on regional water supplies. The Corps also notes that it may be able to improve available water supplies, as well as improve fish passage, with further design refinements. While the mitigation measures have not been fully designed at this time, the Corps' agreement for adaptive management, combined with its commitments to conduct a phased review and to continue to coordinate the evolving mitigation measures with (and report the monitoring results to) the Commission, enable the Commission to find that the proposed project would assure that the availability of existing or planned public works facilities needed to serve coastal dependent and other high priority land uses as defined in Section 30254 will not be precluded by the proposed project. The Commission therefore concludes that the proposed project would be consistent with the water supply policy (Section 30254) of the Coastal Act.

F. <u>Archaeological Resources</u>. Section 30244 of the Coastal Act provides:

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The Corps states:

The identification of cultural resources in the project's area of potential effects (APE) has not been completed. The potential exists for the presence of National Register eligible properties within the project's APE. Until the identification phase is completed, and National Register evaluations are performed on any sites present, an impact assessment of the preferred alternative cannot be made. However, if National Register eligible properties are present, they may be avoidable through implementation of the following mitigation measures:

If any sites are determined to be eligible for the National Register of Historic Places, mitigation measures shall be developed and agreed to in a memorandum of agreement. This document would be developed between the California State Historic Preservation Officer, the Corps and local sponsors. Federally Recognized Tribes and interested Native American groups would be invited to participate as concurring parties to the agreement. These procedures shall follow the requirements of Section 106 of the National Historic preservation Act, as implemented by 36 CFR 800.

A discovery plan shall be developed in consultation with the State Historic Preservation Officer pursuant to 36 CFR 800.13(b) to treat previously unknown resources found during implementation of the project. It shall include procedures to

monitor and treat cultural resources discovered during mechanical and natural removal of sediment behind Matilija Dam. It would a so include procedures for discoveries made during grading and earth moving activities.

With the coordination described above, the Commission finds that the project will avoid, and where appropriate, mitigate impacts to archaeological or paleontological resources as identified by the State Historic Preservation Officer, and that the project is therefore consistent with Section 30244 of the Coastal Act.

IV. SUBSTANTIVE FILE DOCUMENTS:

1. EIS/EIR, Matilija Dam Ecosystem Restoration Feasibility Study, U.S. Army Corps of Engineers, July 2004.

2. Assessment of Steelhead Habitat in Upper Matilija Creek Basin, Ventura County Flood Control District, Thomas R. Payne and Associates, June 9, 2003.

3. Assessment of Steelhead Habitat in the Ventura River/Matilija Creek Basin, Ventura County Flood Control District, Thomas R. Payne and Associates, August 30, 2004.

APPENDIX A – CORRESPONDENCE – attached

1. Letter from NOAA Fisheries to Corps of Engineers, 8/31/04.
2. Letter from Southern California Steelhead Coalition to CCC, 9/20/04.
3. Letter from Surfrider Foundation (Ventura Co. Chapter) to CCC, 8/31/04.
4. Letter from Surfrider Foundation (Ventura Co. Chapter) to Corps of Engineers, 8/30/04.
5. Letter from Endangered Habitats League to CCC, 9/6/04.
6. Letter from City of San Buenaventura to CCC, 9/9/04.
7. Letter from California Trout to CCC, 9/7/04.

EXHIBITS – attached

1-4. Region/Watershed Maps
5-7. Dam and Reservoir
8-15. Project Elements
16-21. Flood Mitigation
22. Santa Ana Bridge Replacement
23. Robles Diversion Dam
24. Mitigation Measures
25. Adaptive Management Plan

APPENDIX A

CORRESPONDENCE

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

F/SWR:MC

AUG 31 2004

John Vivanti
U.S. Army Corps of Engineers
Los Angeles District
911 Wilshire Boulevard
Los Angeles, California 90017

Dear Mr. Vivanti:

Thank you for providing the National Marine Fisheries Service (NOAA Fisheries) with an opportunity to comment on the Public Draft Report and Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Matilija Dam Ecosystem Restoration Feasibility Study (July 2004).

These comments follow our previous comments on the Preliminary Draft Report and EIS/EIR (See NOAA Fisheries letter to Darrell Buxton, Corps of Engineers, dated October 2, 2003). As NOAA Fisheries has indicated previously, the Matilija Dam removal and ecosystem restoration project represents one of the most ambitious and potentially effective recovery actions for the Southern California steelhead Evolutionarily Significant Unit (ESU) which is Federally listed as endangered. Reestablishment of access to prime historic steelhead spawning and rearing habitat, and restoration of riparian and lotic ecosystem functions in both the main stem of the Ventura River and Matilija Canyon is essential to restoration of the historic steelhead run in the Ventura River system. This run was one of the largest and most consistent runs in southern California.

Of the 6 alternatives identified in the Draft Report, the locally preferred 4b alternative (full dam removal in a single phase with incremental, natural transport of reservoir sediments to the ocean) provides the greatest potential to achieve all three of the originally stated objectives of the Matilija Dam Ecosystem Restoration Project which include:

> "Enhance aquatic and terrestrial habitat along Matilija Creek and the Ventura River to benefit native fish and wildlife species, particularly the endangered Southern California steelhead trout."
>
> "Improve the hydrologic and sediment transport processes to support the riverine and coastal regime of the Ventura River Watershed."

"Enhance recreational opportunities along Matilija Creek (including U.S. Forest Service land) and the downstream Ventura River system."

Of particular interest to NOAA Fisheries is the project's potential to significantly improve habitat conditions for steelhead trout by removing the major remaining impediment to fish passage to one of the two principal steelhead spawning and rearing tributary systems in the Ventura River. The California Department of Fish and Game has estimated that steelhead runs in the Ventura River averaged between 4,000 and 5,000 adults per year prior to the construction of Matilija Dam in 1947, with the Matilija Creek drainage supplying close to half of the steelhead spawning and rearing habitat within the Ventura River watershed. These runs historically supported a sport fishery (for both juvenile and adult steelhead) which contributed significantly to the local economy. Restoration of these runs (1,000 annual adults) has been estimated to have the potential to contribute over a half a million dollars annually to the locally economy. (See Meyers Resources, Inc. *Benefits from Present and Future Salmon and Steelhead Production in California*, 1988). Additionally, opening up the upper watershed of Matilija Creek through the removal of Matilija Dam would assist in naturally re-seeding the greatly diminished runs of native anadromous steelhead in the Ventura River system with stock carrying important native genetic material that is characteristic of the region. A recently completed study of the population genetic structure of rainbow trout above Matilija Dam indicates that a significant percentage of the remaining stock contains haplotypes which are not found in hatchery populations of rainbow trout. (See Jennifer L. Nielsen and Talia C. Wiacek, *Population Genetic Structure of Rainbow Trout above the Matilija Dam Based on Microsattellite and mtDNA Analysis*, 2004, USGS Western Fisheries Research Center). NOAA Fisheries believes that these currently land-locked fish may have the potential to contribute to the increased viability of the remnant anadromous runs in the Ventura River.

In addition to the two basic elements of the 4b alternative (full dam removal and incremental removal of stored sediments), the locally preferred alternative contains a number of other basic elements which have the potential for either short-term or long-term adverse environmental impact. These include.:

* slurrying of approximately 1.2 million cubic yards of fine sediments stored behind the dam to an off-stream disposal location in the vicinity of Highway 150;

* excavation of a 100 foot wide channel through the coarse lake sediments and temporarily stockpiling those sediments on riverine terraces within the reservoir site;

* temporarily stabilizing the excavated and unexcavated coarse sediments within the reservoir site with some type of soil cement;

* removal of soil cement in the reservoir site in stages to allow for gradual erosion and transport of sediment in response to natural storm events;

* construction of a high-flow sediment bypass at the Robles Diversion, along with a fine sediment siltation basin along the Robles Diversion Canal;

* provision of make-up water to the Casitas Municipal Water District (either in the form of water purchases from the State Water Project, or the drilling of new wells in the vicinity of the Robles Diversion);

* enlarging the Santa Ana Road Bridge over the Ventura River and removal of Camino Cielo Bridge over the Ventura River;

* drilling two new municipal water wells in the vicinity of Foster Park;

* construction of new and enlargement of existing levees along developed sections of the main stem of the Ventura River;

* removal of Giant reed (*Arundo donax*) from selected reaches of Matilija Creek and the Ventura River;

* revegetation of sediment storage areas within the reservoir site; and

* installation of a 5-mile recreational trail along the slurry line route (extending from Highway 150 to the Matilija Dam site), and appurtenant rest and interpretive facilities.

These project components raise a variety of issues which NOAA Fisheries believe should be further addressed in the Final EIS/EIR. The issues raised by these individual components of the project are discussed more fully below.

Temporary Storage of Course Sediments: This component involves the excavation of a 100 foot wide channel through the Matilija Reservoir site to provide a temporary channel for conveyance of Matilija Creek flows. The excavated material would be temporarily stockpiled on adjacent riverine terraces. The storage areas would be temporarily stabilized with a type of soil cement varying in height above the excavated channel invert from 3 to 7 feet. The lower portion of the soil cement would be designed to be overtopped by a two- to five-year event (estimated at 3,000 to 7,000 cubic feet per second). The higher portion of the soil cement would be overtopped by a 10-year event (approximately 12,500 cubic feet per second). The strategy of temporarily storing a majority of the coarse sediments by stabilizing in a manner which will allow their natural erosion and transport under varying flow conditions is sound. However, from the description and analysis of the plan it is unclear how the soil cement will perform under high flow conditions.

Because a thinly applied coating of material such as soil cement over loosely consolidated sediments will have limited structural integrity, and may be subject to sudden and potentially catastrophic failure resulting in the release of unwanted amounts of sediment, it may be more effective to utilize un-grouted rock rip-rap materials (perhaps excavated from the reservoir

sediments) with known structural and flood control capability. This type of material could be disassembled in a more controlled manner as appropriate, thus providing additional flexibility to the adaptive management program which is proposed for this component of the project. Alternatively, excavated coarse sediments could be stockpiled in the form of large, naturally shaped point bars. If properly located and shaped, these features could provide a self-regulating mechanism for the release of sediment, and thus obviate the need for at least some of the temporary artificial stabilization. All temporarily stockpiled sediments should be vegetated with native plant species to reduce the introduction of fine sediments into the stream channel and prevent the colonization and spread of non-native invasive plant species.

Temporary Storage of Fine Sediments: This component entails slurrying 1.2 million cubic yards of fine sediments currently stored in the Matilija Reservoir site to a point below the Robles Diversion, and placing these sediments on a river terrace stabilized to withstand a 50 year flood event (approximately 60,000 cubic feet per second). The eight scattered disposal sites encompass approximately 118 acres, the majority of which contain relatively intact scrub-shrub and oak woodland immediately adjacent to the active channel of the Ventura River. Because these sites presently contain intact habitat and are intended to store fine sediments for a considerable period of time, the plan for these disposal sites should contain more detail regarding where and how the sediments would be deposited. Specifically, the plan should identify mature specimen native trees (including oak trees) which should be protected, and should include a native re-vegetation program which would provide viable native terrestrial habitat during the life of the disposal site and prevent either the colonization of non-native invasive plants or wind erosion of unvegetated fine sediments.

Natural Transport of Sediments: The principal means of transporting sediment from the Matilija Reservoir site to the ocean is via the Ventura River channel. As the analysis indicates this method of removing both fine and coarse sediments from the Matilija Reservoir site and transporting them to the ocean has the potential to adversely impact steelhead trout habitat, particularly in the short-term (2-10 years). The principal potential impacts include filling in spawning gravels with fine sediments, reducing fish passage opportunities as a result of the deposition of course sediments which cause a widening of the river channel, and interfering with the operation of the fish passage facilities now under construction at the Robles Diversion facilities.

With respect to smothering spawning gravel in the lower river, the sediment transport model developed by the Bureau of Reclamation (BOR) indicates that the fine sediments remaining in the Matilija Dam Reservoir site after the removal of 1.2 million cubic yards of material by slurrying would be transported through the system by two or three moderate flood events. It is these fine sediments, not the courser materials, which pose a potential impact to the spawning gravels in the lower river. The natural transport of these sediments would temporarily impact approximately three miles of spawning habitat between Matilija Dam and the Highway 150 Bridge and another two miles of habitat located in the vicinity of Foster Park, but would not affect the spawning and rearing habitat in San Antonio Creek which is the principal spawning and rearing habitat currently accessible to upstream migrating steelhead in the Ventura River system. It is also important to

recognize that the removal of Matilija Dam would re-open approximately 20 miles of prime steelhead spawning habitat that is currently inaccessible, and that access to this additional habitat would result in a net gain of spawning habitat (even with a temporary loss or degradation of spawning habitat in the lower river). The monitoring of downstream habitat conditions and fish responses should provide a basis for taking any temporary remedial actions if necessary. (See Thomas R. Payne & Associates, *Assessment of Steelhead Habitat in the Ventura River/Matilija Creek Basin: Final Report*, August 30, 2004. Prepared for Ventura County Public Works Agency.)

Second, with respect to broadening the river channel and reducing fish passage opportunities, sediment transport models developed for the project by the BOR indicate that the principal change in channel morphology will be in its vertical elevation rather than its lateral width. While the change in grade elevation can be dramatic in some locations, the natural fluvial dynamics of the river is projected to result in the creation of a temporary natural thalwag through these deposits, thus providing fish passage. While there may be some broadening of the river channel in the middle reaches of the river during large flood events (when fish passage is less problematic), the sediment model indicates that there will actually be a narrowing of the active river channel during mid-range flood events in the range of 1,000 cfs that would improve fish passage opportunities. Further, these changes in channel morphology are projected to be relatively short-lived (2 or 3 moderate flood events) rather than permanent, and are within the natural range of habitat conditions exhibited by the Ventura River. Nevertheless, the Adaptive Management Plan for the project should include the development of transects across the mainstem of the Ventura River channel at locations expected to receive the highest sedimentation, a monitoring program to identify any changes in channel morphology which would adversely affect steelhead passage, and a set of protocols to remedy any temporary blockage of fish passage in an expeditious manner.

Lastly, with respect to the potential sediment clogging of the fish passage facilities at the Robles Diversion, a number of design and project features should serve to reduce the likelihood of impairing the operation of the Robles Diversion fish passage facilities. The fish passage facilities themselves have been located outside of the river channel and within the diversion canal intake, the entrance of which is situated at an elevation of approximately 5 feet above the natural grade of the Ventura River. This basic design approach has the advantage of minimizing the induction of sediments, particularly bed-load sediments, into the fish passage facilities. Regarding the temporarily elevated sediment loads which would be experienced as a result of the removal of Matilija Dam, a number of mitigating measures are being considered as part of the overall Matilija Dam removal project. These include mechanical removal of sediments in the upstream stilling basin (periodically undertaken at present to deal with existing sediment accumulation); by-passing the Robles Diversion and fish passage facilities with a temporary slurry line; and the construction of a permanent high-flow sediment bypass which would pass sediments around the Robles Diversion and fish passage facilities during large storm events when accumulation of sediment is most likely to occur. Nevertheless, additional sediment may enter the intake for the diversion and fish passage facilities, and require additional maintenance which would interfere with both the operation of the diversion and the fish passage facilities. Provisions should be made

to minimize the accumulation of sediment within the stilling basin, and provide for rapid clean-out of the diversion and fish passage intake if sediment build-up impedes the operation of either. This could be accomplished by establishing standards for sediment accumulation build-up in the stilling basin and protocols for removing sediment from the diversion intake and fish passage facilities (including the fish screens).

High-Flow Bypass at Robles Diversion: This component entails the installation of a permanent bypass facility consisting of three radial gates with a bypass capacity of 10,000 cubic feet per second and replacement of the existing timber cutoff wall between the existing Robles Diversion bypass gates and the new high-flow sediment bypass facility with a permanent rock-filled weir. The project description indicates that the high-flow sediment bypass facility would be operated at flows ranging from 1,000 cubic feet per second up to 17,000 cubic feet per second (the combined capacity of the existing and proposed radial gates). The current design of the facility would allow the coarse sediments temporarily stored in the Matilija Reservoir site to be bypassed at the Robles Diversion, thus reducing the likelihood that sediment transport through the natural channel of the Ventura River would interfere with the water diversion and fish passage facilities operations at the Robles Diversion.

The current design of the high-flow sediment bypass facility is comparable to the existing Robles Diversion bypass gates, with a concrete sill set several feet above the downstream existing river grade and a concrete apron extending approximately 50 feet downstream of the radial gates. As a result this facility would not allow passage of upstream migrating steelhead when the radial gates were raised to bypass sediments during high flow conditions, but would serve to attract steelhead to this bypass point with no possibility of upstream passage. Additionally, the proposed operational scheme to raise the bypass gates at river flows beginning at 1,000 cubic feet would conflict with the operation the Robles Diversion Fish Passage Facility which is designed and required to be operated during the winter months between river flows ranging from 50 to 1,500 cubic feet per second. The upstream intake of the Robles Diversion Fish Passage Facility has been incorporated into the intake of the Robles Diversion and operation of both are dependent upon raising the water levels in the stilling basin created by the existing Robles Diversion bypass radial gates and the timber cutoff wall. Opening the high-flow sediment bypass gates to bypass sediments at flows between 1,000 and 1,500 cubic feet per second would effectively render the Robles Diversion Fish Passage facilities inoperative during a significant portion of its design range with no alternative means of allowing upstream migrating fish to pass upstream of the Robles Diversion site (See NOAA Fisheries Biological Opinion for the operation of the Robles Diversion Fish Passage Facilities, March 31, 2003).

Aside from addressing the technical feasibility and maintenance issues associated with the high-flow sediment bypass facility, the design of the high-flow sediment bypass facility should be modified to allow fish passage (both up and downstream) when the facility is used to bypass sediments during high-flow events (when the fish passage facilities at the Robles Diversion are non-operable). Additionally, the operational range of the high-flow sediment bypass facility should be reconciled with the operational design of the Robles Diversion Fish Passage Facilities.

Desiltation Basin: This project component entails the construction of a water desiltation basin along the Robles Diversion Canal downstream of the diversion intake and fish passage facilities. The facility's principal purpose is to trap elevated levels of fine sediments caused by the initial removal of Matilija Dam, but which are not removed through slurrying of the 1.2 million cubic yards of fine sediments to a disposal site below the Robles Diversion site. Currently, this facility is proposed to be sited on approximately 17 acres of property owned by the BOR; however, the precise location of this facility has not been identified, nor have the operational aspects such as sediment clean-out been identified. The sediment analysis indicates that the background level of fine sediments will reach an equilibrium comparable to pre-project conditions within 10 years, after which the need for such a facility would no longer be justified as mitigation for the project. In addition, we note that the present diversion operations at the Robles Diversion facility are not normally curtailed by the periodic high suspended sediment levels naturally experienced during high-flow events. Analysis of this project component should clearly justify the need for a permanent desiltation basin. Additionally, if the diversion capability is increased by construction of this facility, the magnitude of this increased capacity should be identified, and the impacts of exercising this increased capacity should be assessed as part of the environmental review process. Alternative sites for this project component should be examined, and the impacts associated with these sites evaluated. In particular, the impacts of increasing the amount of water diverted from the Ventura River should be fully evaluated.

Foster Park Municipal Wells: This project component involves the installation of two new water wells at the City of Ventura's Foster Park well field. These are presumably intended to mitigate the impacts of fine sediments which would reduce percolation of surface flows into the aquifer upon which the City's existing well field draws water. However, there is no analysis of how the infiltration into the Ventura River aquifer would be affected by the project. The rate of infiltration into an aquifer is controlled by the overall porosity of the sediments and the Ventura River flood plain is comprised of coarse sediments which facilitate rapid percolation. These conditions are reflected in the documented rapid recharge of the shallow aquifer within a few days to a week of a major storm event. The percolation rates into the shallow Ventura River aquifer would only be affected by fine sediments accumulated at the surface. These fine sediments are subject to rapid flushing through the system during high flows and not subject to natural accumulation. The accumulation of elevated levels of fine sediments in downstream areas is addressed in part by the slurrying of fine sediments to an off-stream site protected against a 50 year flood event. The remaining fine sediments are projected to be naturally flushed through the system after three moderate storm events (or within two or three years), thus causing only a temporary affect, if any, on the recharge of the shallow Ventura River aquifer.

NOAA Fisheries has previously expressed concerns about the impacts of water withdrawals from the shallow aquifer on surface flows and pools. The reach of the Ventura River in which the proposed water wells would be located is one of the few reaches in the mainstem of the Ventura River which sustains a year-round surface flow, extending approximately from the confluence of San Antonio Creek downstream to the estuary at the rivers mouth. Perennial flow below the

confluence of San Antonio Creek is sustained by a combination of upstream surface flows, springs, and rising groundwater. As a result, this reach the provides important spawning and rearing habitat for the endangered southern California steelhead trout. Surface or groundwater extractions from this reach of the Ventura River have the potential to adversely affect steelhead trout in the Ventura River. The project does not provide any operating criteria for these two new wells which would address the potential adverse impacts of additional water withdrawal from the Ventura River. The same issues that were recently raised by the City's proposal to add or replace wells in this well-field are raised by this proposal. As a result of these concerns, the City's proposal was deferred until more extensive environmental review could be conducted (See the letters from NOAA Fisheries to the City of San Buenaventura, dated October 7, 2002, and March 4, 2004).

Upper River Water Wells: The project's co-sponsors are exploring the possibility of installing an unspecified number of new water wells below the Robles Diversion to provide an alternative back-water supply should the operation of the Robles Diversion be temporarily incapacitated by the release of sediment from Matilija Dam. The operation of these wells would affect not only the riverine habitat (both lotic and riparian) in the immediate vicinity of the wells, but the between storm surface flows downstream to the ocean. As with the Foster Park water wells discussed above, the magnitude of this potential impact has not been quantified nor have operating criteria for these new wells been identified. Additionally, no analysis of the potential environmental impacts associated with this project component have been presented. The same issues which are raised by the City of Ventura's proposal to add or replace wells in its well-field are raised by this potential proposal and should be addressed in the final EIS/EIR (See NOAA Fisheries letter to the County of Ventura regarding a similar proposal to activate water wells in the area of the Robles Diversion, dated November 30, 2001).

Permanent Levees/Floodwalls: This project component involves the construction of a series of new levees/floodwalls and the enlargement of existing levees along the mainstem of the Ventura River. These proposed levees are intended to maintain flood flow capacity in the channel downstream of Matilija Dam while released sediments are naturally routed through the system to the ocean. Although the need to provide additional flood protection is temporary, the levees are proposed to be permanent. This would result in substantial reaches of the river which are not now leveed being confined by levees, and enlarged levees in other river reaches. Specifically, new levees are proposed on the east side of the mainstem of the Ventura River extending 4,000 feet from the Robles Diversion Facility downstream to Miners Oaks at the Meyers Road drainage channel. Enlarged levees are proposed for the west side of the mainstem of the Ventura River extending 6,000 feet from the end of Riverside Road downstream to the Santa Ana Road Bridge, and for the east side of the mainstem of the Ventura River extending 6,000 feet from the confluence of San Antonio Creek downstream to Edison Drive.

The new levees would adversely impact the ecosystem of the Ventura River in a number of ways, including displacing or encroaching on existing riparian/aquatic habitat, constraining natural fluvial processes which create and maintain habitat diversity, fragmenting terrestrial/riparian

habitat, and facilitating the introduction of exotic plant species. There are also potential secondary impacts stemming from levee maintenance such as vegetation control along the levees through the application of herbicides. Additionally, the enlargement of existing or construction of new levees/floodwalls may restrict public access to the Ventura River for recreational purposes as a result of liability concerns associated with the public use of flood protection facilities. The analysis of this project component should clearly justify the needs for new or enlarged levees, and the time frame for this need. The sediment transport model developed for the project indicates that a majority of the coarse sediments could be flushed through the system within ten years from the initiation of the project. Where levees are needed only temporarily for mitigation, these levees should be removed or restored to their pre-project configurations to restore natural fluvial processes and eliminate the impacts associated with the levees which are intended only to address the temporary impacts associated with the removal the coarse sediments stored in the Matilija Reservoir site.

Bridge Replacements: This project component entails replacement of the Santa Ana Road Bridge with a larger structure, and the potential elimination of one private bridge at Camino Cielo Road. The design and size of the replacement structure for the Santa Ana Road Bridge should be more fully described, including any bridge abutment protection measures. In addition, the replacement structure should be free-spanning, and minimize the bridge footprint in the adjacent riparian corridor. Lastly, restoration activities at the site of the private bridge that may be eliminated should be described in detail.

Arundo Removal: A significant portion of the Matilija Reservoir site, and reaches of the Ventura River downstream of Matilija Dam have been colonized with the non-native *Arundo donax*. This plant has degraded ecosystem functions of the Ventura River by displacing the natural diversity of native riparian plant species with homogenous stands of non-native vegetation. The project should include a clear and comprehensive plan for the removal of *Arundo donax* as part of the 4b alternative which includes removal of the *Arundo donax* within and above the Matilija Reservoir site, as well as removal of Arundo in the lower reaches of the mainstem of the Ventura River. Removal of this non-native invasive plant species, and plans to monitor its status, are essential components of the project and necessary to achieve restoration of the Ventura River/Matilija ecosystem.

Public Access and Recreation: The project includes a number of public access and recreational features which will increase access to riverine habitats along the mainstem of the Ventura River and lower Matilija Creek. These include conversion of the slurry pipeline route between the Matilija Dam site and the Highway 150 Bridge into a trail, and the installation of interpretive and rest areas along the trail route. While the addition of this trail and associated facilities will provide substantial public benefits, they also have the potential to result in adverse impacts to natural habitats and the unauthorized harvest of steelhead from reaches of the Ventura River and Matilija Creek not currently easily accessible to the public. To offset these potential impacts, any interpretive materials prepared as part of this component of the project should include specific materials regarding the status of endangered species, including the endangered steelhead trout,

and any restrictions regarding the harvesting or other forms of take of these species.

Finally, we would note that the nearshore habitats extending up and down coast from the mouth of the Ventura River contain a variety of distinct habitat types, including intertidal cobble habitat, primary dune habitat, subtidal cobble habitat, sand beach habitat, and nearshore subtidal mudflat habitats. Each one of these habitats supports a distinct assemblage of marine organisms, including marine plants and animals. The Final Report and EIS/EIR should provide more specificity regarding the potential long-term benefits and short-term impacts of the Matilija Dam Ecosystem Restoration Project on these shoreline and nearshore marine habitats. Particular focus should be on the effects of increasing beach nourishment of beaches as a result of the natural transport of sediment stored in the Matilija Reservoir site to the coast.

In closing, NOAA Fisheries would like to reiterate that the proposed Matilija Dam Ecosystem Restoration Project presents an unprecedented opportunity to restore steelhead in the Ventura River watershed and contribute significantly to recovery of the endangered Southern California steelhead ESU. Additionally, the locally preferred alternative best meets the three major planning objectives for this project. NOAA Fisheries would like to express its appreciation to the Corps of Engineers, the BOR, and the County of Ventura for the commitment they have made to this effort, and for the cooperation they have exhibited in addressing the specific issues which NOAA Fisheries has raised through this planning process. While planning for this project has advanced considerably, it is not yet complete as the co-sponsors are undoubtedly aware. These comments are submitted with the intent of focusing future analysis on those major issues which need to be addressed in completing the plan formulation and environmental analysis. If you should wish to discuss any of these issues further, please contact Mark Capelli at (805) 6478 or Brian Cluer at (707) 575-6061.

Sincerely,

for Rodney R. McInnis
Regional Administrator

cc: Michael Delamore, U.S. Bureau of Reclamation
John Bridgewater, U.S. Forest Service
Diane K. Noda, U.S. Fish and Wildlife Service
Charles Raysbrook, California Department of Fish and Game
Jeff Pratt, Ventura County Watershed Protection District
Steve Bennett, Ventura County Board of Supervisors
John K. Flynn, Ventura County of Supervisors

SOUTHERN CALIFORNIA Steelhead Coalition

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Coalition Program Director
David Pritchett, tel. 805-403-8830
P. O. Box 91034, Santa Barbara 93190

20 September 2004

To: California Coastal Commission **by email attachment**

Attention: Mark Delaplaine, Federal Consistency Supervisor

Subject: Support and Comment on **Project CD-53-04**
Matilija Dam and Ventura River Ecosystem Restoration Study

Dear Commission Chair:

I write on behalf of Southern California Steelhead Coalition, the leading private-sector advocate for recovery of endangered steelhead trout in Southern California. Our group memberships include thousands of Californians with an interest in river conservation, ocean surfing, aquatic species recovery, and recreational and commercial angling.

The Steelhead Coalition wholly supports the goals of the project as currently described in the draft EIS/EIR and supporting plans led by the project co-sponsors U.S. Army Corps of Engineers and Ventura County Watershed Protection District. *We believe that establishment of fish passage and appropriate ecologic restoration of Ventura River represents the best opportunity for recovery of southern California steelhead during the next 10 to 20 years.* The project will provide a fantastic benefit to the California coast, especially for the malnourished beaches of central Ventura County and the endangered steelhead trout population. The Preferred Project Alternative, number 4b, is the environmentally superior and most cost-effective alternative to achieve the project goals, and we encourage the Coastal Commission to support this carefully crafted alternative.

Of particular interest to the current Coastal Commission review of the project is our recognition, highlighted in our attached comments on the draft EIS/EIR, that the Corps of Engineers planning procedure necessarily is conducted in phases. In these phases, more details are concluded and technical analyses are performed to refine the technical scope and environmental impact analysis of the whole project. Such upcoming phases include the Corps Chief's Report in December 2004, preparation of the final EIS/EIR, Federal Record of Decision, final EIR certification, and later Pre-construction Engineering Design. As an active stakeholder participant in the project since it began 5 years ago, we are fully confident that the work to meet all of these planning milestones will adequately resolve any planning uncertainties that the Coastal Commission may hear about.

In particular, we are fully confident that potential impacts to local water supply, water and sediment quality, and any steelhead residing in the lower River will be resolved through the phased planning process, as we outline many times in our attached comments on the draft EIS/EIR. Many complaints about these potential impacts are being made by local water purveyor agencies, but we believe this is just a tactic to stall or quash the whole project, and/or gain advantage in other negotiations between the County and these water purveyors.

Also attached for your reference is an EIR comment letter from State Assemblymember and Natural Resources Committee Chair Hannah-Beth Jackson, whose District covers the coast most affected by the project. Please note that Assemblymember Jackson highlighted the importance of the Preferred Project Alternative (4b), benefits to beaches, Ventura River restoration, and need for continued participation by the public stakeholders as the project planning advances in future phases under the Corps of Engineers planning procedure.

Please feel free to contact me about this project by email dapritch@cox.net or by telephone 805-403-8830. I hope to be present and would be able to speak about this project during the Coastal Commission review during the October 2004 Commission meeting.

Respectfully yours,

David A. Pritchett
Steelhead Coalition Program Director

JACKSON

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HANNAH-BETH JACKSON
ASSEMBLYMEMBER, THIRTY-FIFTH DISTRICT
CHAIR, NATURAL RESOURCES COMMITTEE

COMMITTEES
BUDGET
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JOBS, ECONOMIC DEVELOPMENT AND THE ECONOMY
JUDICIARY
JOINT COMMITTEES
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THE ARTS
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SELECT COMMITTEES
CHAIR, COASTAL PROTECTION
CO-CHAIR, TITLE IX
STATE BOARDS
COASTAL CONSERVANCY
WILDLIFE CONSERVATION BOARD

August 30, 2004

Jon Vivanti, Study Manager
U.S. Army Corps of Engineers
915 Wilshire Blvd.
Los Angeles, CA 90017-3401

Re: Matilija Dam Ecosystem Restoration Feasibility Study

Dear Mr. Vivanti:

I am writing to provide comments on the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) that has been prepared on the Matilija Dam removal and Ventura River restoration effort.

This undertaking represents one of the most ambitious and complex ecosystem restoration projects ever planned. I remember well the moment in the fall of 2000, when I watched then-Secretary of the Interior Bruce Babbitt operate the crane that symbolically tore down the dam's first 16-ton chunk of concrete. I congratulate the project sponsors and the many other participants for successfully advancing the project to this point.

The project has been so successful thus far in part because of the active participation by the wide range of stakeholders, many of whom initiated the project more than five years ago. To build upon this success, I strongly urge that project sponsors maintain a collaborative planning process, continuing to hold meetings of the various committees and working groups that have been involved in crafting the project and will continue to work out the design details after the final EIS/EIR is certified.

Such a collaborative process will help to ensure that checks and balances are incorporated into the future technical analyses that will complete the project, especially for sediment management, water supply gains and losses, and benefits to endangered species including the Southern Steelhead Trout.

The 35th Assembly District, which I represent, includes the portion of the Ventura County coastline that would most benefit from the dam removal project. I agree with and support the selection of project Alternative 4b as the Preferred Project Alternative and Environmentally Superior Alternative. This alternative calls for full dam removal in one

phase and short-term storage of a portion of the trapped sediment within the reservoir basin.

I am pleased to see that Alternative 4b ensures the sand-starved beaches of Ventura County will benefit from sand replenishment in a timely manner – within 10 to 20 years, as opposed to 100 years or longer if the obsolete Matilija Dam is left in place. The beaches of Ventura County, and the local economy that depends upon them, simply cannot wait that long.

In addition, I am encouraged by the economic analysis included in the draft environmental report, which indicates Alternative 4b would provide the most favorable ratio in terms of cost v. environmental benefit. Further, the project will save local jurisdictions millions of dollars in the long term, as the state and cities along the Ventura County coast will no longer have to expend their own funds on beach replenishment. Overall, Alternative 4b provides the best balance of sediment management, habitat improvements and beach benefits.

Alternative 4b also supports the objectives of the draft California Coastal Sediment Management Master Plan, a joint effort to be concluded next year by the California Resources Agency and Corps of Engineers. Revisions to the Matilija EIS/EIR should indicate more clearly where and how the project supports this coastal sediment plan.

In closing, I would again like to commend the project participants for crafting an alternative that provides for the removal of Matilija Dam in a timely manner, along with a sensible plan for beach replenishment and restoration of endangered steelhead trout runs.

Sincerely,

HANNAH-BETH JACKSON
Assemblymember, 35th District
Chair, Committee on Natural Resources

Cc: Ventura County Watershed Protection District

HBJ/jra

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30 August 2004 **by email attachment**

U. S. Army Corps of Engineers
Los Angeles District, Planning Division
Attention: Jon Vivanti, Project Manager

Subject: **Comments on Draft EIS / EIR**
Matilija Dam Ecosystem Restoration Feasibility Study

Dear Mr. Vivanti:

We wholly support this project as currently described. On behalf of Southern California Steelhead Coalition, I am pleased to offer these attached detailed comments about the draft Environmental Impact Statement and draft Environmental Impact Report for the subject project.

Our substantive comments are attached (9 additional pages) and include paragraph headings about prominent issues in the planning process and certain sections of the draft EIS/EIR. Also attached are recent news articles and research editorials about the project, so the administrative record and project decisionmakers have these references.

As explained in the attached comments, and just as we wrote in our September 2003 comments on the draft F4 documents, the most important issues of concern at this time to the Steelhead Coalition include the following 5 points.

- No net loss of baseflow in Ventura River,
- No net loss of water supply for local water agencies collectively,
- Removal of Matilija Dam within a 2-year period,
- Gradual transport of sequestered sediment to the beach, and
- No artificially maintained sediment retention above the dam.

Southern California Steelhead Coalition formed in January 2000 and is now the leading private-sector advocate for recovery of endangered steelhead trout in the Southern California Evolutionary Significant Unit (ESU). Our cumulative group memberships include thousands of Californians with an interest in river conservation, ocean surfing, aquatic species recovery, and/or recreational and commercial angling. *We believe that establishment of fish passage and appropriate ecologic restoration of Ventura River represents the best opportunity for steelhead recovery in the ESU during the next 10 to 20 years.*

Please feel free to contact me about this project by email dapritch@cox.net or by telephone 805-403-8830. We look forward to our continued participation in the robust and effective project planning process that has made the project so successful this far.

Respectfully yours,

David A. Pritchett
Steelhead Coalition Program Director

Introduction and Background. Southern California Steelhead Coalition continues to be pleased that the Matilija Dam and Ventura River ecosystem restoration project is progressing from concept to technical feasibility. We congratulate the Corps, County, and myriad project participants for advancing the planning so far. In early 1999, Matilija Coalition, Friends of the Ventura River, and other local organizations first met with elected officials and local agencies to spawn the initial restoration concepts and project goals, after decades of scattered discussions in the community. A later highlight in October 2000 was witnessing the dam deconstruction demonstration project and ceremonial dam concrete slice removal effort by (then) U.S. Secretary of the Interior Bruce Babbitt. Since the feasibility study through the Corps began in early 2001, the Steelhead Coalition, mainly represented by David Pritchett, has participated regularly through the Plan Formulation and Environmental working groups.

Intent of Comments. Our comments not only are intended to assist with making a better project plan and environmental review documents, but also to establish a reference for all project participants about the Steelhead Coalition positions on the project planning and alternatives selection. Project success eventually will require strong public and political support, initially from interests in Ventura County. Our group and Matilija Coalition are well poised to gauge the status of local and statewide support for the project and to convey those issues to the Corps and County through our continued participation in the project.

Continuing Participation by Stakeholders. The success of the project so far is mainly the result of the work of the diverse and productive group of stakeholders participating, combined with the tireless efforts of the project sponsors. The project should to continue its successful public and stakeholder participation process, with frequent communications and stakeholder input afforded during meetings of each working group to be held at least once per quarter through the PED phase of planning and beyond. The revised EIS/EIR should indicate how this public and stakeholder participation process will continue for the project, including which committees and working groups will persist and how often they will meet.

Organization of Comments and Project Documents. These comments here about the project planning and review mainly describe what should be included in the project description and environmental review, and not always what the draft EIS/EIR and supporting report and appendices actually may specify. The review documents appear to be more than 2000 pages in total, with particular details not always (or perhaps seldom) in the section of the draft EIS/EIR where we expected to find all of the material about a particular issue. Revisions to the EIS/EIR should move around or copy whole sections and place them within the EIS/EIR proper instead of scattered among the Report and numerous appendices, where the material may be difficult to find.

Definition of Restoration. The revised EIS/EIR should include a clear definition of "restoration" as intended for the project, as many parties interested in the project may be distorting this concept or bringing in their own narrow or broad meaning. The widely accepted definition of "ecological restoration" promulgated by Society for Ecological Restoration (www.ser.org) can serve the project: "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed." The Ventura River ecosystem restoration project should fulfill this widely accepted definition of restoration, especially to focus on natural *process* and whole *ecosystem*.

Selection of Preferred Project Alternative 4b. We very strongly support project alternative 4b as the Preferred Project Alternative and Environmentally Superior Alternative. This alternative is for full dam removal in one phase and short-term storage of a portion of the trapped sediment within the reservoir basin. Alternative 4b offers the best all-around suite of measures to accommodate the credible needs of project stakeholders. Also, alternative 4b provides the most environmental benefit for the lowest financial cost, an

admirable quality for any project. However, we recognize that some components of 4b require more analysis during the next phases of project planning in the Pre-construction Engineering Design (PED) phase .

Opposition to Alternative 4a. This alternative specifies that most of the 6 million cubic yards of sediment behind the dam would be "permanently stabilized" through artificial, engineered structures in Matilija Canyon above the dam site. While this method may seem like a relatively convenient way to deal with the sediment at one site instead of through multiple sediment management features downriver, this alternative has numerous flaws that make it far too risky and expensive to pursue further for the project. Accordingly, a few paragraphs of explanation are offered in these comments so the project planners and decisionmakers better can understand our strong opposition to this alternative.

Failure of Alternative 4a to Meet Ecosystem Restoration Goals. Regarding the ecosystem restoration goal of the whole project, we especially are concerned that under alternative 4a the defacto horizontal dam –a new dam in the canyon– parallel with Matilija Creek would be subject to catastrophic failure during heavy flow events, especially considering that the plans show the material to be "stabilized" at the high-energy outer (left) streambank. Nothing in upper Matilija Canyon is permanently stable, and we doubt an artificially engineered structure would be either. A catastrophic failure of the new structure easily could cause a long, linear fish passage barrier to form as material slumps into the channel. A high-velocity hydraulic passage barrier also could develop as the streamflow is constricted and accelerated into a narrowing channel. An example of this effect is happening now in Topanga Creek near Malibu, where boulder revetments installed by CalTrans are steadily slumping into nearly 100 meters of linear stream channel, thereby causing higher velocity flows, more downstream erosion, and reduction of steelhead habitat below the revetment. This situation at Topanga Creek is described in reports by Resource Conservation District of Santa Monica Mountains.

Failure of Alternative 4a to Meet Other Project Goals. Alternative 4a also would sequester 60 years of sediment accumulation that should be passing down to the beach as part of widely-recognized natural river functions and beach nourishment goals of the project. The severe sediment deficit on the beach has led to substantial and costly shoreline erosion downcoast of the eroding Ventura River delta. Under alternative 4a, an artificially engineered solution to stabilize or sequester the sediment also contradicts recreation goals of the project. This especially is objectionable if the structure blocks human access or is to be isolated with an ugly, formidable fence, as has been mentioned during planning meetings as means to address County liability concerns. Nearby upstream residents also would be directly impacted, as they currently and frequently access the stream channel for educational and recreational uses.

Project Alternatives not Included. The sediment management features and expenses that comprise much of alternative 4b could be negated by a project alternative yet to receive full consideration on par with the other alternatives, even those alternatives rejected early in the study with a more cursory analysis. The infiltration gallery method –using examples from Elwah River in Washington with assistance from Institute for Fisheries Resources, a project participant– and smaller local examples from Sespe Creek could apply to Ventura River as a means to divert subsurface river water (but not groundwater) into a gallery of long perforated pipes leading to the existing diversion canal to Casitas Reservoir. Sediment thereby could flow freely downriver, and fish could swim upriver, with no impedance at the existing Robles Dam, which may be modified under this alternative. This method and potential new project alternative already are known to many of the project participants and sponsors, and apparently has been explored to a limited degree but never reported, but should be in the revised documents. Of course, an infiltration gallery, if technically feasible, would require unprecedented cooperation among local water interests, but its status as feasible or infeasible should be based only on objective, technical reasons at this stage of the planning process. Revisions to the EIS/EIR should

outline the technical reasons why an infiltration gallery method seems to have been rejected considering its earlier discussions but omissions from the review documents.

Water Quality. In the Geotechnical report (likely page 28), the mention of arsenic needs a more thorough reference about what the "consultations with another water agency" really were regarding those background levels. This claim of sediment contamination by arsenic and other contaminants is one of the top 4 arguments or complaints continuously expressed by Casitas water district through many venues and their ongoing public relations campaign. Accordingly, a more detailed explanation should be offered about background levels of arsenic in every place arsenic and other purported contaminants are noted in the documents. This would avoid a lot of distracting and non-substantive debate later, and would address proactively one of the top issues continually raised by Casitas water district and others.

Habitat Evaluation Procedure. The HEP for the project is an innovative and robust model that represents well the ecological restoration accomplishments of the whole project and its alternative configurations. The HEP for Ventura River is so good that it can apply to future riverine projects throughout California if not much of the world. One area for improvement, though, is to consider how eradication of exotic predatory aquatic animals, such as bullfrogs, may improve the portion of the HEP calculations for steelhead habitat, using the "other factors" component of the HEP model. The revised EIS/EIR should address this potential gain in HEP values for the financial cost if some reliable data on bullfrog and other predation on steelhead are readily available for Ventura River.

Further Analysis of Proposed Levees. As part of alternative 4b or any project alternative, a more rigorous determination should be conducted about which proposed levees really need to be permanent and which can be temporary once the bulk of the sediment has moved downriver. Coordination with State Coastal Conservancy and Ojai Valley Land Conservancy also should to occur for identifying parcels that may be available for property acquisition and preservation as natural areas that can be subject to some sediment deposition instead of assuming that levees need to be constructed there. Higher HEP values also may be realized through these land preservation considerations. The urban growth-inducing impact of levee construction also should be analyzed where lands no longer would in the floodplain or floodway if permanent levees are constructed. Also, a summary table of project betterments should be included in revisions to the EIS/EIR.

High-Flow Bypass Structure. We especially like the high-flow bypass structure for Robles Diversion Dam, which as currently described also could increase the migratory window period for steelhead passage during some heavy river flows. The operation of this structure, though, should be analyzed further in the next phases of the study, especially to see if opening the bypass gates will draw down the pool behind Robles Dam so the new fishway there cannot function with the fishway flows needed.

Water Supply Budget. How the project actually influences water supply sources in the watershed should be examined in future project planning through an impartial and objective analysis free of legal and financial conflicts of interest. Many of the comments about the project so far have not been impartial and objective. So the early and consistent promise of making the water purveyors "whole" can be realized properly, a water supply budget needs to be calculated and based upon an actual baseline figure that is determined from honest and credible figures on what the Ventura River restoration project actually affects, and what the water supply situation actually would be if the project did not happen at all, versus other water demands and supply crunches not caused by the project. (See also the *Water Negotiations Tactic* paragraph below.) The project revisions should outline how this water budget will be determined, and by whom, during the future planning process. Also, all should realize that water purchased from within the watershed should not be considered a "loss" of water supply, as that would be double counting and water sold is not water lost.

Water Budget Examples. A possible outcome of an impartial water supply budget is that some local water agencies may realize a net loss of water supply, while others may realize a net gain of water supply as the project moves around water from reservoirs to surface flow to groundwater recharge. The net overall effect is that total water supply in the affected area may change very little if at all because the water stays within the Ventura River watershed. The project document revisions should address the requirements under CEQA for a review of impacts on the entire water resource as a whole, rather than just impacts to a few specific agency jurisdictions. For example, if a local agency drawing water from wells no longer needs to purchase water from Casitas water district because the project is enhancing groundwater recharge from the slurry line, then Casitas water district actually may not realize as much of a water shortage as initially alleged. Some of the other representative issues that should be included in the water supply budget include, but are not limited to, the following:

- improved water diversion efficiency with the new fishway at Robles Diversion Dam;
- reduction in transpiration and increased river flows because arundo is eradicated as part of the project (see *Arundo Effects* paragraph below);
- potential reductions in the means to secure water supply because sediment will start to flow over Matilija Dam in 20 years or so regardless of whether the project happened or not;
- water demand management and conservation methods that are becoming standard practice in arid regions of California and the nation;
- increased water storage capacity at Casitas Reservoir (described below); and
- other water gains mentioned in other comments on the project.

Water Supply Provisions at Casitas Reservoir. As part of the impartial evaluation of a water supply budget in the Ventura River watershed, we support the proposal made by Casitas water district to increase the long-term water storage capacity of Casitas reservoir, likely by raising the Casitas Dam spillway elevation. This action is described as a potential "viable option" on page 5 in the Casitas letter to the County, dated 29 August 2003.

Water Supply Provisions with New In-line Storage Reservoir. We are concerned about the potential for a new fine-sediment retention basin (reservoir) to result in a reduction in baseflow in Ventura River below Robles Diversion Dam. These river reaches are extremely critical to assure adequate flows for fish passage between the ocean and the Robles Dam fishway now under construction. This potential retention basin has been discussed at length during project meetings and is noted in the 29 August 2003 letter by Casitas (referenced above). We agree that the fine-sediment retention basin as described in the draft EIS/EIR and current project plans is sufficiently large to serve its sediment retention functions, but not too large to serve as another reservoir that could diminish river flows. This optimal sizing should be verified during future project planning details.

Water Supply Provisions for Loss of Matilija Reservoir. Consistent with its objectives, the project definitely should convert the dwindling Matilija Reservoir into a free-flowing stream with full fish passage, and as a result would eliminate any water storage capacity provided by the shrinking volume of Matilija Reservoir. The analysis in Main Report, top of page 5-3, is a good and concise analysis of the actual value and duration of lost water, recognizing it is 2 years of actual losses for that volume of water before the lease reverts back to the County Watershed Protection District.

Supplemental Water from State Water Project. The draft EIS/EIR mentions that securing water from the State Water Project ("State water") could be an option to compensate for any local water supply shortfalls that may be caused by the project, if any shortfalls actually are caused. We highly discourage the

importation of State water into the Ventura River watershed, and those suggestions should be excised completely from the planning documents. Water supply and demand in Ventura River watershed should be sustainable, and everyone should live (consume water) within their local means at a river watershed scale. Also, importation of State water could be highly expensive with costs outside of local control, and would require a series of legal agreements for "wheeling" water. Importation of State water also just leads to degradation of salmon and steelhead habitat elsewhere in California.

Water Negotiation Tactics. Several news articles and editorials attached reveal how Casitas water district, and apparently other allied agencies, such as Ojai Water Conservation District, are attempting to leverage the project as a means to secure a water supply and/or water right that likely is not related to the project. The project planners and decisionmakers should be aware of these tactics, and these attached news references should be part of the project records. Especially succinct and revealing is the analysis (based on primary sources) in the editorial essay from 29 August 2004 by columnist John Krist in *Ventura County Star.*

Slurry Deposition Sites. Ventura River County Water District and others have commented that the slurry sediment deposition sites may lead to fine soil particles clogging the infiltration zone around their water extraction wells (not their words, but what their comments meant). Using the expertise of the USBR staff who have long worked on the Matilija project, the revised EIS/EIR certainly should address this hydrologic theory, starting with a basic analysis of where the actual aquifer infiltration and recharge zone may from which the wells in question draw. Like most riverine systems in steep coastal watersheds of southern California, those wells along and in Ventura River probably draw from a recharge zone extending several kilometers along the river and floodplain corridor and not just the immediate vicinity of the wells in question.

Ongoing Habitat Conservation Plan. Ventura River County Water District and others have commented that the draft EIS/EIR does not mention anything from the Habitat Conservation Plan (HCP) under preparation by that and several other agencies. The revised EIS/EIR certainly should indicate what relevance, if any, that embryonic HCP has to the project, especially if the HCP under development has yet to produce any drafts for the federal review agencies. Attempts to link the HCP to the project just seem like a tactic to stall the project for other motivations.

Arundo Effects. The project should include removal or eradication of arundo from the watershed, and it does, although the discussion of methods and schedule should be improved. Considering the comment by Ventura County Resource Conservation District (RCD) that conversion of an acre of arundo cover to an acre of native riparian vegetation can save nearly 4 acre-feet of water because of less transpiration by arundo, the water supply benefits of the arundo removal should be analyzed further in the water supply budget discussed above. Water districts that are implementing ambitious arundo eradication projects in Orange County and Riverside County also may have figures about water savings benefits. The project also should coordinate further with Ventura County RCD about what is being learned from their demonstration project currently underway along Ventura River near Casitas Springs.

Federal Nexi for Matilija Dam. Any federal nexus with the dam should be explained in the overview discussions about the dam. We cannot think of any nexi, such as with FERC, USFS, USBR, or other agencies that typically are involved in dams and land management in the region. The only remote federal nexus that we can imagine would lead to regulatory permit conditions is if a hypothetical future project, by some unknown party, must secure an Individual (not Nationwide) permit from Corps of Engineers; however, no such permit has ever occurred for Matilija Dam nor, considering the stability of the dam, can we imagine any such federal action during the next 50 years that would affect Matilija Dam outside of the actual project in the current draft EIS/EIR.

Adaptive Management. The project plans should include a means for adaptive management as the project enfolds during implementation. Examples of issues that would be ripe for adaptive management strategies include, but are not limited to:

- extent and height of soil cement in the reservoir area;
- actual height and duration downstream levees need to be for the required flood protection;
- establishment of native plant communities on sediment storage sites, by monitoring natural recolonization versus need for deliberate seeding or planting; and
- operation of the high-flow bypass gates that may impede fish passage flows because the upstream pool elevation drops to low.

Sediment Effects on Steelhead. The discussion in Appendix C1 (Biological Assessment, NMFS) is excellent about short-term effects on steelhead caused by sediment loads, with many citations of how fish populations have returned in short times after very heavy sediment flows in streams. These paragraphs address some of the top 4 issues of criticism made in various pubic comments and documents by Casitas water district, and should be presented more prominently in other sections of the EIS/EIR to be sure they are not missed. We agree with the repeated allegations by Casitas or Entrix that short-term negative impacts to a downstream population of steelhead could occur with a massive increase in sediment transport originating from the sediment mass currently sequestered behind Matilija Dam. However, even if any downstream population of steelhead were "annihilated" by large loads of suspended sediment for several years (as we have heard it described during some planning meetings), we feel this impact still would be an acceptable short-term adverse impact to gain a hugely beneficial long-term recovery benefit for the species. Fortunately, though, the current analysis shows that turbidity only would be highly elevated during the first few rain events of a season, and not for continuous years.

Sediment Tolerances of Steelhead. We are not aware of any scientific studies that show how much suspended sediment southern California steelhead can tolerate during their upstream migration, but we would expect the fish to behave in a typical fashion by swimming upriver during the receding flows following peak discharge and peak sediment transport. Therefore, the fish actually would be adjusting their behavior to migrate during short times of lower turbidity. Also, considering the dynamic nature of southern California watershed functions, we anticipate that southern California steelhead are adapted to tolerate far more suspended sediment than their well-studied cousins from northern California or further north.

Sediment Effects on Lower River Habitat. As reported by *Los Angeles Times* (27 July 2004, news article attached), Casitas water district staff said "releasing the 6 million cubic yards of sediment trapped behind the nearly full dam will widen and flatten the riverbed, reducing the chance that enough water will flow through the river to enable steelhead to spawn. And the spaces amid the gravel on the river bottom, where steelhead lay eggs, will disappear under all that silt." Actually, we disagree and the revised EIS/EIR should clarify how the river channel could become narrower into a more defined channel because the riverbanks no longer would be eroding as a result of a sediment-deprived river system. The Hydrology Report appendix should be more clear, and the issue reported earlier in the documents, about how the riverbanks have suffered from increased erosion because replenishment from upstream sediment sources has been cut off by Matilija Dam.

Habitat Gains for Steelhead. Although sediment loads in Ventura River are a short-term adverse impact, the overriding benefit, of course, would be permanent access to more than 16 linear miles of premium spawning and rearing habitat in upper Matilija Creek. Such habitat is described in detail in the qualitative and quantitative studies by Payne and Associates that were conducted as part of the project. Those studies, including all photos and graphics, should be fully included in revisions to the EIS/EIR, as their absence from

the set of documents only encourages more allegations or misconceptions that steelhead somehow will not benefit by the project.

Fish Capture and Translocation. Verbal and written comments by Casitas water district or its representatives during the past few months have advocated for the capture and translocation of steelhead from the lower river, where sediment flows may adversely affect the fish. This suggestion seems to be a tactic for stalling the entire project and/or justifying why adequate fish passage flows should not be released into the river, even if the fish instead can be captured and held in captivity. The project should not consider this proposal for capturing fish. The depleted population of 100 or so fish in a high-flow year likely could not be found anyway, and fish captured for their alleged safekeeping would suffer mortalities in the process. Also, no facility exists for holding the fish, and the project should not get into the business of holding if not propagating endangered steelhead in artificial, unsustainable habitats, contrary to the project goals for ecosystem restoration.

Concerns about Steelhead Population Size. So the project planning may proceed without unnecessary delay, we feel the concerns about steelhead population size and downstream genetic variability (expressed on page 5 of the 29 August 2003 letter by Casitas, and elsewhere) are unwarranted because steelhead recovery really will be driven by genetic diversity and sheer numbers of individuals from the landlocked populations of wild trout currently residing in the upper tributaries of Matilija Creek. With migratory passage restored to upper Matilija Creek, genetic variability of the Ventura River population will not be dependent upon any population of 100 to 200 adult fish possibly lingering in the lower river and becoming vulnerable to negative impacts and a local population decline caused by heavy sediment loads. The revisions should highlight this.

Restoration of Anadromy is Good. This benefit to endangered steelhead recovery is far more than just personal opinion, as Casitas or Entrix have alleged in their draft if not final comments on the EIS/EIR. By allowing access to the spawning and rearing habitat above Matilija Dam, the project will provide a substantial, if not essential, recovery boost to the population of endangered steelhead trout in southern California, by allowing the fish to resume anadromy. The natural phenomenon of landlocked trout populations returning to anadromy when given the opportunity is so widely known in coastal watersheds throughout California that a detailed justification hardly seems necessary. However, plenty of references to scientific studies more than 10 years old can be found in the *1996 Steelhead Restoration and Management Plan for California*, by McEwan and Jackson of California Department of Fish and Game. That report also refers to removal of Matilija Dam as a specific project that should occur. Numerous other references about the benefit of restoring fish passage and anadromy can readily can be found elsewhere, such as the administrative and other records of National Marine Fisheries Service as prepared for the endangered species listing in 1997.

Assurance of Project Completion. In the design criteria section and perhaps elsewhere in the set of draft documents, the life of the project is described as 20 years for active management. The revised EIS/EIR should describe clearly which agency or agencies will be responsible to carry out all elements of the whole project package, such as incremental removal of the soil cement in the reservoir area or levees at downstream sites. Also, the documents should describe what provisions will or can be made if project elements require longer to complete, depending upon river flows or other weather-dependent variables.

Endangered Species Consultation. NOAA Fisheries Service, of course, will the final arbiter and decisionmaker on all project issues that potentially could negatively affect steelhead. NOAA will consult with the Corps to prepare a project Biological Opinion that specifies what level of take is acceptable and which of the sponsoring agencies are responsible. Unlike claims by Casitas water district staff during some

project planning meetings and elsewhere, we see no way that Casitas could be held responsible for take of steelhead caused by the project led by the Corps and County.

NOAA Biological Opinion. The eventual Biological Opinion by NOAA does not need to be, and cannot be, completed until the project is designed and described in great detail, likely towards the late PED phase, when other permits and authorizations are secured. Any other outside comments on the draft EIS/EIR alleging that the Biological Opinion must be completed earlier seem only to be comments intended to stall the whole project for some other self-serving motivation.

Summary Position of Steelhead Coalition. We wish to emphasize that certain components of the entire project that need to be incorporated into the final plan and design. No matter what the final project alternative or configuration entails, the final project should include these 5 parameters:

- ***No net loss of baseflow*** in Ventura River, the importance of which is described at length in the recent March 2003 Biological Opinion by NOAA Fisheries Service about Ventura River;
- ***No net loss of water supply*** for Casitas water district and other suppliers in the watershed, to be verified by an impartial analysis on what the actual baseline water supply and demand may be with and without the project;
- ***Removal of Matilija Dam within a 2-year deconstruction period*** to allow fish passage with no substantial delay, a scenario described as readily achievable in the project planning documents;
- ***Gradual transport of sequestered sediment*** to be released within a 10-to-20-year period, to reverse beach and downstream riparian erosion and to maintain the existing, widespread project support; and conversely
- ***No artificially maintained storage of sediment above the dam,*** to avoid a potentially catastrophic failure, to save significant construction and maintenance costs, and to be consistent with the 3 main project goals of ecosystem restoration, beach nourishment, and recreational access.

Conclusion. While some of these project parameters listed above may be more of a technical or fiscal challenge to accomplish –although in the end we do not think they will be as the design proceeds– we believe each of these 5 parameters is essential and to garner the most credible public and political support for the project while achieving the project goals and objectives already established and agreed upon in the original Project Study Plan. These project parameters also establish an important model for the success of other ecosystem restoration and steelhead recovery projects already underway in southern California, especially the project that will address Rindge Dam on Malibu Creek. Most importantly, of course, these project planning parameters outlined above also do the most good for recovery of endangered steelhead trout in southern California. Based on quantity and quality of habitat opened up to anadromous fish access, historic and potentially recoverable fish populations, and socio-political climate in the watershed to support river restoration, Southern California Steelhead Coalition considers the Matilija project to be one of the most important opportunities for steelhead recovery in the region, perhaps for the next 10 to 20 years.

Contact Information

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Larger text on following pages.

Objections to dam removal don't hold water

Demolishing flawed Matilija Dam in Ventura County will restore ecosystem

By John Krist
jkrist@VenturaCountyStar.com

In America's dam-building heyday, it was easy to slap a whopping big pile of concrete across a river.

Between 1935 and 1965, when America was completing big dams almost too fast to count them, such concerns as Native American treaty rights, the needs of fish and the recreational value of running water were considered subordinate to other imperatives: the pursuit of private wealth, the defense of national security, the quest for power. In the absence of any significant regulatory impediments, tremendous construction projects could be carried out with a speed that seems incomprehensible today.

Hoover Dam, the most breathtaking engineering achievement of its time, rose above the Colorado River in less than four years. Bonneville Dam on the Columbia, another Depression-era project, also was completed in a mere four years.

Dams wear out, silt up, cease to make economic sense. But removing them when they become dangerous or obsolete is much more difficult today than building them was 40 or 50 years ago. Ventura County residents are being offered a lesson in just how difficult this process can be as they watch the slow progress of one of the most elaborate dam-removal projects in American history: the demolition of Matilija Dam, which after more than five years of work and study has entered its most delicate stage.

Although a remarkable coalition of interests has united behind the effort, a small but insistent chorus of dissenters has in recent weeks raised objections that could, if pursued in the courts, bring the project to a halt before a single chunk of crumbling concrete has been removed.

Analysis of the documentary record suggests most of the objections are without merit. But the dissenters don't have to win a courtroom battle or even present a particularly compelling case to block the Matilija project. All they have to do is delay it long enough for the fragile funding arrangements to unravel. In light of that, it's important for the discussion of project impacts to be as careful and accurate as possible, and for everyone involved to keep their eyes on the overarching goal: resurrection of a crippled river system.

The conflict, as is so often the case in the semiarid West, revolves around water. Not much of it. But some. The dispute is an illustration that, particularly in fast-growing California, there is no such thing as a trivial amount of this precious resource.

Photos by John Krist / Star staff

Matilija Dam was completed in 1948 in a narrow canyon 16 miles north of Ventura. A coalition has been working to remove the dam and restore the area's ecosystem. Opponents' objections threaten to delay the demolition and, thus, endanger its funding.

Public comments

The draft environmental review and supporting documents for the Matilija Dam removal project are available at http://www.matilijadamra/. Public comments regarding the report must be postmarked or e-mailed by midnight Monday and can be submitted to Jon Vroman, U.S. Army Corps of Engineers, 915 Wilshire Blvd., Los Angeles, 90017-3401 (Jonathan.Dvorak@usace.army.mil).

Fatal flaws

Matilija Dam, completed in 1948 in a narrow canyon 16 miles north of Ventura, was envisioned as a means of providing flood control to small downstream communities and recharging groundwater used by a handful of farmers in the Ojai Valley. With so few potential beneficiaries, the dam had such a dismal cost-benefit ratio that no federal agency could be persuaded to build it. Undaunted, the backers of Matilija Dam persuaded local voters to pass a bond measure to provide funding, and the county flood control district tackled the project.

Problems were apparent nearly from the start. Cracks began appearing on the downstream face of the dam almost immediately after completion, and they worsened over time. A 1959 survey revealed that the dam's crest was shifting upstream, probably because a chemical reaction between alkali in the cement and silica in the aggregate used in the concrete was causing it to expand and deteriorate. Concerned about the dam's integrity, the state Division of Dam Safety ordered the county to notch the dam's spillway crest to reduce stress on the structure before the 1965-66 storm season. The dam originally was 198 feet tall; subsequent modifications lowered it 30 feet.

Bad concrete was not Matilija Dam's only flaw. Although this was not appreciated at the time, the mountains surrounding the dam site are rising rapidly — they are, in fact, the fastest-rising mountains in the United States — and they are eroding nearly as rapidly, producing huge amounts of debris. Matilija, a 7,000-acre-foot reservoir first filled with water in 1952. (An acre-foot is 325,900 gallons, or the amount consumed by two average Southern California households in a year.) But it also had begun filling with erosional sediment: about 127,000 cubic yards of it a year, according to a 1954 report by the U.S. Bureau of Reclamation.

According to the bureau, the dam now traps 6 million cubic yards of sediment, the equivalent of 14 Rose Bowl stadiums full of sand, silt, gravel and cobbles, and the reservoir has a storage capacity of about 500 acre-feet. The dam contributes to beach erosion by trapping sand that would otherwise reach the coast, and blocks access to critical spawning grounds for endangered southern steelhead in the Ventura River watershed.

Efforts to demolish the dam and restore the ecosystem have been under way since 1998, when local advocates secured federal support for a feasibility study. (The study process has taken longer to complete than Hoover Dam took to build.) Strategies for taking out the dam and dealing with the sediment behind it are detailed in a draft environmental impact report released July 16, opening a public-comment period that closes Monday. Local lawmakers have managed to get $70 million in federal funding for the $110 million project into this year's Water Resources Development Act.

> The district has had half a century to devise a long-term solution to this water-supply problem. It hardly seems fair now to lay it at the feet of the dam-removal project

Congressional support for project funding reflects the extremely broad coalition of interests united behind the removal proposal, including virtually every federal, state and local agency with an interest in the dam or in steelhead, as well as a lengthy roster of environmental groups.

At a July 28 public hearing on the draft EIR, however, representatives of several small rural water agencies and the Ojai area's main water provider, the Casitas Municipal Water District, complained that the document fails to address the effect of the dam removal on their water supply. And at least one of those representatives, a Santa Barbara attorney, argued that this failure left the document open to challenge under the National Environmental Policy Act and the California Environmental Quality Act — a hint of litigation to come.

Conflicting numbers

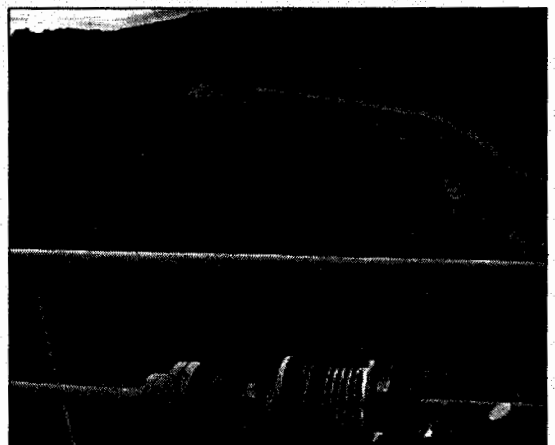
In a state where individual farms and desert golf courses may each consume hundreds of acre-feet a year, the umount of water at stake seems trivial.

The Casitas district has a lease with the dam's owner, the Ventura County Watershed Protection District (formerly the Flood Control District), to store water behind the dam. That water is dribbled through the dam's outlet works into the stream channel after winter's peak flows have subsided, allowing it to be captured by Casitas at the Robles Diversion, which shunts it into a canal that leads from the Ventura River to Lake Casitas.

According to the U.S. Bureau of Reclamation, Matilija Dam adds an average of 590 acre-feet a year to the local water supply.

Casitas has provided its own conflicting estimates. In a July 20 letter to the editor of The Star, the Casitas board president asserted that Matilija reservoir provides "about 600 acre-feet of water." A July 21 press release from the district asserts that removal of the dam could cause the district's customers to "face a loss of 2,400 acre-feet of water." In a more recent press release, the district claims Matilija yields 790 acre-feet of water a year, a figure repeated in a recent interview by Casitas General Manager John Johnson.

Johnson also asserted during that interview that the issue of how much water is lost is secondary to the fate of some 200 water users that Casitas identifies as customers of the Matilija system, which when originally built included the dam and a supply line, the Matilija conduit, to the Ojai Valley.



The Robles Diversion Canal carries water from the Ventura River to Lake Casitas.

He said that when the district's lease for the dam expires, responsibility for serving those customers will revert to the county along with responsibility for the dam.

Johnson said those customers use between 2,400 and 2,600 acre-feet a year, which may explain the origin of the figure in the district's July 21 press release. The county, he said, has an obligation to identify during the EIR process how it will serve those customers.

The question at the heart of the disagreement thus boils down to this: How much water will actually be lost as a direct consequence of the dam's removal? And who should be responsible for replacing it?

A review of the relevant documents, including the EIR, its supporting hydrological and sedimentation studies, lease agreements and water licenses, suggests Casitas is on shaky ground no matter which figure it uses.

Vanishing storage

First of all, Matilija Dam does not provide enough water each year to serve 200 customers, although Johnson has suggested during interviews with local reporters over the past few months that it does. It may have done so in the past, before the reservoir became so clogged with silt. But no longer, not even according to a June draft of the district's most recent water supply and demand study, which Johnson and the district's press release cite as the source of the 790-acre-foot figure.

As a practical matter, the water that is stored behind Matilija Dam is not directly delivered to anyone; it is commingled in the water of Lake Casitas, a 250,000-acre-foot reservoir built by the Bureau of Reclamation, which is the immediate source of water for all of the district's 75,000 customers. The old direct pipeline from Matilija Dam, which was intended to dump water on spreading grounds in the Ojai Valley to recharge aquifers tapped by farm irrigation wells, is no longer functional. So, in a technical sense, there are no customers on the "Matilija system."

As the EIR notes, the district does obtain some water benefits from Matilija Dam, even with its tiny remnant reservoir. But Casitas loses legal access to the dam Jan. 1, 2009, when its lease with the county expires. At that point, according to the 1958 agreement between the district and the county, "the possession, control and responsibility for operation" of Matilija Dam "shall be returned to VCFCD (Ventura County Flood Control District)." And when that happens, according to a 1969 agreement between the county and the water district, the right to store and divert Matilija Creek water under a license issued by the State Water Quality Control Board also will revert to the county.

In about four-and-a-half years, in other words, Casitas will lose the water, lose the storage, lose the diversion right — lose everything but the customers it claims rely on that water. For nowhere in the lease agreement or its various amendments is there an explicit stipulation that the legal obligation to serve water customers be transferred to the county when the Matilija lease expires.

From a practical standpoint, the county would probably offer to extend the lease and thereby the water rights as long as there's a dam in place to store that water. So, if the Matilija project were delayed — or if the dam were allowed to remain in place until sedimentation finally eliminates the reservoir — Casitas would stand to reap some additional water-supply benefits. Those are largely speculative, however. The county may wish to make up for that potential loss in order to expedite the project, but its obligation to do so is extremely limited. What's more, the reservoir could vanish even sooner than projected.

One big storm

Continuing sediment deposition will reduce Matilija Reservoir's capacity to 150 acre-feet by 2010 and less than 50 acre-feet by 2020, according to the draft EIR. Those estimates, however, are based on the average deposition rate. According to the sedimentation study conducted by the U.S. Army Corps of Engineers, the great majority of the 6 million cubic yards of debris trapped behind the dam was deposited there in a remarkably brief period, in a series of huge pulses.

The 1980 floods alone deposited 1.6 million cubic yards of sediment, the report estimates. Of the 1.4 million cubic yards deposited in the reservoir since then, almost all was transported during big storms in 1978, 1992, 1995 and 1998, according to the report.

What this means is the Matilija Reservoir, which has only about 807,000 cubic yards of water storage left in it, is really just one exceptionally wet winter — one really big storm — from disappearing.

Presumably, Casitas management has known for years that it faced the likely loss of water supplied by Matilija Dam, either through expiration of the lease, continued deterioration of the structure or natural elimination of reservoir storage space. The problem of continuing sedimentation was, in fact, recognized in the original 1954 lease agreement with the county, a document preceding the current lease. That earlier agreement, in a clause that was incorporated into all subsequent agreements, gave the water district legal responsibility for operating and maintaining the Matilija Project — but with "ordinary depreciation, obsolescence and siltation excepted."

Casitas, in other words, sought and received legal assurances 50 years ago that it would not have to bear the cost of continual dredging to maintain the reservoir storage space for which it was paying. The district has had half a century to devise a long-term solution to this water-supply problem. It hardly seems fair now to lay it at the feet of the dam-removal project, particularly when the district's greater challenge is continuing growth in demand and its tardiness in adopting the kind of conservation measures that have become commonplace among Southern California water districts.

Real issues

Although most criticism of the dam removal project EIR is overblown or without merit, there are a few potential effects that ought to be more fully addressed. Some rural water agencies, for example, have valid concerns that recharge of their Ventura River wells could be blocked if enormous heaps of silt from behind the dam are piled nearby. That issue needs to be analyzed further and the deposition sites moved, if warranted, to protect those water sources.

But it's important that directors of Casitas and other local water districts — as well as those in the environmental community who might reflexively object to any increased water diversions, no matter how ecologically benign — avoid the temptation to use the $110 million project as a bargaining chip to achieve unrelated aims. In the long history of dam construction in America, and the much shorter history of dam demolition, there has never been anything like the Matilija restoration project. It represents a historic opportunity to reverse a profound ecological and geotechnical mistake.

Such undertakings are much easier to derail than to carry out, and this one will collapse if asked to bear too great a burden. Efforts must be undertaken to solve the future water challenges facing western Ventura County, where the margin between supply and demand is growing uncomfortably thin. But there is no legitimate reason to hold the removal of Matilija Dam hostage to those discussions.

— John Krist is a senior reporter and Opinion page columnist for The Star.

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By John Krist *jkrist@VenturaCountyStar.com*

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Dams wear out, silt up, cease to make economic sense. But removing them when they become dangerous or obsolete is much more difficult today than building them was 40 or 50 years ago. Ventura County residents are being offered a lesson in just how difficult this process can be as they watch the slow progress of one of the most elaborate dam-removal projects in American history: the demolition of Matilija Dam, which after more than five years of work and study has entered its most delicate stage.

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Fatal flaws

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Johnson said those customers use between 2,400 and 2,600 acre-feet a year, which may explain the origin of the figure in the district's July 21 press release. The county, he said, has an obligation to identify during the EIR process how it will serve those customers.

The question at the heart of the disagreement thus boils down to this: How much water will actually be lost as a direct consequence of the dam's removal? And who should be responsible for replacing it?

A review of the relevant documents, including the EIR, its supporting hydrological and sedimentation studies, lease agreements and water licenses, suggests Casitas is on shaky ground no matter which figure it uses.

Vanishing storage

First of all, Matilija Dam does not provide enough water each year to serve 200 customers, although Johnson has suggested during interviews with local reporters over the past few months that it does. It may have done so in the past, before the reservoir became so clogged with silt. But no longer, not even according to a June draft of the district's most recent water supply and demand study, which Johnson and the district's press release cite as the source of the 790-acre-foot figure.

As a practical matter, the water that is stored behind Matilija Dam is not directly delivered to anyone; it is commingled in the water of Lake Casitas, a 250,000-acre-foot reservoir built by the Bureau of Reclamation, which is the immediate source of water for all of the district's 75,000 customers. The old direct pipeline from Matilija Dam, which was intended to dump water on spreading grounds in the Ojai Valley to recharge aquifers tapped by farm irrigation wells, is no longer functional. So, in a technical sense, there are no customers on the "Matilija system."

As the EIR notes, the district does obtain some water benefits from Matilija Dam, even with its tiny remnant reservoir. But Casitas loses legal access to the dam Jan. 1, 2009, when its lease with the county expires. At that point, according to the 1958 agreement between the district and the county, "the possession, control and responsibility for operation" of Matilija Dam "shall be returned to VCFCD (Ventura County Flood Control District)." And when that happens, according to a 1969 agreement between the county and the water district, the right to store and divert Matilija Creek water under a license issued by the State Water Quality Control Board also will revert to the county.

In about four-and-a-half years, in other words, Casitas will lose the water, lose the storage, lose the diversion right -- lose everything but the customers it claims rely on that water. For nowhere in the lease agreement or its various amendments is there an explicit stipulation that the legal obligation to serve water customers be transferred to the county when the Matilija lease expires.

From a practical standpoint, the county would probably offer to extend the lease and thereby the water rights as long as there's a dam in place to store that water. So, if the Matilija project were delayed -- or if the dam were allowed to remain in place until sedimentation finally eliminates the reservoir -- Casitas would stand to reap some additional water-supply benefits. Those are largely speculative, however. The county may wish to make up for that potential loss in order to expedite the project, but its obligation to do so is extremely limited. What's more, the reservoir could vanish even sooner than projected.

One big storm

Continuing sediment deposition will reduce Matilija Reservoir's capacity to 150 acre-feet by 2010 and less than 50 acre-feet by 2020, according to the draft EIR. Those estimates, however, are based on the average deposition rate. According to the sedimentation study conducted by the U.S. Army Corps of Engineers, the great majority of the 6 million cubic yards of debris trapped behind the dam was deposited there in a remarkably brief period, in a series of huge pulses.

The 1969 floods alone deposited 1.6 million cubic yards of sediment, the report estimates. Of the 1.4 million cubic yards deposited in the reservoir since then, almost all was transported during big storms in 1978, 1992, 1995 and 1998, according to the report.

What this means is the Matilija Reservoir, which has only about 807,000 cubic yards of water storage left in it, is really just one exceptionally wet winter -- one really big storm -- from disappearing.

Presumably, Casitas management has known for years that it faced the likely loss of water supplied by Matilija Dam, either through expiration of the lease, continued deterioration of the structure or natural elimination of reservoir storage space. The problem of continuing sedimentation was, in fact, recognized in the original 1954 lease agreement with the county, a document preceding the current lease. That earlier agreement, in a clause that was incorporated into all subsequent agreements, gave the water district legal responsibility for operating and maintaining the Matilija Project -- but with "ordinary depreciation, obsolescence and siltation excepted."

Casitas, in other words, sought and received legal assurances 50 years ago that it would not have to bear the cost of continual dredging to maintain the reservoir storage space for which it was paying. The district has had half a century to devise a long-term solution to this water-supply problem. It hardly seems fair now to lay it at the feet of the dam-removal project, particularly when the district's greater challenge is continuing growth in demand and its tardiness in adopting the kind of conservation measures that have become commonplace among Southern California water districts.

Real issues

Although most criticism of the dam removal project EIR is overblown or without merit, there are a few potential effects that ought to be more fully addressed. Some rural water agencies, for example, have valid concerns that recharge of their Ventura River wells could be blocked if enormous heaps of silt from behind the dam are piled nearby. That issue needs to be analyzed further and the deposition sites moved, if warranted, to protect those water sources.

But it's important that directors of Casitas and other local water districts -- as well as those in the environmental community who might reflexively object to any increased water diversions, no matter how ecologically benign -- avoid the temptation to use the $110 million project as a bargaining chip to achieve unrelated aims. In the long history of dam construction in America, and the much shorter history of dam demolition, there has never been anything like the Matilija restoration project. It represents a historic opportunity to reverse a profound ecological and geotechnical mistake.

Such undertakings are much easier to derail than to carry out, and this one will collapse if asked to bear too great a burden. Efforts must be undertaken to solve the future water challenges facing western Ventura County, where the margin between supply and demand is growing uncomfortably thin. But there is no legitimate reason to hold the removal of Matilija Dam hostage to those discussions.

-- John Krist is a senior reporter and Opinion page columnist for The Star.

Matilija Dam debate

Photos by Juan Carlo / Star staff

Jim Hutchinson, an engineer with the U.S. Army Corps of Engineers, talked to reporters about the demolition plan at Matilija Dam near Ojai on Wednesday. Part of the plan aims to restore an endangered steelhead trout

B

STAR Ventura
Santa Paula, Ojai and Fillmore
www.VenturaCountyStar.com

Thursday, July 29, 2004

Plan to demolish the structure gets protests, support

Nearly 100 attend meeting to offer input on project

Star staff

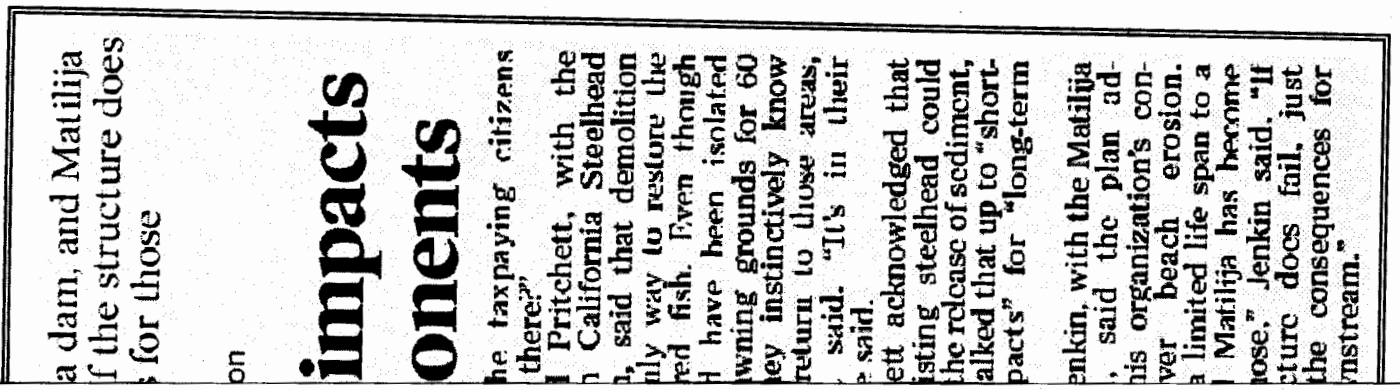
By Charles Levin
clevin@VenturaCountyStar.com

Several water district officials and residents near Matilija Dam on Wednesday criticized a plan to demolish the 56-year-old structure, saying it offered more questions than answers about water quality and neighborhood impacts.

But environmentalists backed the plan, which aims to restore endangered steelhead trout, replenish beach sand and boost recreational opportunities on the Ventura River and Matilija Creek by tearing down the 168-foot dam.

More than 20 people spoke at the County Government Center during a meeting called to solicit public comment and hear concerns about the plan.

About 100 people attended the meeting, sponsored by the Ventura County Watershed


a dam, and Matilija
f the structure does
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Pritchett, with the
California Steelhead
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have been isolated
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ey instinctively know
return to those areas,
said. "It's in their
said.
ett acknowledged that
sting steelhead could
the release of sediment,
alked that up to "short-
pacts" for "long-term
enkin, with the Matilija
, said the plan ad-
is organization's con-
ver beach erosion.
a limited life span to a
Matilija has become
ose," Jenkin said. "If
ture does fail, just
the consequences for
nstream."

Los Angeles Times
latimes.com.

http://www.latimes.com/news/local/ventura/la-me-matilija19aug19,1,7063253.story?coll=la-editions-ventura

REGION & STATE

Casitas' Claim for Dam Challenged

Environmentalists ask the state to check water district's assertion that it needs the structure.

By Gregory W. Griggs
Times Staff Writer

August 19, 2004

Worried that the $130-million demolition project could be delayed, environmentalists are challenging Casitas Municipal Water District's claims that tearing down the Matilija Dam near Ojai would reduce its water supply.

The group California Trout has asked the State Water Resources Control Board to determine the merit of Casitas' assertion that dismantling the 168-foot-high dam would adversely affect its ability to serve 200 of its more than 50,000 customers. Casitas contends that its customers have a right to a portion of the water stored behind the dam.

But in a recent letter to the state water board's chairman, Jim Edmondson, Southern California manager for California Trout, said Casitas' claim to such water rights was erroneous.

"We surmise that [Casitas] is raising these claims as a negotiation tactic and/or leverage to delay the dam removal and thwart the whole river restoration project, or to gain entitlement to water it does not have," he wrote.

Casitas has several options after the dam comes down, Edmondson said, including seeking state approval to add a location other than the dam site to divert Ventura River flows, applying for new water rights or seeking other sources.

The Ventura County Watershed Protection District, which owns the 56-year-old structure, plans to work with the Army Corps of Engineers to remove the aging dam to restore the river's ecosystem, replenish sand-starved beaches and enhance a breeding area for the threatened steelhead trout.

Casitas Municipal Water District operates the dam and a downstream water system for the county under a 50-year agreement that expires Jan. 1, 2009. Casitas is concerned that the county has not made clear how it intends to supply water to some of its customers — including two small water companies and several agricultural users — once the dam is removed.

"This is not a contract ploy," said General Manager John Johnson. "If you take the dam down, how do you capture the water? There is no other storage device."

Under a state water license granted to the county and transferred to Casitas in 1959, it can store up to 2,470 acre-feet of water behind the dam and withdraw up to 4,570 acre-feet per year. An acre-foot is about 326,000 gallons, or enough water to supply two typical homes for a year.

But Edmondson said the Casitas argument was flawed because the dam's capacity has been significantly diminished. Over the years, silt has clogged the dam and now it can hold only about 500 acre-feet of water, yet Casitas continues to supply its customers, he said. If the dam remains, it will completely fill with silt within 20

Opinion

VENTURA COUNTY STAR

Section B, Page 8 July 15, 2004

Editorials

Rectifying old mistakes

Matilija is one of many useless dams in the West

Pasadena's Rose Bowl stadium is 895 feet long, 660 feet wide, 100 feet deep and seats 90,000 people. The combined populations of Camarillo and Moorpark could gather there at once to munch hot dogs and watch football.

Now imagine the cavernous stadium packed from turf to brim with sand, silt, gravel and cobbles. And then imagine 13 more Rose Bowls similarly filled. That will give you some idea of the technical challenge facing those who would like to tear down Matilija Dam, a concrete relic of America's dam-building heyday slowly disintegrating in a rugged canyon 16 miles north of Ventura.

Essay

Fourteen Rose Bowls' worth of lithic dandruff shed by the steep slopes of rapidly rising mountains. That's what hides behind one of the most pointless big dams ever built in the West, a region that has seen plenty of river-blocking boondoggles. Had the dam never been built, that rocky material would have been distributed downstream over the past half century by Matilija Creek and the Ventura River. Instead, it has piled up nearly to the dam's crest, becoming an expensive headache for those who would like to see the dam removed to aid imperiled steelhead and rebuild beaches.

Strategies for taking out the dam and dealing with the estimated 6 million cubic yards of sediment it has captured are detailed in a technical analysis released June 29 and will be examined further in a draft environmental impact report due out this week. Although focused on a single dam and a single watershed, the documents may be also read as a general primer on the West's recent past, when politicians and planners often failed to recognize the dynamic complexity and value of living river systems. They also foreshadow its future, when thousands of other dams will reach the end of their useful lives and force a public discussion of what to do with them.

John **Krist**

Although hundreds of dams in the United States have faced the wrecking ball in recent years, their symbolic dimensions generally have exceeded their physical ones. Edwards Dam on the Kennebec River in Maine is a prominent example, barely two stories high, breached in July 1999 to restore spawning grounds for striped bass, shad, Atlantic salmon and sturgeon. More than 250 lesser dams, mostly serving small irrigation districts and water agencies, have been removed nationwide since then.

The campaign to remove Matilija Dam has drawn national attention because it is the largest such structure ever to face likely demolition, originally 190 feet tall. (It is now 30 feet shorter, structural flaws having forced engineers to notch its concrete crest in 1965.) Although there have been proposals to demolish or decommission far larger dams, including 710-foot-tall Glen Canyon Dam on the Colorado River in Arizona and 312-foot-tall O'Shaughnessy Dam on the Tuolumne River in Yosemite National Park, no comparable proposal has proceeded as far down the planning path as the one to dismantle Matilija.

In the case of most large dams in the West, small but disproportionately influential interests still profit from their existence and the political barriers to removal loom large. That's not the case with Matilija, however: Because of the dam's uselessness and decrepitude, it is a political orphan, there being no significant constituency for a structure that controls no floods, generates no power and stores but a teacup of water. In contrast, a broad coalition of local interests has coalesced around the cause of removal. That is why $79 million in federal funding for the project has survived committee scrutiny and made it into this year's Water Resources Development Act, which is headed for a Senate vote later this month.

Yet, the quick demise of Matilija Dam and its reservoir, which was half-filled with sediment within two decades of its 1947 completion, offers a preview of the fate awaiting most dams, even popular ones. By some estimates, the average life expectancy of dams is 50 years, meaning the majority of the approximately 75,000 large dams in the United States are operating on borrowed time. Someday, even Glen Canyon Dam will become useless, its reservoir filled with sediment.

It will not always make sense to demolish a dam, even when it is both useless and ecologically harmful, like Matilija. The process is time-consuming and terribly expensive — 14 Rose Bowls take a long time to empty once they've been filled with rocks — and there may be cheaper ways to accomplish the same ecological goals. But as more dams age, and as the social and economic assumptions upon they were built erode like a storm-washed beach, many communities will find themselves grappling with the same question now facing Ventura County: How best to rectify a 60-year-old mistake?

— John Krist is a senior reporter and Opinion page columnist for The Star. His e-mail address is jkrist@VenturaCountyStar.com.

Surfrider Foundation

Ventura County Chapter – Matilija Coalition
239 W Main St., Ventura, CA 93001
(805) 667-2222 **www.matilija-coalition.org**

August 31, 2004

California Coastal Commission
RE: Project #CD-53-04
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RECEIVED
SEP 03 2004
CALIFORNIA
COASTAL COMMISSION

Subject: Support for Matilija Dam Studies Project #CD-53-04

Dear Sirs:

I am writing on behalf of the Matilija Coalition, a group of over 30 environmental and citizen organizations working to restore the Ventura River watershed through the removal of Matilija Dam. The Surfrider Foundation, the only nonprofit environmental organization with a focus on the world's oceans, waves, and beaches, formed the Matilija Coalition in 1999 to help coordinate the non-government participation in the Feasibility Study.

The Surfrider Foundation sees this project as an opportunity to reverse a problem that has become all too common in California – obsolete dams starve beaches of sediment, which results in coastal erosion, shoreline hardening, and ultimately the loss of public beaches. Others in our coalition also view the restoration of anadromous fisheries to be a priority coastal management issue for the state.

Removing a dam of this magnitude is no small task in a watershed that has seen significant floodplain encroachment and other modifications since dam construction in 1948. The Matilija Coalition has worked hard to ensure that the engineering approach to removing Matilija Dam will provide the anticipated benefits, while minimizing any potential adverse impacts.

The plan for ***"Full Dam Removal with Temporary Sediment Stabilization on Site"*** accomplishes the removal of Matilija Dam to provide fish passage and restoration of natural beach sedimentation, while fully mitigating project impacts and adopting an adaptive approach to long-term project management. We believe that the concept of *"Temporary Sediment Stabilization on Site"* is the best approach to solving the problem posed by the six million cubic yards of sediment that have accumulated upstream of the dam. Under this plan, the controlled release of sediment will provide for the gradual restoration of the natural processes that nourish coastal beaches and the associated ecosystems.

Our success in reaching this point in the process is due entirely to the support of State agencies, especially the California Coastal Conservancy. We urge the Coastal Commission to support this project, which may ultimately prove to be one of the most ambitious ecosystem restoration projects ever undertaken to benefit the coastal resources of California.

Sincerely,

A. Paul Jenkin

A.Paul Jenkin
Coordinator, Matilija Coalition
Environmental Director, Surfrider Foundation - Ventura County Chapter
(805) 648-4005 paul@matilija-coalition.org

Surfrider Foundation

Ventura County Chapter – Matilija Coalition
239 W Main St., Ventura, CA 93001
(805) 667-2222 www.matilija-coalition.org

August 30, 2004

Jon Vivanti
Project Manager
US Army Corps of Engineers
915 Wilshire Blvd., Los Angeles, CA 90017-3401

RE: Comments on Matilija Dam Ecosystem Restoration Project F5 Draft Feasibility Study

Dear Mr Vivanti:

The Matilija Coalition has reviewed the Matilija Dam Ecosystem Restoration Project F5 Draft Feasibility Study and EIR/EIS. Our comments are based upon our participation as a stakeholder in the three-year multi-agency study process.

Removing a dam of this magnitude is no small task in a watershed that has seen significant floodplain encroachment and other modifications since dam construction in 1948. The Matilija Coalition's objective has been to ensure that the engineering approach to removing Matilija Dam will provide the anticipated benefits while minimizing any potential adverse impacts.

We support the plan reached by consensus of the Matilija Dam Plan Formulation committee on January 22, 2004. As the Feasibility Study demonstrates, the plan for ***"Full Dam Removal with Short-Term Sediment Stabilization on Site"*** accomplishes the removal of Matilija Dam to provide fish passage and restoration of natural beach sedimentation, while fully mitigating project impacts and adopting an adaptive approach to long-term project management.

We believe that the concept of *"Temporary Sediment Stabilization on Site"* is the best approach to solving the problem posed by the six million cubic yards of sediment that have accumulated upstream of the dam. Under this plan, the controlled release of sediment will provide for the gradual restoration of the natural processes that nourish coastal beaches and the associated ecosystems.

Ultimately, the renewed public trust natural resources resulting from this ecosystem restoration project will provide significant assets to the citizens of this community, the State of California, and the nation. The project will also serve as a dramatic example one of the most ambitious ecosystem restoration projects ever undertaken.

Progress on Prior Concerns & Future collaboration:

We would like to acknowledge the work effort completed by the study team in completing the F5 Draft Feasibility Report. Having being involved in the study since its inception, we understand the complexity of the issues and the competing interests in this watershed restoration project.

During the planning process we suggested design features such as a meandering upstream channel with short-term sediment stabilization, levee heights and streambank stabilization appropriate for flooding risk, slurry disposal away from popular recreation and access areas, and trails and trailheads for public use. We also encouraged full mitigation for water supply impacts and the inclusion of coastal benefits.

Our previous comment letter, dated March 24, 2004, c

remain at or above current levels, while being appropriate to the Ecosystem Restoration project objectives.

Water supply with No Project:

It is clear from the Feasibility Study that Casitas Municipal Water District's lease for Matilija Reservoir expires in 2009, by which time Matilija Reservoir will fill with sediment and

Soil Cement Revetments and Levees:

The Matilija Coalition believes that the plan for the removal of Matilija Dam presents a viable method for the restoration of the Ventura River watershed, given the many constraints of a developed floodplain. We are proud to participate as a stakeholder in this precedent setting project, and look forward to further success with the future milestones. We hope these comments are helpful in addressing some of the ongoing issues and concerns, and look forward to working with the study team in the design and planning stages of this ecosystem restoration project.

Sincerely,

A. Paul Jenkin

A. Paul Jenkin
Coordinator, Matilija Coalition
Environmental Director, Surfrider Foundation - Ventura County Chapter
(805) 648-4005

ENDANGERED HABITATS LEAGUE
DEDICATED TO ECOSYSTEM PROTECTION AND SUSTAINABLE LAND USE

September 6, 2004

California Coastal Commission
Project #CD-53-04
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RE: Support for Matilija Dam Studies Project #CD-53-04

Honorable Commissioners:

The Endangered Habitats League supports the plan for "Full Dam Removal with Temporary Sediment Stabilization on Site." This method best handles the sediment, and will lead to environmental restoration of enormous value, both up and downstream. We urge your support of this fine project.

Sincerely,

Dan Silver
Executive Director

8424-A SANTA MONICA BLVD., #592, LOS ANGELES, CA 90069-4267 ♦ WWW.EHLEAGUE.ORG ♦ PHONE 213.804.2750 ♦ FAX 323.654.1931

CITY OF SAN BUENAVENTURA

September 9, 2004

Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco CA 94105-2219

Subject: Matilija Dam Project

Dear Mr. Delaplaine:

On behalf of the City Council of the City of San Buenaventura, I would like to express our support for the decommissioning of the Matilija Dam for the following reasons:

1. Originally built in 1946 – 1948, the Matilija Dam was to provide flood control and water storage and is no longer serving either of these functions, as it has been impounded with sediment.

2. Matilija Dam negatively affects potential Steelhead Trout; a Federally listed endangered species, from their habitat migration in the Ventura River.

3. Matilija Dam detrimentally affects City beaches because material that would otherwise be transported to help nourish Ventura beaches is impounded behind the Dam.

4. The City Council recommends the decommissioning and removal of Matilija Dam because it no longer serves its intended flood control and water storage purposes.

Further, restoring our natural resources will only serve to benefit the communities affected by the decommissioning of this dam and thereby enhancing their quality of life, as well as the propagation of the plant and animal species whose very existence may depend on it.

Thank you for your consideration.

Sincerely,

Brian Brennan
Mayor

CALIFORNIA TROUT

KEEPER OF THE STREAMS

September 7, 2004

California Coastal Commission
RE: Project #CD-53-04
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Subject: Support for Matilija Dam Studies Project #CD-53-04

Dear Sirs:

California Trout, on behalf of its 5,000 members, has been actively involved with the protection and restoration of steelhead throughout California for the past 34 years. Recently our focus has turned towards the beleaguered Ventura River with a particular interest in the potential removal of Matilija Dam.

California Trout views this project as an opportunity to reverse a problem that has become all too common in California – obsolete dams which block steelhead access to their ancestral spawning and rearing habitat, as well starving beaches of sediment, which results in coastal erosion, shoreline hardening, and ultimately the loss of public beaches. Removing a dam of this magnitude is no small task in a watershed that has seen significant floodplain encroachment and other modifications since dam construction in 1948.

Working in collaboration with others, we have worked to ensure that the engineering approach to removing Matilija Dam will provide the anticipated benefits, while minimizing any potential adverse impacts. The plan for ***"Full Dam Removal with Temporary Sediment Stabilization on Site"*** accomplishes the removal of Matilija Dam to provide fish passage and restoration of natural beach sedimentation, while fully mitigating project impacts and adopting an adaptive approach to long-term project management. We believe that the concept of *"Temporary Sediment Stabilization on Site"* is the best approach to solving the problem posed by the six million cubic yards of sediment that have accumulated upstream of the dam. Under this plan, the controlled release of sediment will provide for the gradual restoration of the natural processes that nourish coastal beaches and the associated ecosystems.

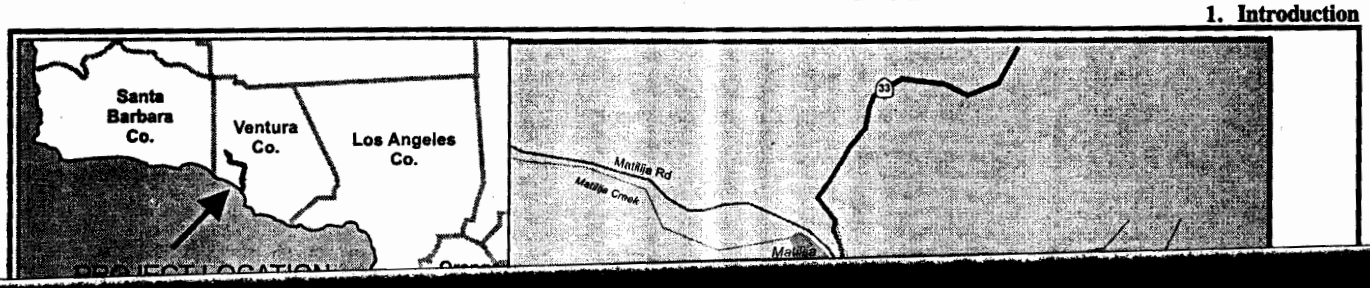
The success in reaching this point in the process is due entirely to the support of State agencies, especially the California Coastal Conservancy. We urge the Coastal Commission to support this project, which may ultimately prove to be one of the most ambitious ecosystem restoration projects ever undertaken to benefit the coastal resources of California.

Sincerely,

Jim Edmondson

Jim Edmondson
Southern California Manager

5436 Westview Court • Westlake Village, CA 91362 • (818) 865-2888
Fax: (818) 707-2459 • E-mail: troutmd@earthlink.net



MATILIJA DAM ECOSYSTEM RESTORATION PROJECT
1. Introduction

Matilija Dam Ecosystem Restoration Project

Figure 1-2

Project Reaches

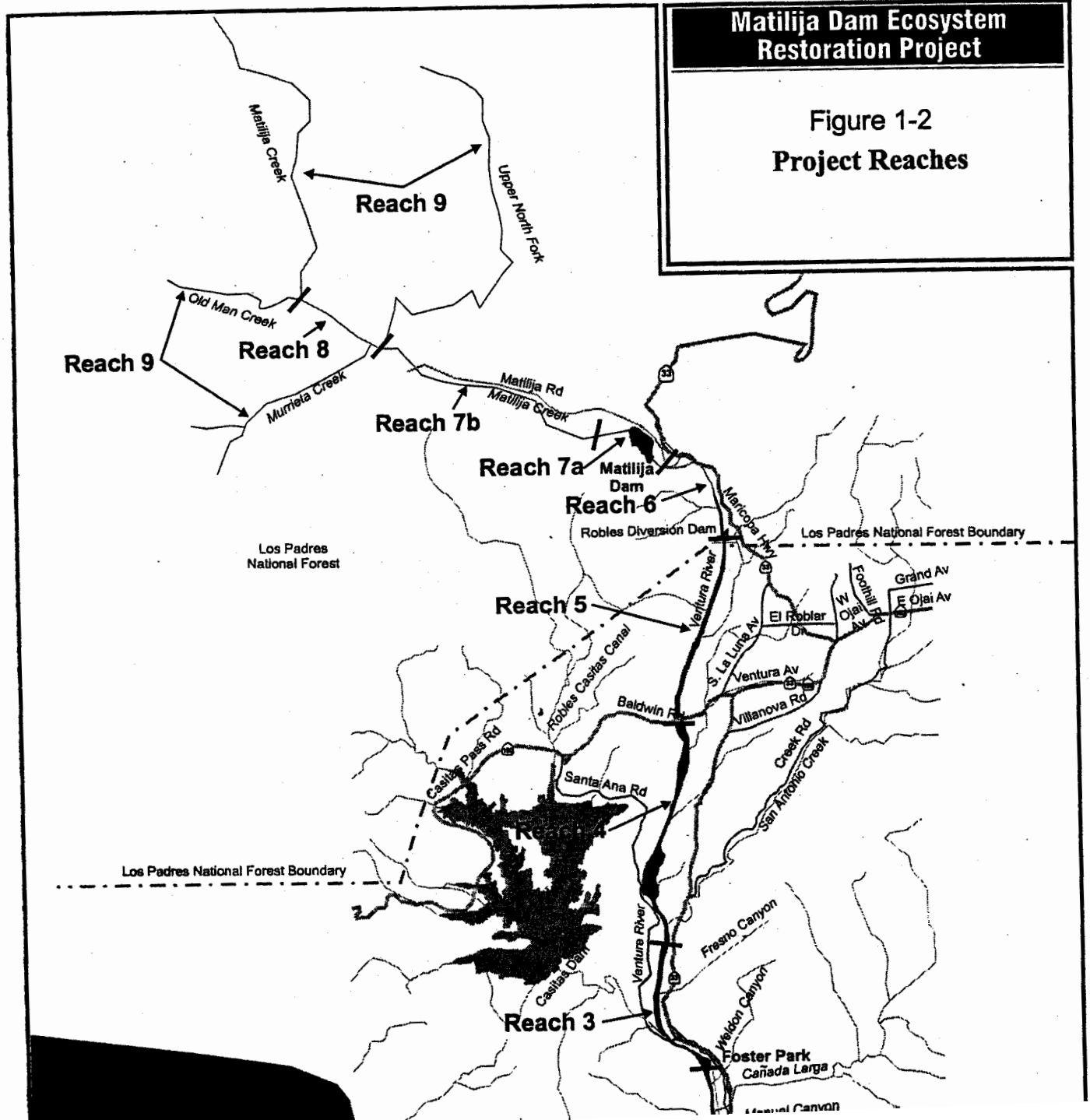


Figure 2-1: Study Area

EXHIBIT NO. 4
APPLICATION NO.
CD-53-04

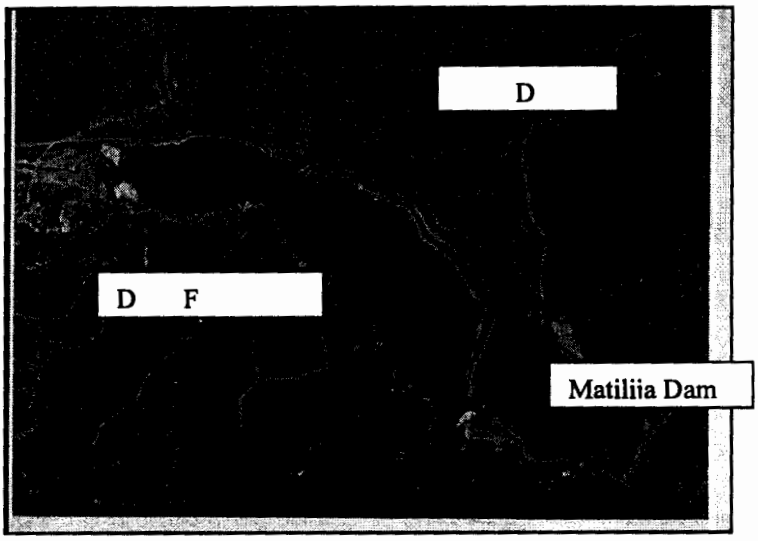


Figure 2-15 – Aerial View of Matilija Dam and Reservoir, 1960 (Photo: EDR, Inc)

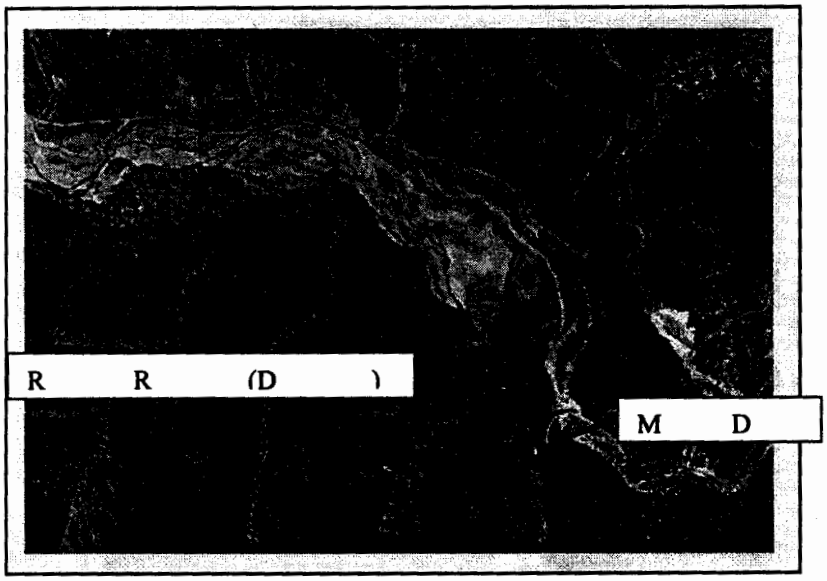


Figure 2-16 – Aerial View of Matilija Dam and Reservoir, 1978 (Photo: EDR, 1978)

Several methods were considered to estimate the historic, current and future sed trapping efficency of Matilija Dam. From 1947 to 1964, it is estimated that the

EXHIBIT NO. 5
APPLICATION NO.
CD-53-04

reservoir. There is little, if any, incidental flood storage currently available in the Matilija Reservoir.

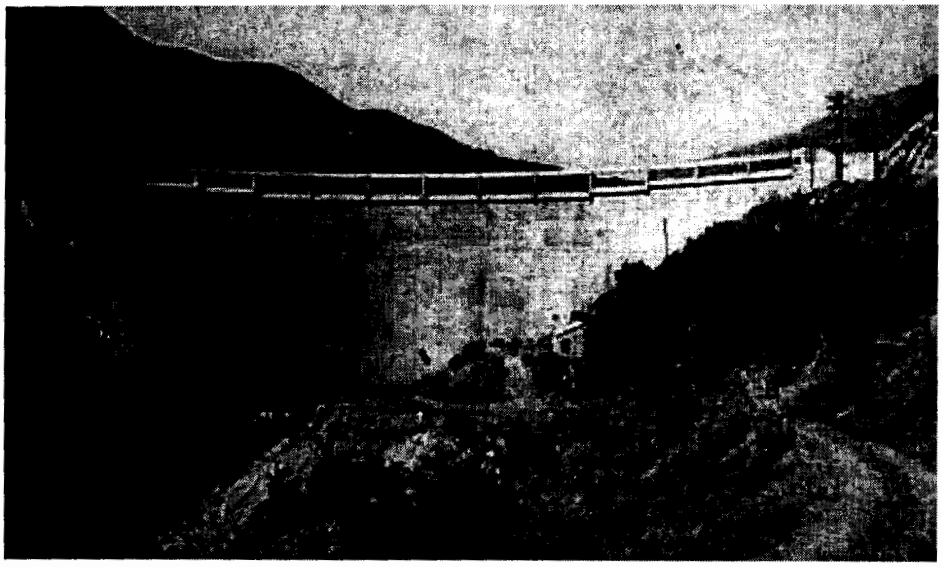


Figure 2-8 – Matilija Dam in 1948

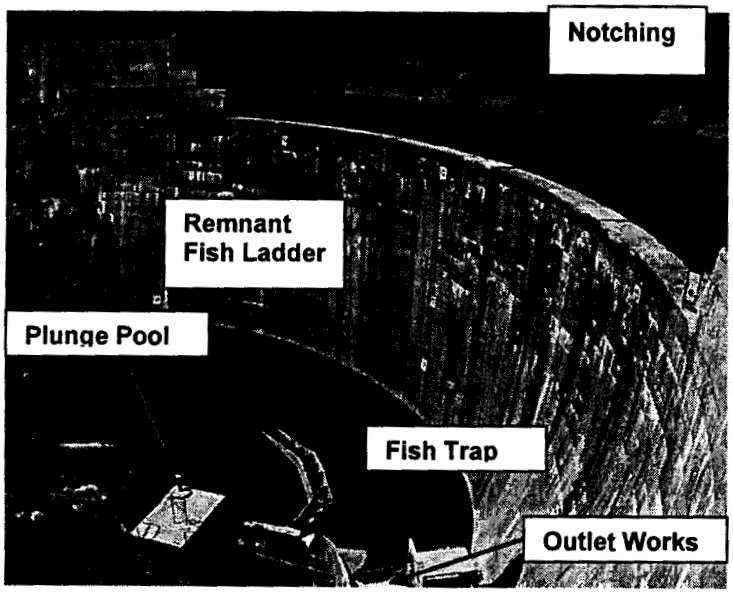


Figure 2-9 – Matilija Dam , 2001

An economic analysis of potential flood damage was also prepared based on floodplain mapping generated by the hydraulic and sediment transport modeling. All lands within the floodplain were studied to determine the potential economic structural and non-structural (crop) damages. Details are presented in the Economic Appendix.

No flood damages occur within the Matilija subwatershed. Matilija Dam has a negligible impact on the peak flows of large floods (greater than 10-year return periods). The remaining reservoir area, with about 500-acre feet of storage, will quickly fill during a major storm and provides virtually no attenuation of floods.

Figure 2-23 – Matilija Dam During Recent Storm

For the Ventura River, the non-damaging discharge varies by reach. For Reaches 1, 2 and 4, the non-damaging discharge is less than 10-years for non-structural damages (crops). For Reaches 3 and 5, a 45-year, non-damaging discharge is assumed.

Crop damages occur in Reaches 2, 3, 4 and 6 of the Ventura River for the 500-year event, and Reaches 2, 4, and 6 for more frequent flood events (less than 100-yr-10 yr). The most significant flood damages to crops occur in Reach 2 and begin at the 10-year event.

Table 2-10 Potential Crop Damages (2003 Price Levels)

Flood Event	Damage Estimates ($)	# Acres Impacted
10-yr	$ 68,000	42
50-yr	$137,000	92
100-yr	$197,000	125
500-yr	$283,000	174

Structure and content damages occur in Reaches 1-5, with the most damage Reach 3. Structure and content damages per event are estimated to be abou

EXHIBIT NO. 7
APPLICATION NO.
CD-53-04

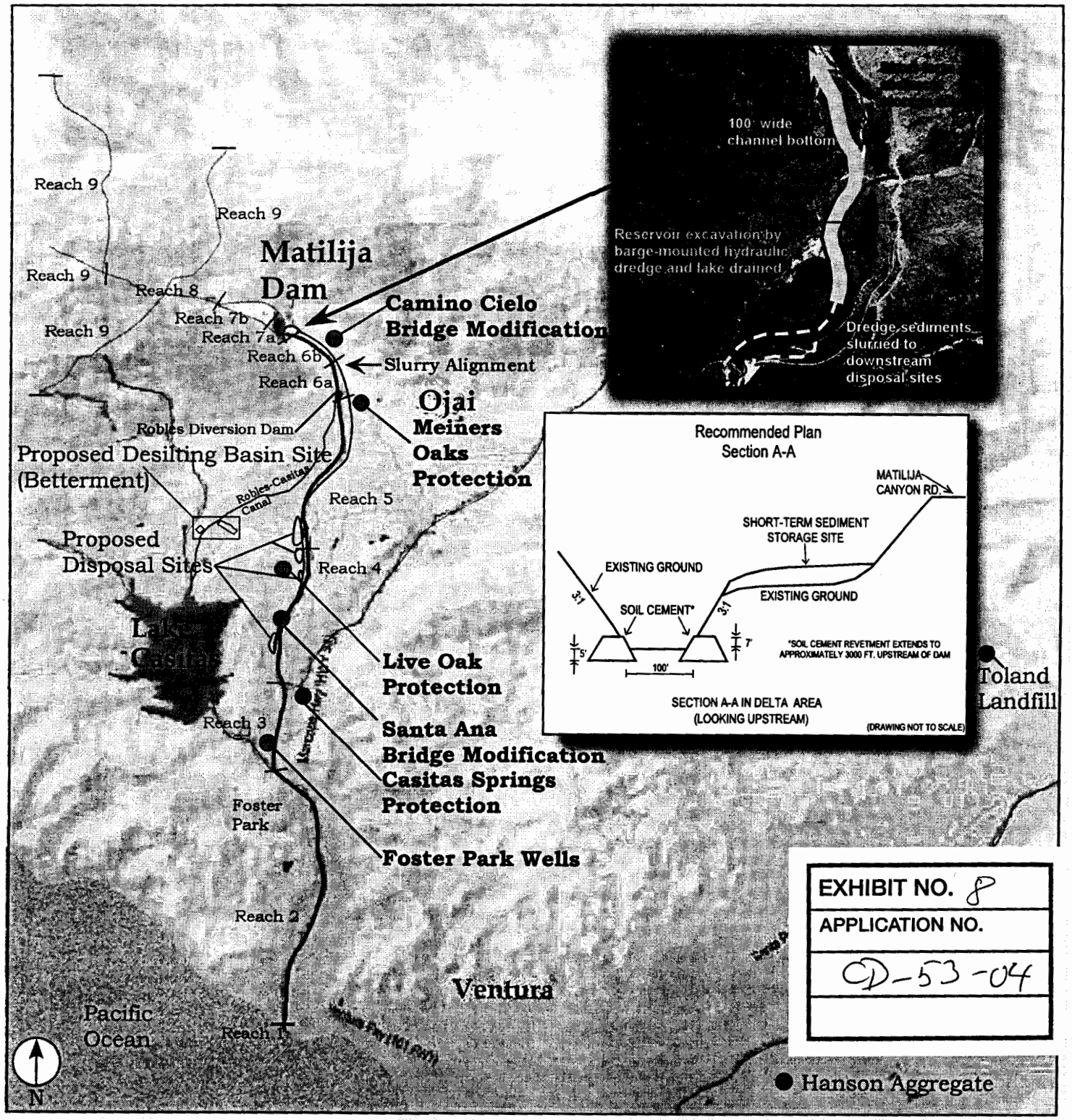
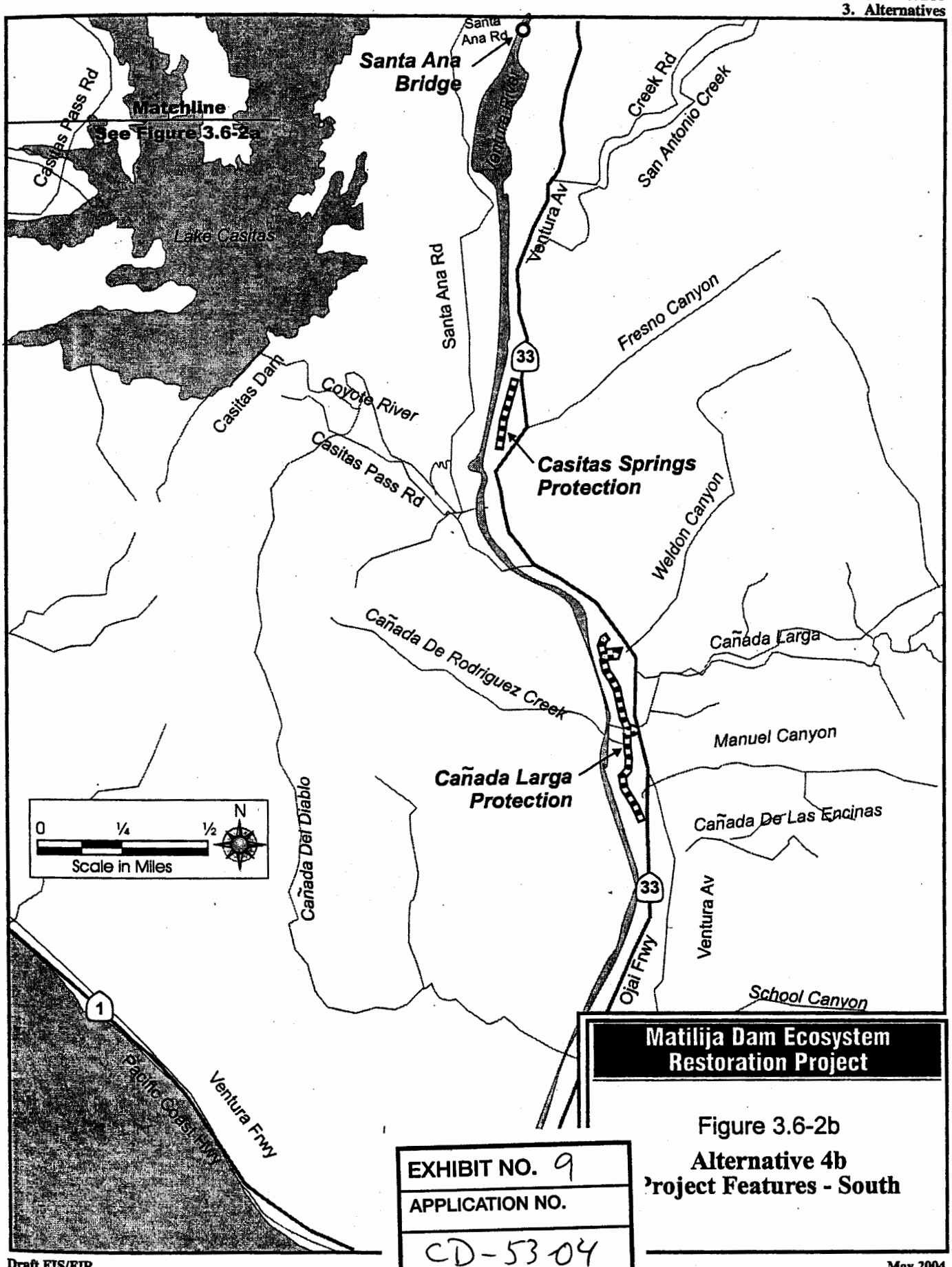


EXHIBIT NO. 8
APPLICATION NO.
CD-53-04



Matilija Dam Ecosystem Restoration Project

Figure 3.6-2b

Alternative 4b Project Features - South

EXHIBIT NO. 9
APPLICATION NO.
CD-5304

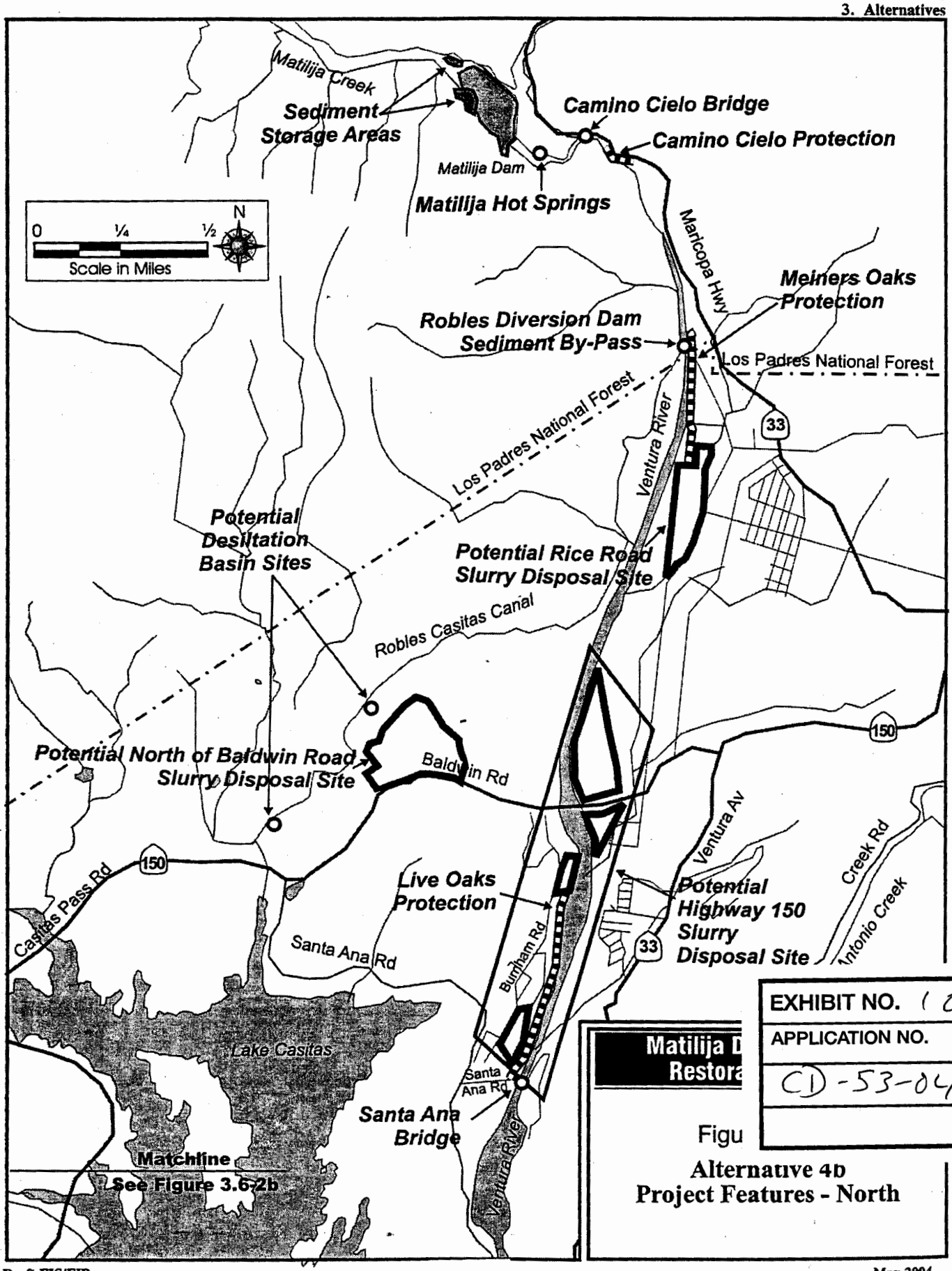


EXHIBIT NO. 10
APPLICATION NO.
CD-53-04

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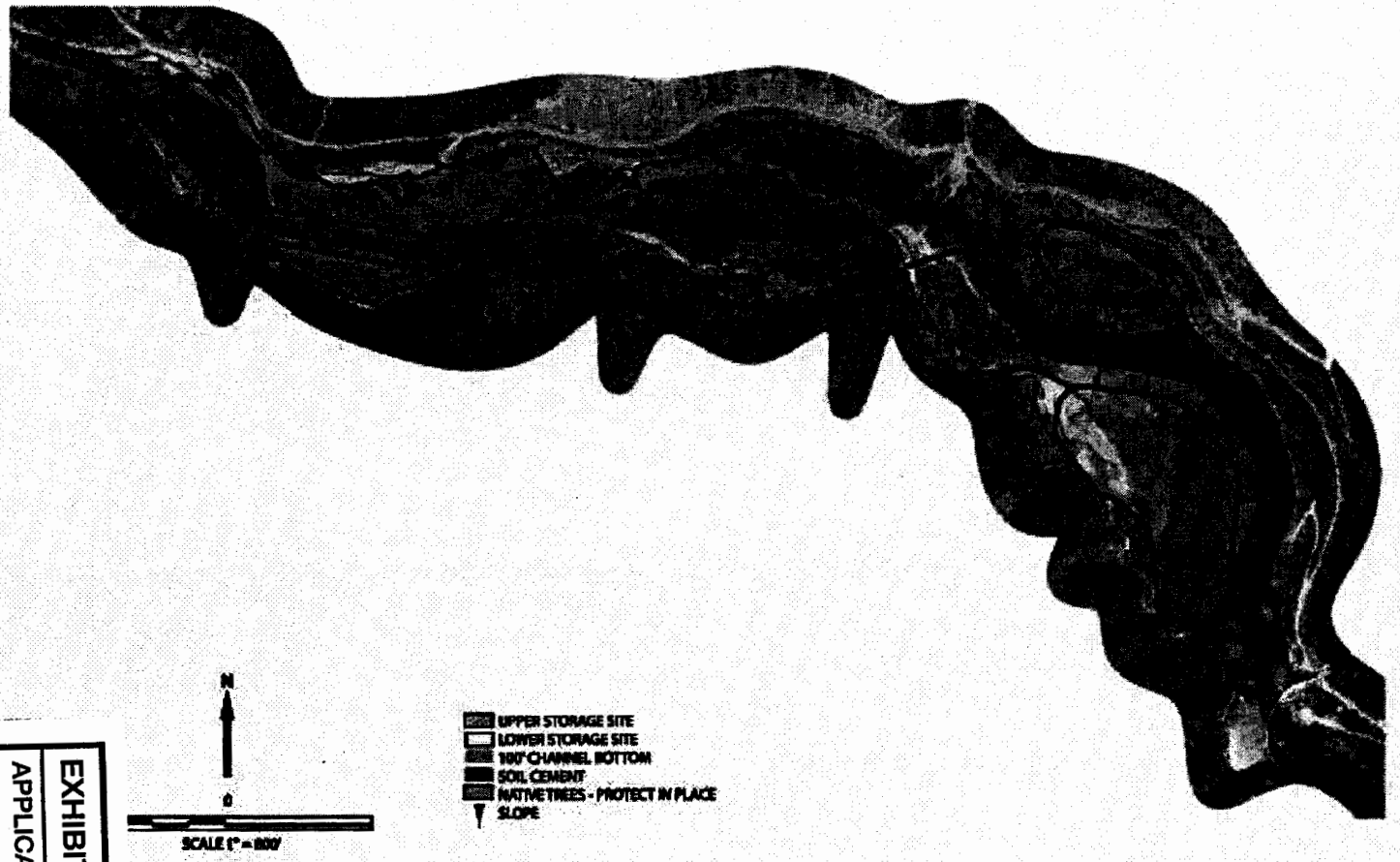
Alternative 4b
Project Features - North

FIGURE 4-3: TEMPORARY SEDIMENT STORAGE SITES



CHANNEL AND SEDIMENT STORAGE SITES

EXHIBIT NO. 11
APPLICATION NO. 4-53-04

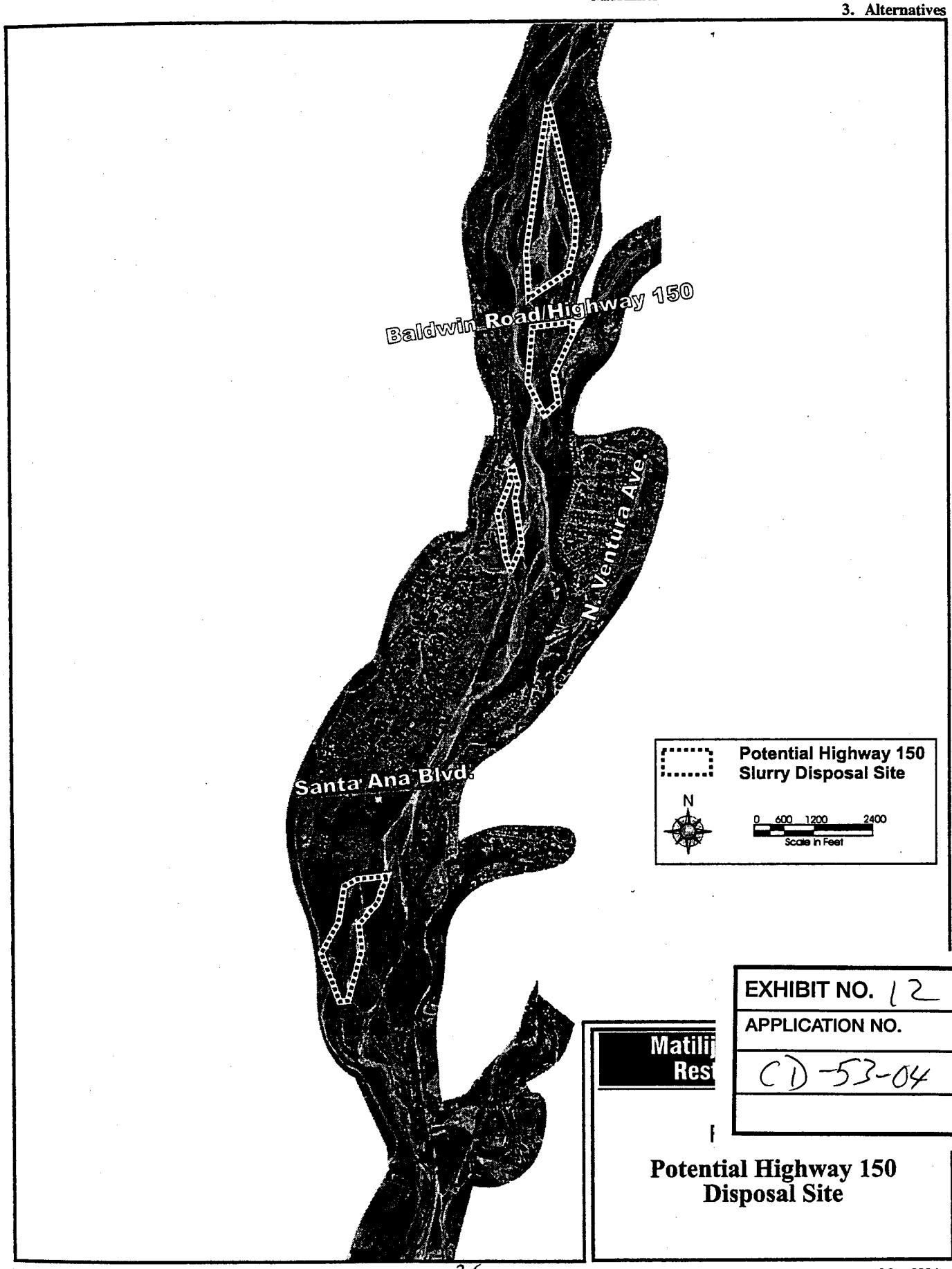


EXHIBIT NO. 12
APPLICATION NO.
CD-53-04

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Potential Highway 150
Disposal Site

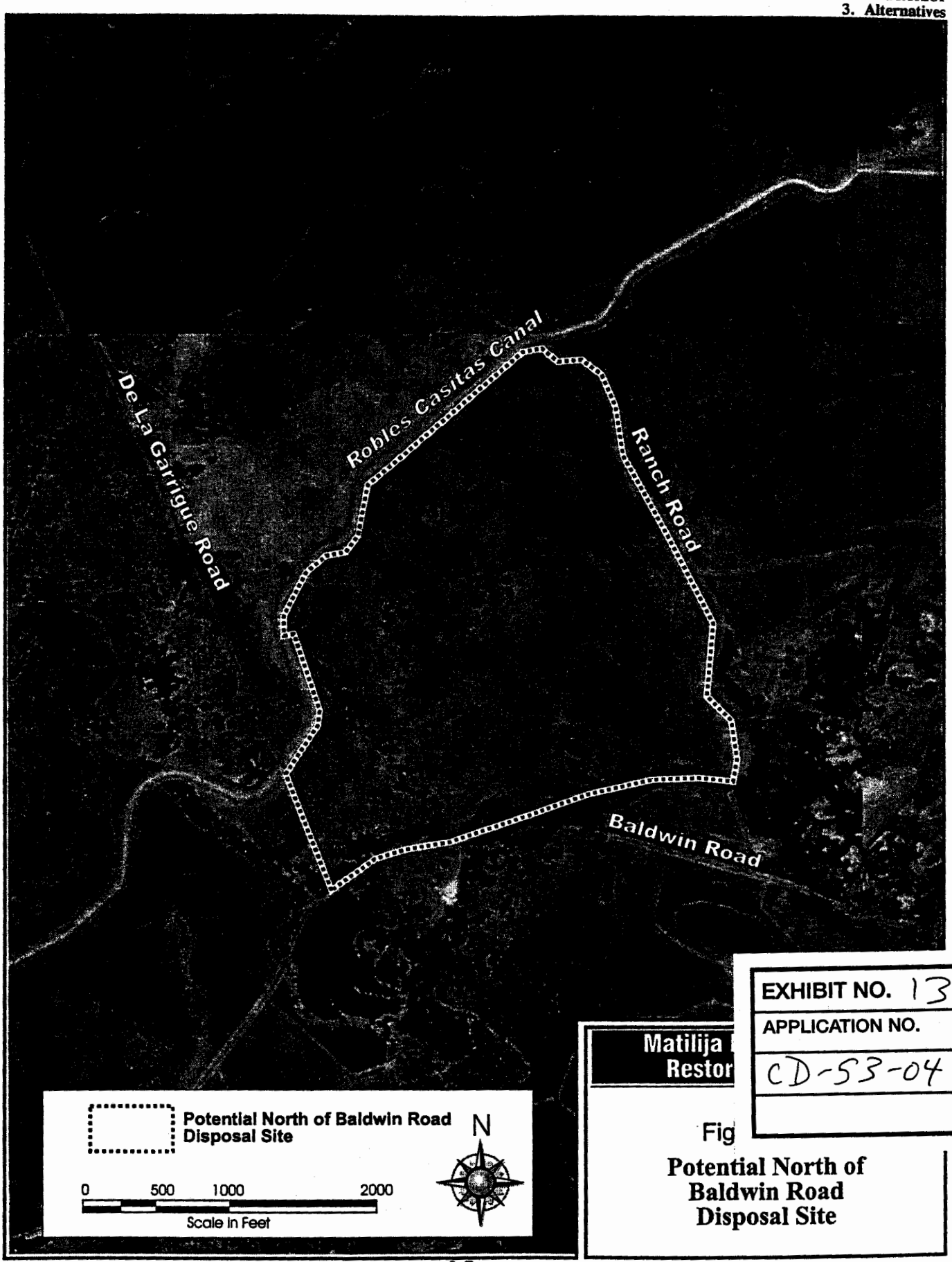

EXHIBIT NO. 13
APPLICATION NO.
CD-53-04

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Potential North of Baldwin Road Disposal Site

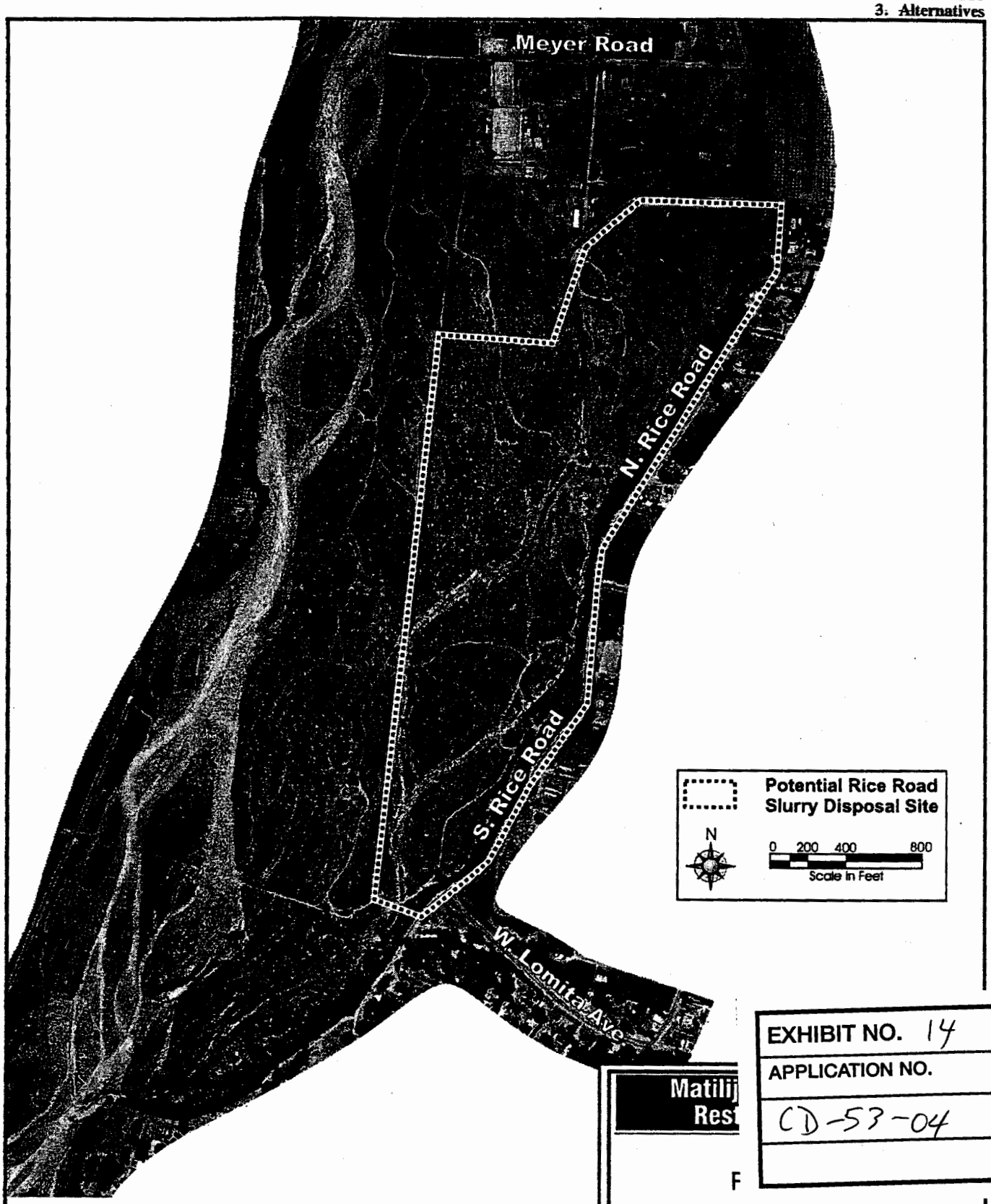

EXHIBIT NO. 14
APPLICATION NO.
CD-53-04

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Potential Rice Road Slurry Disposal Site

FIGURE 4-2: SLURRY DISPOSAL SITE

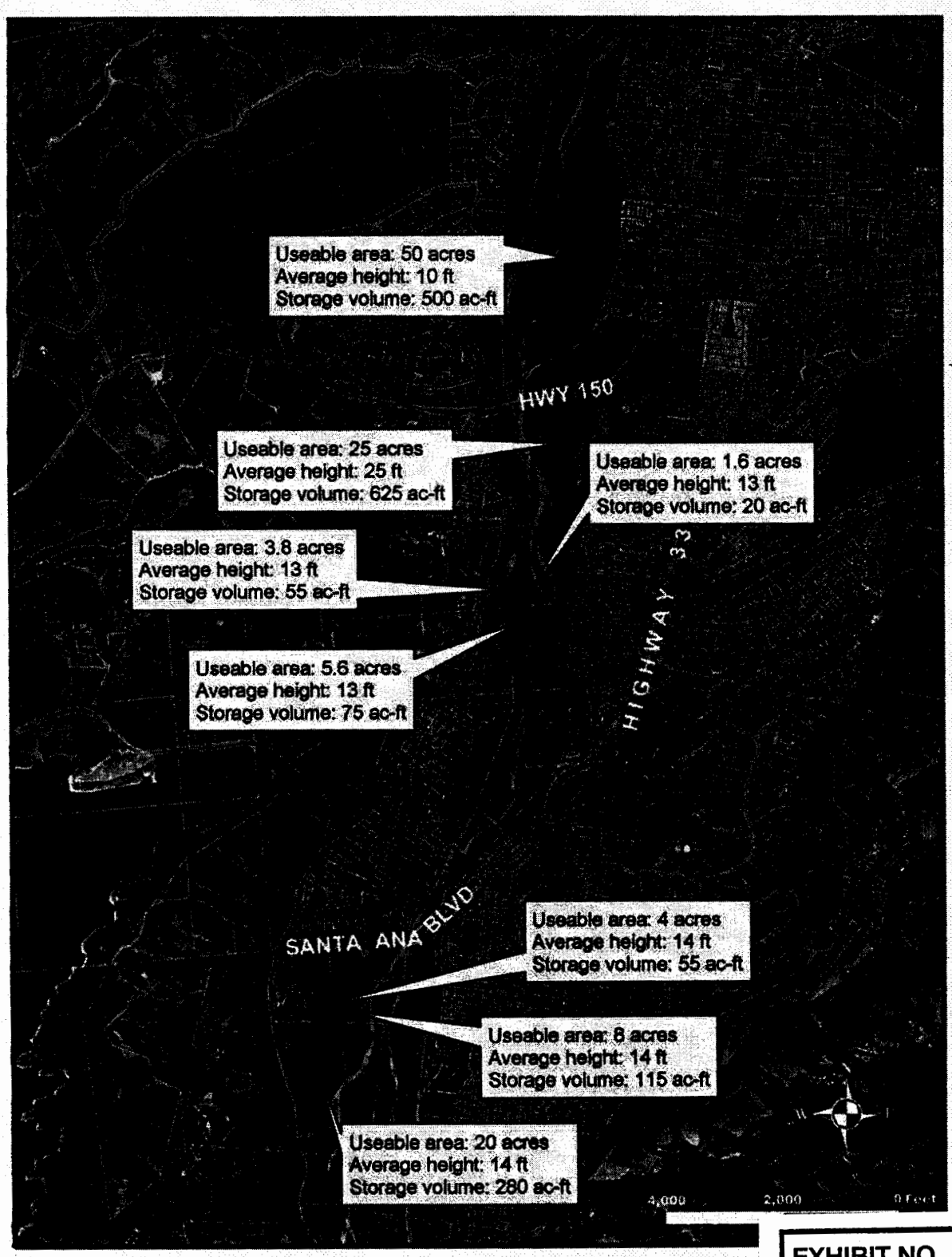
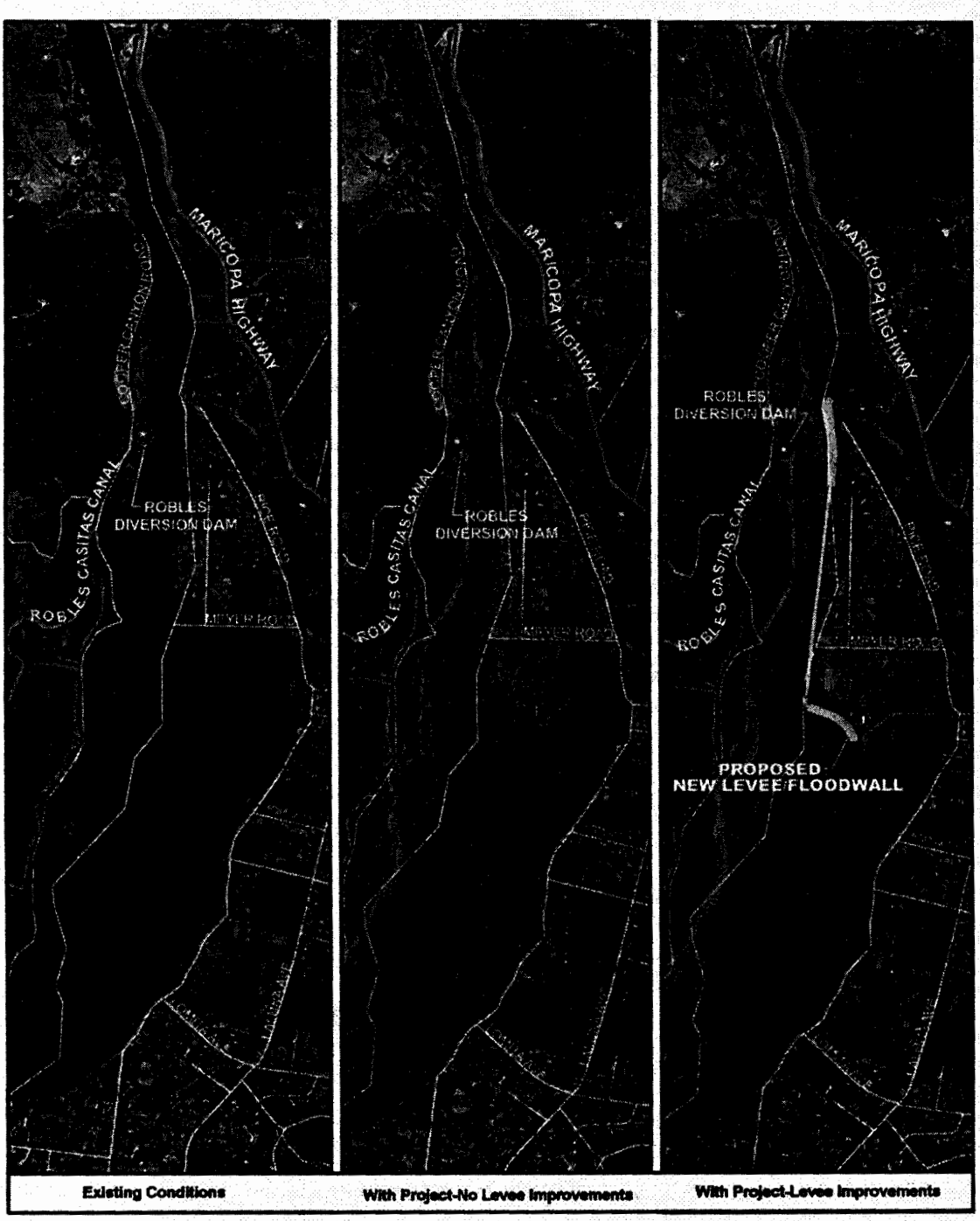


EXHIBIT NO. 15
APPLICATION NO.
CD-53-04

Table 4-1: Downstream Flood Mitigation Measures		
Location	Mitigation	Justification
Matilija Hot Springs	Buy-out	Proximity of Hot Springs site to dam and channel, narrowness of canyon, and limited flood conveyance area, poses high risk from sediment-laden flows in event of a very large storm event and limits the effectiveness of any structural protection.
Camino Cielo Properties	Buy-out	Proximity of six residential tracts to dam and channel, and narrowness of canyon, poses high risk from sediment-laden flows in event of a very large storm event and limits the effectiveness of any structural protection.
Camino Cielo Bridge	Improve conveyance. Removal and replacement at new location. Restore channel width at original location.	Existing low flow crossing (concrete box culvert) exacerbates constricted channel. Removal of bridge and restoration to original channel width will improve conveyance and prevent backwater effects. New bridge with higher deck at a wider channel section is justified because bridge is sole ingress\egress for remaining Camino Cielo residential tracts not impacted by potential flooding.
Meiners Oaks	Construct new (east) levee/floodwall	Flood protection less costly than real estate acquisition. Number of structures already prone to flooding under existing conditions would increase. Under with-project conditions, water depth increase by 2 ft min. Confinement by levee at lower end necessitates continuation of protection upstream.
Live Oak	Raise existing (west) levee	Flood protection less costly than real estate acquisition. Constricted nature of channel and expected rise in water surface in high flow events upstream of Santa Ana bridge necessitates levee raising. Confinement by levee at lower end necessitates continuation of protection upstream.
Santa Ana Bridge	Improve conveyance by widening channel and extending bridge length.	Existing bridge is severe constriction, and not capable of passing a 100-yr discharge with additional sediment-laden flows. Due to constricted channel upstream of bridge, current sediment removal maintenance efforts will need to continue albeit channel widening for a limited distance (500 ft) upstream of bridge.
Casitas Springs	Raise existing (east) levee	Flood protection less costly than real estate acquisition. Number of structures already prone to flooding under existing conditions would increase. Under with-project conditions, water depth would increase by 2 ft min.

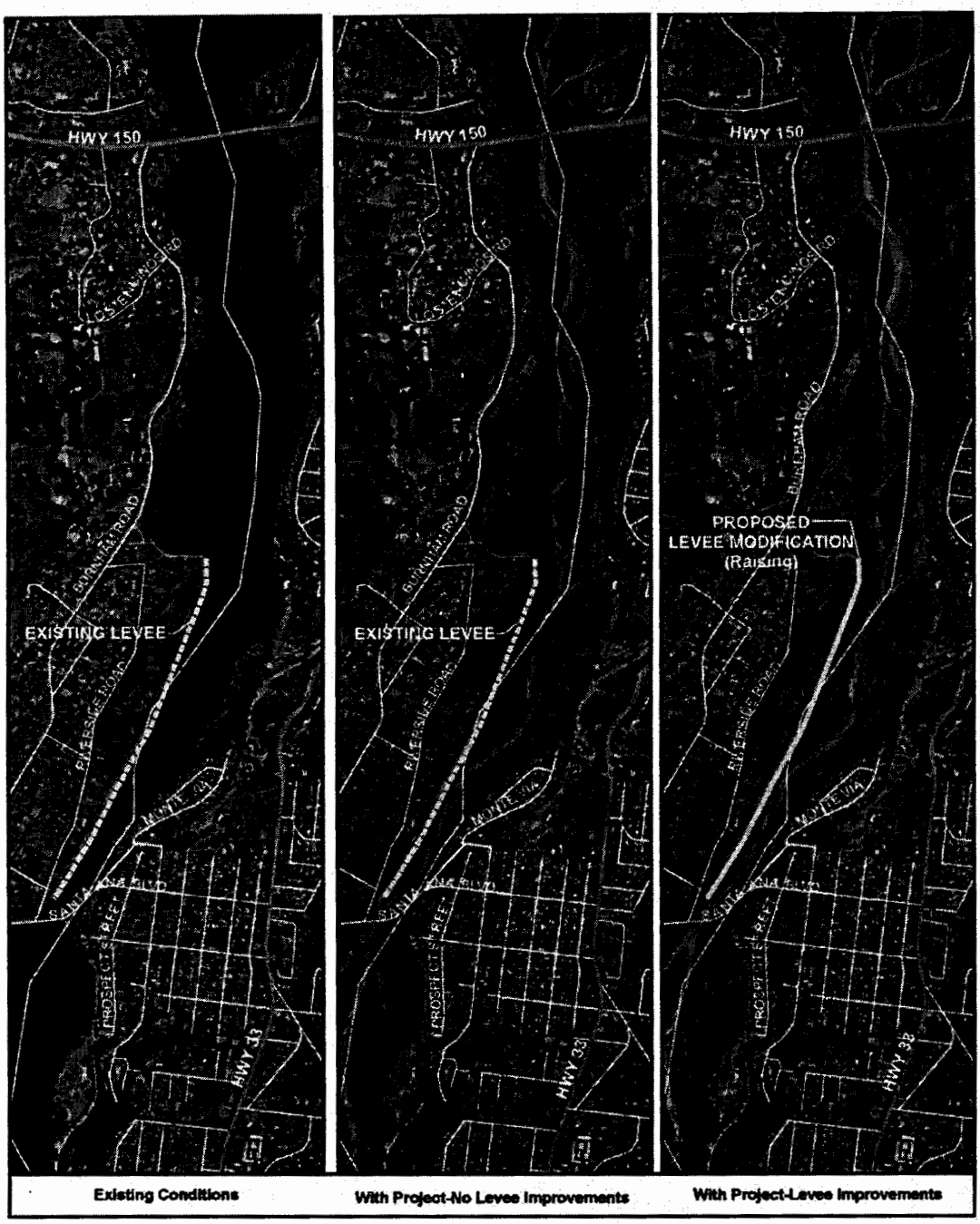
FIGURE 4-7 MEINERS OAKS – 100-YEAR FLOODPLAIN



MEINER'S OAKS
100 YEAR FLOODPLAIN

EXHIBIT NO. 17
APPLICATION NO.
CD-53-04

FIGURE 4-8 LIVE OAK- 100-YEAR FLOODPLAIN



LIVE OAKS
100 YEAR FLOODPLAIN

EXHIBIT NO. 18
APPLICATION NO.
CD-53-04

FIG 4-9 CASITAS SPRINGS- 100-YEAR FLOODPLAIN

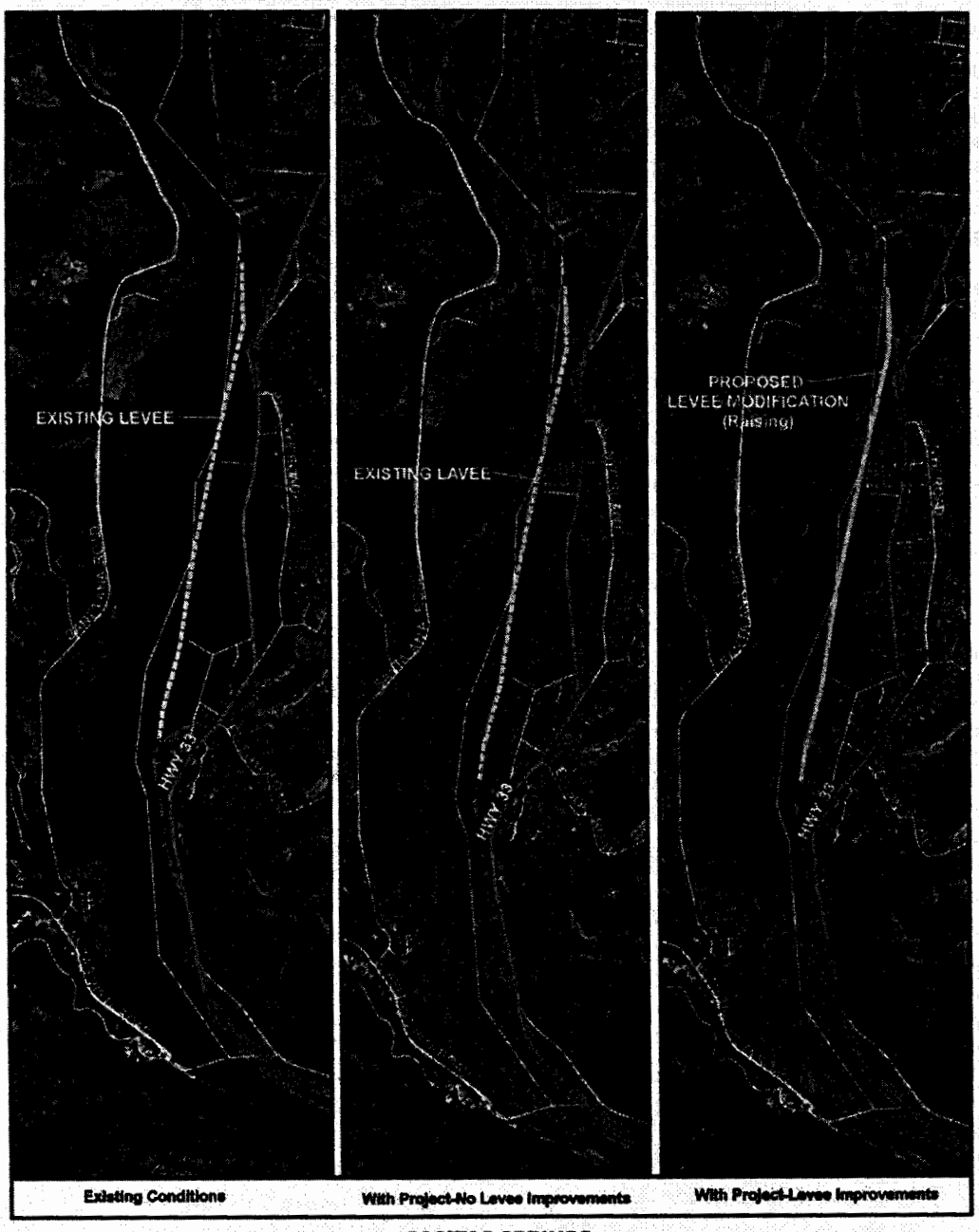


EXHIBIT NO. 19
APPLICATION NO.
CD-53-04

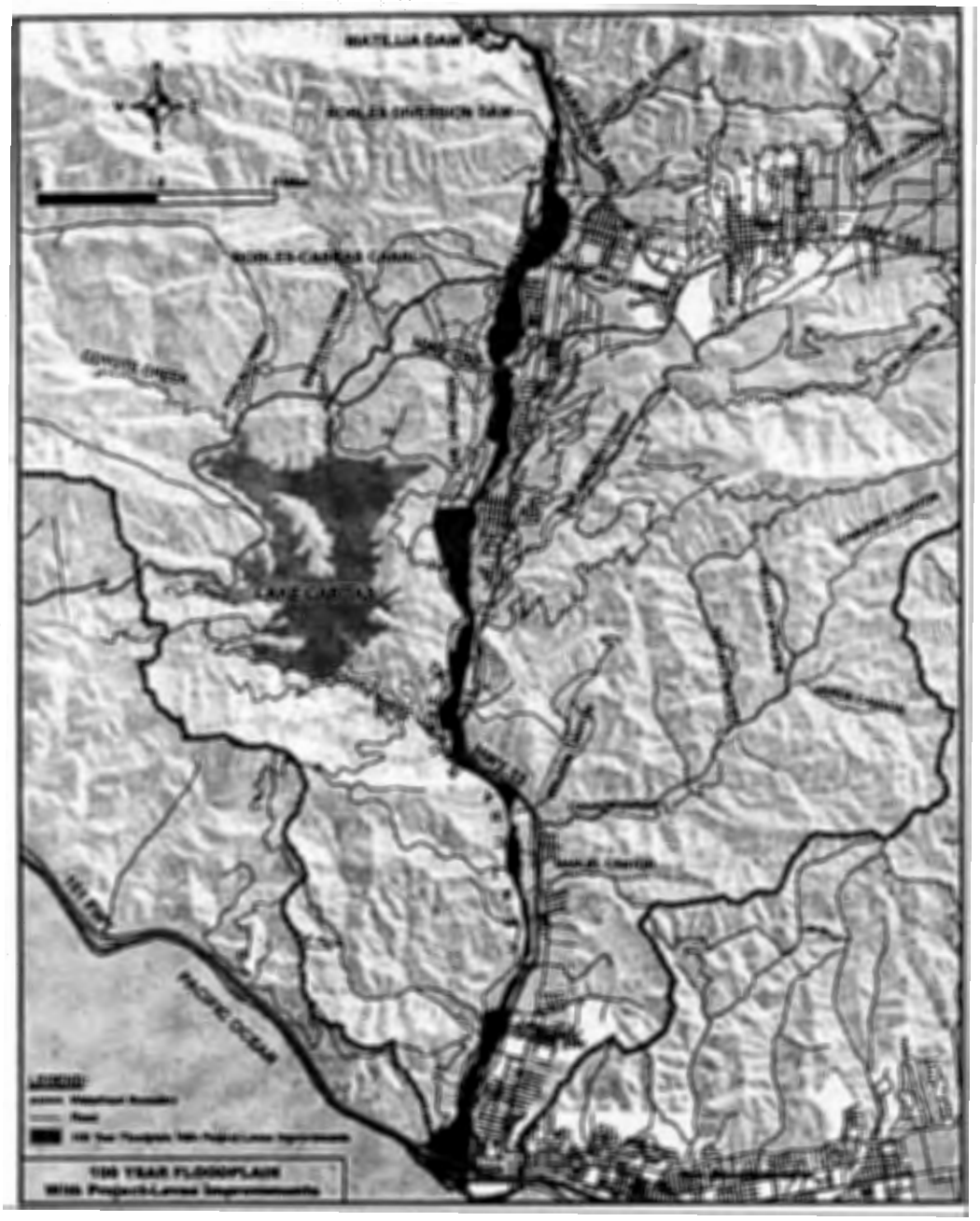


EXHIBIT NO. 20
APPLICATION NO.
CD-53-04

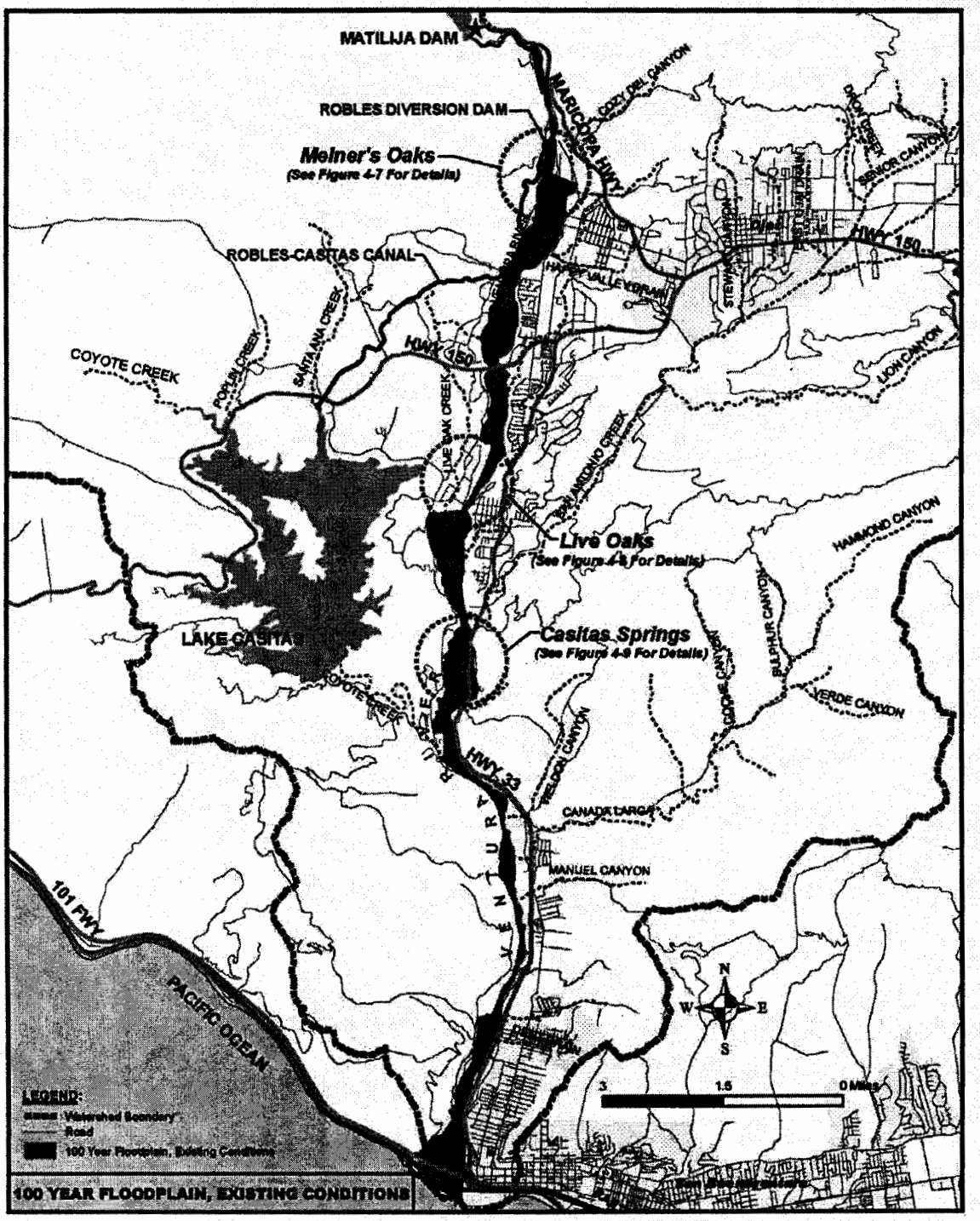


EXHIBIT NO. 21
APPLICATION NO.
CD-53-04

Matilija Dam Ecosystem Restoration Project

Figure 3.1-5

Santa Ana Road Bridge Replacement Temporary Road Plan

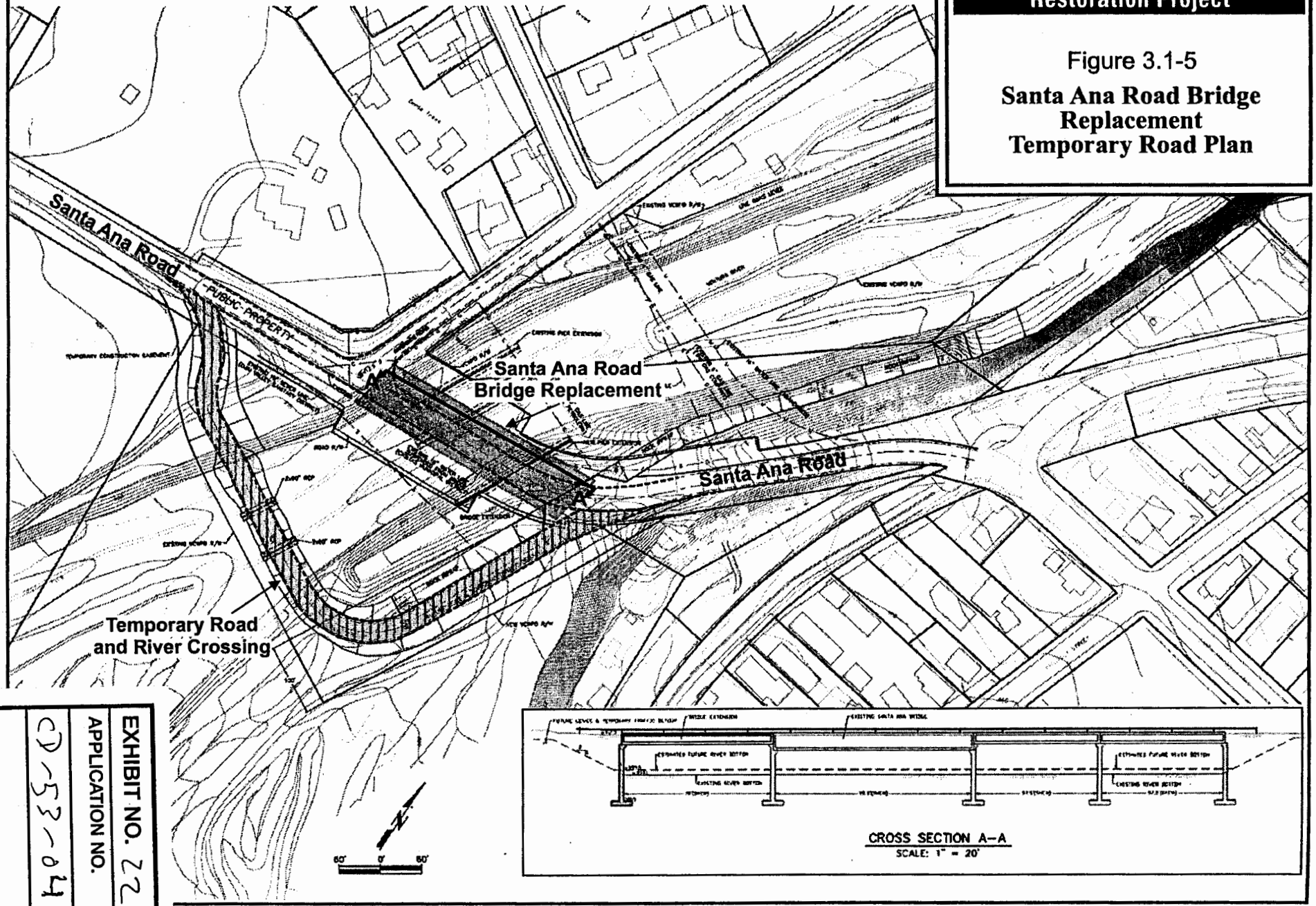


EXHIBIT NO. 22
APPLICATION NO.
CD-52-04

Robles Diversion Dam is subject to large amounts of sediment deposition during floods, and significant sediment removal is necessary following a major flood event. However, large floods govern the majority of sediment transport in the Ventura River, and Robles Diversion Dam does not significantly affect these flows during these events.

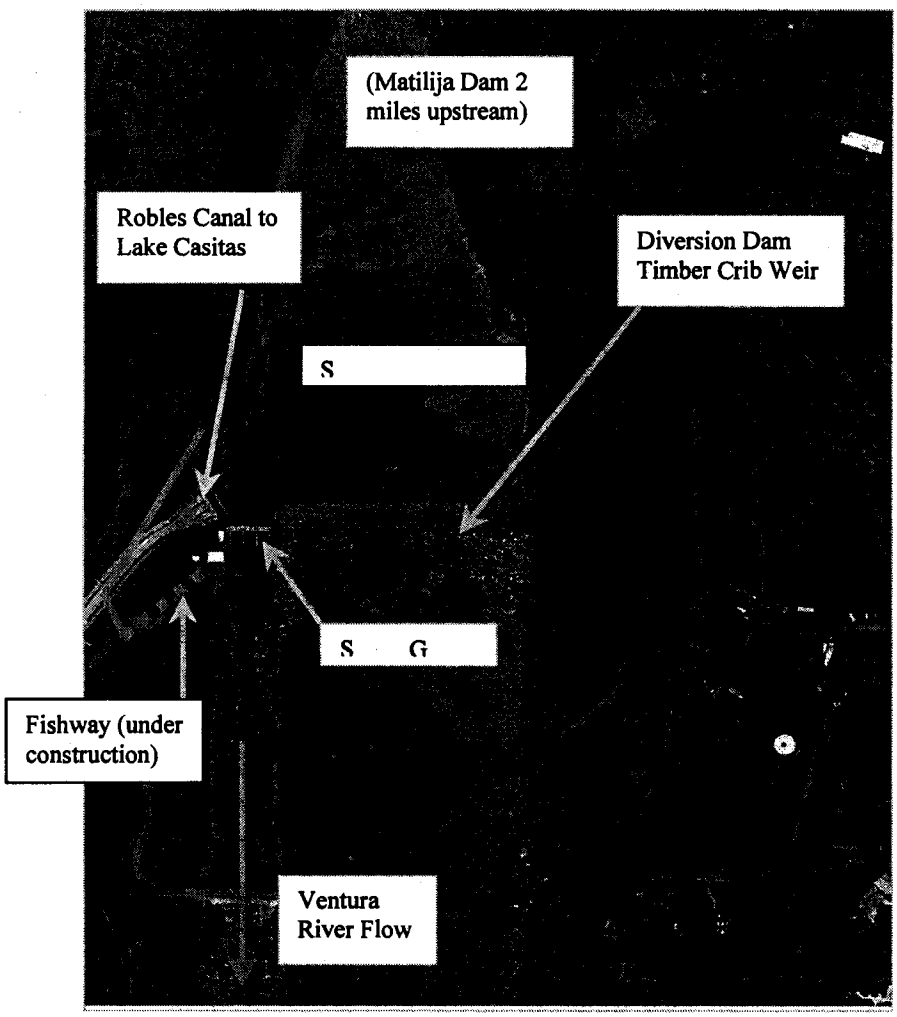


Figure 2-11 – Robles Diversion Dam Sediment Basin

Number	Mitigation Measures	Responsibility	Timing
Earth Resources			
ER-1	**Implement Best Management Practices (BMPs).** An erosion control and sediment transport control plan shall be prepared in association with the SWPPP and the revegetation plan. This plan shall be prepared in accordance with RWQCB guidelines and other applicable BMPs. Implementation of the plan will help to reduce erosion and sediment degradation. The plan will designate BMPs that will be followed during construction activities. Erosion-minimizing efforts may include measures such as avoiding excessive disturbance of steep slopes; using drainage control structures (e.g., coir rolls or silt fences) to direct surface runoff away from disturbed areas; strictly controlling vehicular traffic; implementing a dust-control program during construction; restricting access to sensitive areas; using vehicle mats in wet areas; and revegetating disturbed areas following construction.	Corps of Engineers	Prior to construction
ER-2	**Reduce off-site erosion.** During excessive wet and muddy site conditions, the contractor shall implement wheel washing strategies and street cleaning in the project vicinity to reduce off-site erosion from construction vehicles leaving the sites.	Construction contractor	During construction
ER-3	**Observe exposed soil.** During trenching, grading, or excavation work for the project, the contractor shall observe the exposed soil for visual evidence of contamination. If visual contamination indicators are observed during construction, the contractor shall stop work until the material is properly characterized and appropriate measures are taken to protect human health and the environment. The contractor shall comply with all local, State, and federal requirements for sampling and testing, and subsequent removal, transport, and disposal of hazardous materials. In the event that evidence of contamination is observed, the contractor shall document the exact location of the contamination and shall immediately notify the Corps of Engineers' construction manager. The Corps shall be responsible for formulating and implementing plans to characterize and remediate any contamination encountered during construction. These plans shall specify procedures for monitoring, identifying, handling, and disposing of hazardous waste in accordance with federal and State regulations.	Corps of Engineers and construction contractor	During construction
ER-4	**Hazardous substance control.** The Corps of Engineers, or its construction contractor, shall prepare a Hazardous Substance Control and Emergency Response Plan that will include preparations for quick and safe cleanup of accidental spills. The Plan will prescribe hazardous-materials handling procedures to reduce the potential for a spill during construction, and will include an emergency response program to ensure quick and safe cleanup of accidental spills. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted.	Corps of Engineers or construction contractor	Prior to construction
Biological Resources			
B-1	**Pre-Construction biological surveys.** The Corps shall conduct pre-construction protocol-level surveys for Least Bell's Vireo and Southwestern Willow Flycatcher. In addition, pre-construction surveys shall be conducted for sensitive birds, active nests or roosts in riparian areas that would be subject to project disturbance. If active nests are located, birds shall be flushed prior to construction activities or nests shall be avoided until the young have fledged. Qualified biologists familiar with species known to inhabit the Ventura River shall be utilized to conduct the surveys.	Corps of Engineers (implemented by a qualified biologist)	Prior to construction
B-2	**Pre-Construction plant surveys.** The Corps shall conduct pre-construction surveys for special-status plant species within all areas subject to project disturbance.	Corps of Engineers (implemented by a qualified biologist)	Prior to construction
B-3	**Capture and relocate.** The Corps shall design and implement a capture and relocation program for California red-legged frog, southwestern pond turtle, and two-striped garter snake prior to construction activities in Matilija Lake, Matilija Creek, and the Ventura River.	Corps of Engineers	Prior to construction
B-4	**Agency coordination.** The Corps shall immediately contact the appropriate regulatory agencies (Corps, VCWPD, CDFG, and USFWS) if federally- or State-listed or otherwise sensitive flora and fauna are identified during pre-construction surveys. The Corps shall coordinate with the appropriate agencies to develop and institute avoidance, minimization, and mitigation measures prior to proceeding with project construction.	Corps of Engineers	Prior to construction
B-5	**Restricted initial clearing.** The Corps shall conduct initial clearing of open water, freshwater marsh, and riparian habitats in Reach 7 outside of the breeding season (September 15 through March 15). Clearing of riparian vegetation for levee construction shall be conducted between September 15 and March 15.	Corps of Engineers	Between September 15 and March 15
B-6	**Fueling.** The construction contractor shall conduct all fueling and maintenance activities a minimum of 100 feet from riparian and wetland habitats or in areas where accidental fuel spills may flow into waters of the state.	Construction contractor	During construction
B-7	**Construction monitoring.** The Corps shall have a qualified biologist present when conducting clearing and grading operations at Matilija	Corps of Engineers	During

Number	Mitigation Measures	Responsibility	Timing
	Lake, slurry disposal sites, levee locations, and during the removal of giant reed in riparian habitat. The monitor shall move or flush non-sensitive wildlife away from project construction to the extent practicable.	(implemented by a qualified biologist)	construction
B-8	**Downstream monitoring.** The USACE shall conduct monitoring of downstream reaches of Matilija Creek and the Ventura River on a quarterly basis during the first two years of construction activity and twice annually for the duration of construction. Monitoring shall be conducted to document riparian and wetland habitat, and shall note the presence of benthic invertebrates, amphibians, reptiles, fishes, birds, and mammals.	Corps of Engineers	During construction
B-9	**Worker training and Best Management Practices.** The USACE shall conduct a Worker Environmental Awareness Plan (WEAP) prior to construction and implement related best management practices (BMPs) to reduce downstream impacts from sediment-laden water. The WEAP shall identify any sensitive biological or cultural resources known to occur in the project area, the appropriate BMPs required to reduce water quality impacts, and appropriate trash disposal and maintenance locations.	Corps of Engineers	Prior to construction
B-10	**Trash removal.** The Contractor shall ensure that food and trash are stored in sealed containers and removed from the job site on a weekly basis.	Construction contractor	During construction
B-11	**Giant Reed Eradication.** The Corps shall develop and execute a giant reed eradication program that includes monitoring during post deconstruction restoration activities. Eradication efforts shall begin prior to the dam removal in Reach 7, 8, and 9, continuing throughout the downstream reaches immediately afterwards. The Giant Reed Eradication Plan shall be submitted to the CDFG and USFWS for review and comment prior to implementation. The plan shall include measures to prevent permanent or temporary impacts to wetlands and associated sensitive vegetation and wildlife during herbicide treatments of giant reed. The plan shall ensure that all activities requiring herbicide treatment would: • Ensure that herbicides are not applied during the wet season (November 1st to April 15th) to avoid potential impacts to downstream vegetation where feasible, and to avoid impacts to fish and wildlife species. • Ensure that only water-safe and surfactant-free herbicides are used. Treatments shall use a glyphosate-based herbicide including Rodeo® and/or Aquamaster®, both of which are labeled for use within water. • Ensure that herbicides are applied at concentrations that are considered safe for biological resources within and adjacent to the project area. • Ensure that herbicides are mixed with a non-toxic water soluble dye of low toxicity that highlights treated areas. • Minimize overspray of herbicides onto non-target species by restricting herbicide spraying when wind velocities exceed six mph. • Minimize trampling of native vegetation by establishing marked trails prior to project implementation. • Remove dead giant reed material that was foliar treated and left in place to avoid fire hazard potential prior to the beginning of the fire season. Material shall be removed when spring access is permitted and before the ensuing fire season begins (between April 15 and the beginning of the fire season). • Have a licensed professional conduct or oversee herbicides applications.	Corps of Engineers (herbicide applications shall be implemented by a licensed professional)	Prior to, during, and after construction
B-12	**Predator removal plan.** The Corps shall develop and implement a predator eradication plan in consultation with the CDFG and USFWS. The plan shall include specific measures to reduce the number of aquatic predators in Matilija Reservoir and minimize the potential for release of these species downstream during dam removal.	Corps of Engineers	Prior to and during construction
B-13	**Restoration plan.** The Corps shall develop and implement a Habitat Restoration Program for all areas disturbed by project construction including giant reed removal.	Corps of Engineers	Prior to, during, and after construction
B-14	**Oak and walnut replanting.** The Contractor shall replace any native oaks or California black walnut trees removed during project construction.	Construction contractor	During and after construction
B-15	**Pre-Construction bat surveys.** The Corps shall conduct pre-construction surveys for sensitive bats at the Santa Ana Bridge and any other structures that may house suitable roosting habitat for this species. If bats are located in the structure, construction would be scheduled to occur outside of the breeding season.	Corps of Engineers (implemented by a qualified biologist)	Prior to construction
B-16	**Development of an Operations and Maintenance Program.** The Corps shall develop and execute an Operation and Maintenance Program limiting the potential of long-term and short-term impacts to sensitive flora and fauna. The Maintenance Program would be submitted to the CDFG and USFWS for review and comment prior to implementation. At a minimum, the following items shall be included in the maintenance	Corps of Engineers	Prior, during, and after construction

Number	Mitigation Measures	Responsibility	Timing
	program: • Utilize existing access roads and ramps for all maintenance activities unless by foot or authorized by the appropriate regulatory agencies. • Ensure that only water-safe and surfactant-free herbicides are used. Treatments would use a glyphosate-based herbicide including Rodeo® and/or Aquamaster®, both of which are labeled for use within water. • Ensure that herbicides are applied at concentrations that are considered safe for biological resources within and adjacent to the project area. • Ensure that herbicides are mixed with a non-toxic water soluble dye of low toxicity that highlights treated areas. • Minimize overspray of herbicides onto non-target species by restricting herbicide spraying when wind velocities exceed six mph. • Have a licensed professional conduct or oversee herbicides applications. • Ensure that herbicides are not applied to ponded features within the 15-feet width to avoid potential impacts to fish and wildlife species. • Remove trash and debris cleared from culverts from the streambed to avoid potential direct impacts from debris being dislodged and carried downstream or by creating water quality impacts for aquatic species. • Maintain access roads outside of breeding season when repair areas are within 300-feet of known breeding pairs of least Bell's vireo, southwestern flycatcher, California gnatcatcher or other sensitive nesting species. • Use proper BMPs when maintaining access roads and ramps including regrading and repaving. • Inspect levees, roads, and ramps on a regular basis and repair small problems to limit the possibly of a large failure that would require extensive repair and potential damage to sensitive habitat.		
Cultural Resources			
CR-1	**Survey for historic or prehistoric resources.** A field survey of the slurry line, disposal site, levee sites, bridge removal locations, and other previously unsurveyed features will be conducted. If any historic or prehistoric resources are found, additional National Register of Historic Places evaluations will be made.	Corps of Engineers	Prior to construction
CR-2	**National Register of Historic Places Evaluation.** A test excavation and National Register of Historic Places evaluation shall be conducted of historic/prehistoric site COE#1, COE#2, and others that may be identified by additional surveys. If any are evaluated, and determined to be eligible for the National Register of Historic Places, mitigation measures shall be developed and agreed to in a memorandum of agreement. This document would be developed between the California State Historic Preservation Officer, the Corps and local sponsors. Federally Recognized Tribes and interested Native American groups would be invited to participate as concurring parties to the agreement. These procedures shall follow the requirements of Section 106 of the National Historic preservation Act, as implemented by 36 CFR 800.	Corps of Engineers	Prior to construction
CR-3	**Develop discovery plan for previously unknown resources.** A discovery plan shall be developed in consultation with the State Historic Preservation Officer pursuant to 36 CFR 800.13(b) to treat previously unknown resources found during implementation of the project. It shall include procedures to monitor and treat cultural resources discovered during mechanical and natural removal of sediment behind Matilija Dam. It would also include procedures for discoveries made during grading and earth moving activities.	Corps of Engineers	Prior to construction
CR-4	**Consultation with Native American Tribes.** Consultation shall be conducted with Native American Tribes and groups to obtain their concerns with the potential to impact Traditional Cultural Places, and other resources of importance to them.	Corps of Engineers	Prior to construction
Aesthetics			
AE-1	**Adjust alignment of levees and floodwalls to allow vegetative screening of flood control improvements.** Final levee and floodwall alignments along residential properties at Meiners Oaks and along SR 33 at Camino Cielo shall be designed to be set back from the properties and road ROW to allow vegetation to screen views of the flood control improvements. The distance of the setback would be determined at each location based on site feasibility, but shall be such that views of the levees and floodwalls are partially to completely obscured by intervening vegetation.	Corps of Engineers	Prior to construction

Number	Mitigation Measures	Responsibility	Timing
AE-2	**Screen levees and floodwalls with vegetation planting.** Levees and floodwalls adjacent to SR 33 at Camino Cielo and the Rice Canyon Trail in Meiners Oaks shall be screened from view by the planting of native vegetation. Vegetation selected for screening shall consist native species appropriate to the location and approved by a qualified biologist familiar with species known to inhabit the Ventura River. Species selected must be chosen and maintained to achieve a height as tall or taller than the levee/floodwall height at maturity. Planting of screening vegetation shall be initiated as soon as possible during levee/floodwall construction and shall achieve a minimum of 50% screening of the levee/floodwall within 10 years of project initiation. The goal of the screening should be to maintain the natural character of the remaining area and to screen the levees and floodwalls to the maximum feasible extent. An aesthetic screening plan would be submitted to the Corps by the construction contractor at least 90 days prior to construction and would include, but not be limited to: • A list of proposed tree and shrub species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives; • Maintenance procedures, including any needed irrigation; and • A procedure for replacing unsuccessful plantings.	Construction contractor	Prior to and during construction
AE-3	**Create trails over the Rice Road slurry disposal site following re-vegetation of site.** Prior to completion of slurry disposal activities and re-vegetation of the site, the Corps shall design a system of trails over the completed, re-vegetated site along with a re-vegetation plan for the site. The Ojai Valley Land Conservancy shall be consulted on appropriate trail routes to replace the trails covered by the slurry. Final trail designs and re-vegetation plans shall be submitted to the Ojai Valley Land Conservancy for approval at least 60 days prior to commencement of revegetation activities. Trail route construction shall commence in tandem with revegetation activities and shall be completed to the same level of quality as currently exist on the site or better.	Corps of Engineers	During and after construction
AE-4	**Reduce visibility of project activities and equipment.** If visible from nearby residences, roadways, or recreation facilities, project construction sites, as well as all staging, material, and equipment storage areas shall be visually screened with temporary screening fencing. Fencing shall be of an appropriate design and color for each specific location. All evidence of project activities, including ground disturbance due to staging or storage areas, shall be removed and all disturbed areas shall be returned to an original or improved condition upon completion of project activities including the replacement of any vegetation or paving removed during construction.	Corps of Engineers	During and after construction
Air Quality			
A-1	**Limit engine idling.** Prohibit private vehicle engine idling in excess of two minutes, restrict diesel engine idle time, to the extent practical, to no more than 10 minutes.	Construction contractor	During construction
A-2	**Low-emission diesel engines.** Require the use of certified low emission diesel engines (i.e., CARB/EPA Tier 1, 2, 3, or 4 certified off-road equipment) for diesel off-road equipment and cutterhead dredge pump engines, with the minimum requirement being CARB/EPA Tier 1 engines.	Construction contractor	During construction
A-3	**Limit use of internal combustion engines.** Utilize electrical power from the grid rather than internal combustion engines or internal combustion electric power generators for all stationary equipment, such as, the stationary water pumps, and slurry pumps (except the dredge engines).	Construction contractor	During construction
A-4	**Low-emission vehicles.** Utilize low-emission on-road construction fleet vehicles, if available.	Construction contractor	During construction
A-5	**NOx emission offset.** Provide NOx emission offset to fully offset the project emissions when they are predicted to be more than 25 tons per year.	Construction contractor	During construction
A-6	**Watering areas to reduce dust.** Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.	Construction contractor	During pre-grading/ excavation activities (prior to construction)

Number	Mitigation Measures	Responsibility	Timing
A-7	**Controlling fugitive dust.** Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities: • All trucks shall be required to cover their loads as required by California Vehicle Code §23114. • Sweep streets at the end of the day if visible soil material is carried onto adjacent public paved roads (recommend water sweepers with reclaimed water) • Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip • Pave construction roads that have a traffic volume of more than 50 daily trips by construction equipment, 150 daily trips for all vehicles • Pave all construction access roads for at least 100 feet from the main road to the project site • Pave construction roads that have a daily traffic volume of less than 50 vehicular trips • All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but no necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.	Construction contractor	During pre-grading/ excavation, and construction activities
A-8	**Dust stabilization.** Graded and/or excavated inactive areas of the construction site shall be monitored by the construction contractor at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.	Construction contractor	During and after construction
A-9	**Traffic signs.** Signs shall be posted onsite that limit traffic to 15 miles per hour or less.	Construction contractor	During construction
A-10	**Excessive winds.** During period of high winds (i.e., wind speed sufficient to cause fugitive dust to impacts adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.	Site superintendent/ supervisor	During construction
A-11	**Street sweeping.** Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.	Construction contractor	During construction
A-12	**Respiratory protection.** Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.	Construction contractor	During construction
Noise			
N-1	**Limit hours of hand-held equipment use.** Use of loud hand-held construction equipment, such as chain saws, heavy-duty construction equipment, and trucks shall not occur between the hours of 7:00 p.m. and 7:00 a.m., except for dredging, slurrying, and associated water conveyance activities, which are planned to occur 24 hours a day, 7 days a week.	Construction contractor	During construction
N-2	**Limit hours of heavy-duty equipment use.** Within the City of Ojai, use of heavy-duty construction equipment or trucks shall not occur between the hours of 7:00 p.m. and 10:00 a.m.	Construction contractor	During construction
N-3	**Use of muffler equipment.** Construction equipment shall be operated with standard factory silencer and/or muffler equipment. Equipment engine covers shall be in place and mufflers shall be in proper working order.	Construction contractor	During construction
N-4	**Locate haul routes away from sensitive receptors.** Haul routes, staging areas, and construction activities shall be located to avoid noise impacts to sensitive receptors (schools, hospitals, residential areas, etc.), whenever possible. If necessary, noise curtains or shields shall be implemented to reduce noise levels to the extent feasible.	Construction contractor	During construction
N-5	**Use of electric motors.** The construction contractor shall use electric motors to the extent feasible for all stationary equipment (i.e., pumps). Stationary equipment located at Lake Casitas shall be enclosed to limit impacts to recreational users.	Construction contractor	During construction
N-6	**Controlled blasts.** All blasts at Matilija Dam shall be controlled. Records detailing each individual blast shall be maintained and available onsite.	Construction contractor	During construction

Number	Mitigation Measures	Responsibility	Timing
N-7	**Use of hearing protection.** Hearing protection shall be provided to all worksite personnel during blasting operations, and as needed for general construction activities to meet the requirements of OSHA standards (29 CFR 1910.95, Subpart G) and U.S. EPA standards. In the event of complaints by worksite personnel, a Noise Monitoring Program shall be implemented as discussed in OSHA 29 CFR 1910.95, Subpart G, Appendix G.	Construction contractor	During construction
N-8	**Public notice of construction.** The construction contractor shall provide advance notice of the start of construction for the project to all residences within one mile of the main construction area (i.e., Matilija Dam), and those residences adjacent to the downstream flood protection improvements (levees, floodwalls, and bridges). The announcement shall state specifically where and when construction will occur and provide contact information for public questions or comments. The construction contractor shall serve as the contact person in the event that noise levels during construction become disruptive to local residents. A sign shall be posted at the various sites with the contact phone number, and include general contact information for public questions or comments.	Construction contractor	Prior to and during construction
N-9	**Noise monitoring.** In the event of complaints by local residents, the construction contractor shall monitor noise from construction activity. Noise shall be measured at the exterior wall(s) of those residents filing a complaint or a representative location. In the event that construction noise exceeds the specified limits (1-hour Leq of 55 dBA), the responsible construction activity shall cease until appropriate measures are implemented to reduce noise levels to the extent feasible.	Construction contractor	During construction
Transportation			
T-1	**Transportation Management Plan.** The construction contractor shall submit a Transportation Management Plan to the County of Ventura's Public Works Department and to Caltrans for review and approval that demonstrates practices and safety precautions designed to minimize temporary construction traffic impacts. The detailed traffic study shall be performed by a registered civil engineer (or registered traffic engineer) who is qualified to perform traffic engineering studies and is familiar with Ventura County. The Transportation Management Plan shall cover all aspects of construction under the Proposed Action and shall include traffic control measures and other procedures that may be necessary during construction of the project. All recommendations of the Transportation Management Plan shall be incorporated into the description of the Proposed Action.	Construction contractor (traffic study performed by registered civil or traffic engineer)	Prior to construction
T-2	**Road repair from construction activities.** If damage to roads, sidewalks, and/or medians occurs, the construction contractor shall coordinate repairs with the affected public agencies to ensure that any impacts are adequately repaired. Roads disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Care shall be taken to prevent damage to roadside drainage structures. Roadside drainage structures and road drainage features (e.g., rolling dips) shall be protected by regrading and reconstructing roads to drain properly.	Construction contractor	After construction
Recreation			
R-1	**Construct a ramp to provide access over the Meiners Oaks flood protection.** The Corps shall design and construct a ramp from Meyer Road on the east side of the Meiners Oaks flood protection over to the trails on the west side of the flood protection. The OVLC shall be consulted on the design of the ramp. This ramp shall be constructed in conjunction with construction of the Meiners Oaks levee and floodwall. The ramp shall be designed to ensure that pedestrians and equestrians can continue to utilize the Rice Canyon Trail, but designs may also include measures to ensure that the levee itself is not used as a recreation trail.	Corps of Engineers	Prior to and during construction
R-2	**Parks agency coordination, notification, and signage.** All construction activities, including temporary trail closures, affecting parklands or trail systems along the project route shall coordinate with the respective jurisdictional agency at least 30 days before construction begins in these areas. Signs directing vehicles to alternative park access and parking shall be posted in the event construction temporarily obstructs parking areas near trailheads. The Corps shall also post signs alerting park users to construction activities at least a week in advance of construction near recreation facilities. Signs advising recreation users of construction activities and directing them to alternative trails or bikeways will be posted on both sides of all trail intersections or as determined through Corps coordination with the respective jurisdictional agencies.	Corps of Engineers	Prior to and during construction

APPENDIX K. MONITORING & ADAPTIVE MANAGEMENT PLAN

I. INTRODUCTION

The Monitoring and Adaptive Management Plan provides an essential element in the overall implementation of the proposed restoration plan. The plan provides an opportunity to review and evaluate the performance of the project components during and after the project implementation. Early identification of ways to improve project performance often results in implementation of necessary revisions to the project components. This Monitoring and Adaptive Management Plan is considered the initial attempt to detail the components to be implemented during project construction. A more detailed Monitoring and Adaptive Management Plan will be prepared during the Pre-construction, Engineering and Design [PED] phase (i.e., more specific monitoring details, e.g., exact transect locations, reference site locations, more specific performance/success criteria, more specific monitoring protocols, etc., will supplement this Monitoring and Adaptive Management Plan).

Some of the primary reasons the plan is justified and being recommended include the following:

- ▶There are no existing projects upon which to obtain and draw ecosystem restoration information from deconstruction of a Dam of the size of Matilija Dam.
- ▶The planning and design assumptions will require field validation to ensure the assumed planning and design benefits are actually realized.
- ▶The expenditures for the Monitoring and Adaptive Management will provide insurance and help eliminate uncertainty for a successful restoration project.
- ▶Protects the Federal and non-Federal investments by ensuring the project functions as intended.

The purpose of this Monitoring and Adaptive Management Plan is to provide a mechanism to evaluate the effectiveness of the restoration measures implemented in this project and implement adaptive changes, if required to obtain project objectives. As outlined in EC 1105-2-100 (Appendix E, Section V, E-30i.), the Monitoring Plan is intended to ascertain whether: the project is functioning as per project objectives; adjustments for unforeseen circumstances are needed; and changes to structures or their operation or management techniques are required. (Also see Pastork et al. 1997; Thom and Wellman 1996; and Yozzo et al. 1996).

The recommended restoration alternative is expected to result in significant benefits to the riparian ecosystem, especially to steelhead/aquatic and riparian habitat. Restoring a more natural sediment regime is expected to allow for channel complexity and aquatic habitat diversity. Removal of Matilija Dam is expected to open 17 miles of habitat to migrating steelhead. Removal of 250 acres of the invasive, exotic Arundo from the riparian zone is expected to result in significant benefits to the riparian habitat and associated riparian birds and amphibians. (For

more detailed discussion of beneficial impacts on the riparian ecosystem, see Biological Assessments, Appendix C1 and C2).

The uncertainty associated with the potential adverse effects of sedimentation and turbidity on the riparian ecosystem, however, is the primary reason that an extensive Monitoring and Adaptive Management Plan (M&AMP) is proposed for this feasibility study. Deconstruction of Matilija Dam would be the largest dam removal undertaken to date in the US. This Monitoring and Adaptive Management Plan provides a description of: a) surveys to monitor the sedimentation and turbidity associated with the release of trapped sediment following dam deconstruction; regulated substances that may affect drinking water quality from the release of trapped sediment following dam deconstruction; the natural erosion of sediment from temporary storage sites; the timing of staged removal of the soil cement revetment; the habitats to be restored; the expected, and the natural re-introduction of native wildlife into the restored habitats; 2) the performance criteria and monitoring protocol to evaluate success of the restoration effort; 3) adaptive management actions (or maintenance activities) that may be performed to ensure a successful restoration effort; and 4) reporting requirements.

This Monitoring and Adaptive Management Plan covers monitoring and adaptive management actions during the first 10 years after initial construction. (After the first 10 years, monitoring and/or adaptive management becomes the responsibility of the Local Sponsor.)

II. OBJECTIVES

See Main Report and DEIS/EIR

III. SEDIMENT IMPACTS MONITORING BELOW DECONSTRUCTED DAM

The impacts associated with dam removal have been analyzed to sufficient detail for a feasibility level evaluation. Further evaluation during the next phase of the project (Pre-construction, Engineering and Design) will be performed for specific features of the project, including the sediment bypass at the Robles Diversion Facility. Due to the large scale of the project, the potential for adverse impacts, and the uncertainty associated with large sediment releases, an extensive monitoring and adaptive management program will be implemented. The program will remain in effect until it is deemed by the Ventura County Watershed Protection District that sufficient evacuation of trapped sediment from the Matilija Reservoir has occurred.

The following aspects will be monitored:

1. Streambed deposition/erosion at each of the following sites:
    a. Levee/Floodwall Improvements: Meiners Oaks, Live Oak Levee, and Casitas Springs.
    b. Bridges: Camino Cielo, Baldwin Road (Highway 150), Santa Ana, Shell, and Main Street.
    c. Matilija Hot Springs, Foster Park, and Ventura River Estuary.

Following is the required data gathering to be performed pre- and post-dam deconstruction. Generated data will be used to maintain real-time updating of hydraulic modeling. Updated modeling results will provide important decision-making information to determine whether intervention measures are necessary (e.g. sediment channel clearing at specific locations). Data will be collected once a year if a storm event exceeds a return period of 3 years (5000 cubic feet per second at Matilija Dam).

- Streambed surveys at three to five established cross-sections at each of the identified locations.
- Surface streambed pebble counts and sampling at established sites along the Ventura River, at approximately every mile from river mile 15 to 8, and every 2 to 4 miles downstream of river mile 8. A total of 10 sample locations will suffice. Gradation tests will be performed on the bag samples.

In addition to the above, there will be a complete reconnaissance of the entire river immediately after every flood event greater than a one-year return period to photographically record any areas of concern. After a period of 10 years following dam removal, a complete topographic survey of the river channel will be performed using photogrammetry or lidar.

2. Turbidity and suspended sediment concentrations at each of the following locations:

    a. Upstream of the dam
    b. Downstream of the dam
    c. Robles-Casitas Canal Intake
    d. Foster Park
    e. Confluence at North Fork Matilija Creek and at San Antonio Creek

Currently only Foster Park is equipped to measure turbidity and suspended sediment concentrations. The other specified locations would require installation of gages. Baseline data collection will be initiated after the commencement of Pre-construction, Engineering and Design and will continue until sufficient evacuation of trapped sediment from the Matilija Reservoir has occurred.

3. Performance of sediment bypass, deposition behind Robles Diversion, exclusion of sediment from the Robles Canal intake. This should start as soon as possible to establish baseline data and continue until project completion.

4. Water Quality for Regulated Substances at each of the following locations:

    a. Upstream of the Reservoir Basin
    b. Downstream of the dam and upstream of North Fork Matilija Creek confluence.
    c. Robles-Casitas Canal Intake
    d. Lake Casitas (Utilize data from on-going CMWD data collection)

Consultation with the Regional Water Quality Control Board (RWQCB) will proceed during the Preconstruction, Engineering and Design Phase of the project. Actions as required by the

RWQCB will be pursued to insure that Lake Casitas is not adversely impacted by the introduction of any regulated substances above levels considered to be within the existing background levels pursuant to, and directly attributed to the removal of Matilija Dam. In the event that adverse impacts cannot be avoided, mitigation measures funded by project costs will be pursued as needed at Lake Casitas, including at the reservoir's treatment plant. Baseline data collection will be initiated after the commencement of Pre-construction, Engineering and Design and will continue until sufficient evacuation of trapped sediment from the Matilija Reservoir has occurred.

IV. EROSON AT TEMPORARY STORAGE SITES

The erosion at the temporary storage sites will be monitored through on-site photography, and repeat surveys. The surveys can be completed by the most economical means available, but the information should be sufficient to detail the amount of material eroded after each storm.

V. RESTORED HABITATS

As stated previously, the restoration alternative is expected to result in significant benefits to riparian and aquatic habitat. Below is a discussion of how habitats are expected to be restored.

A. RIPARIAN HABITAT

The riparian habitat is expected to benefit mainly from eradicating Giant Reed from the riparian zone. A description of how giant reed (*Arundo donax*) would be removed in infected River Reaches is discussed in the Habitat Evaluation Appendix (Appendix E, subAppendix 4)

As a summary, giant reed would be removed from the study area in the initial five years of project construction. Giant reed removal would occur systematically during construction from the upper portion of the study area and working downstream. Four common methods may be used:

1. cut and remove biomass with cut-stump application of herbicide
2. cut and remove biomass
3. cut and remove biomass and remove below ground rhizomes
4. aerial application of herbicides.

Method 3 would likely be used in Reach 7 during recontouring of the site for any of the alternatives. Method 4 would likely be used for large areas of dense reed. Methods 1 and 2 are most commonly used and would be the best choices for most of the study area. All methods require 5 years of follow-up herbicide treatment of Giant reed sprouts.

B. STEELHEAD/AQUATIC HABITAT

The beneficial effects of deconstruction of Matilija Dam are discussed in detail in Appendix C1, section VI.A.2(c). As a brief summary, deconstructing Matilija Dam is expected to result in

significant beneficial effects to the aquatic ecosystem downstream of the dam as the natural sedimentation processes that lead to channel complexity/habitat diversity (that would result in increased aquatic productivity) are restored. Sediment-starved River Reaches downstream of Matilija Dam are expected to experience significant aggradations as sediment is re-supplied. The proposed sediment by-pass at the Robles Diversion structure is expected to allow high-flows to naturally move sediment downstream and not become trapped in the Robles Basin. The channel in River Reaches 5 and 3 that have experienced downcutting (incision) for the past 30 years and are expected to aggrade significantly following deconstruction. It is expected that Reaches 5 and 3, especially, might experienced an improvement in the steelhead spawning habitat quality as more coarse gravel becomes available.

The 100-ft. wide channel in the former Matilija Reservoir area (Reach 7) is expected to have hydraulic conditions favorable to steelhead upstream migration. The excavated channel will allow for a naturally meandering, low flow channel to develop. As such, once the dam is removed and the channel is excavated through the reservoir sediments, significant benefits to steelhead are expected as upstream migration to about 17 miles of high quality habitat upstream of Matilija Dam is restored.

VI. HABITAT & WILDLIFE MONITORING

A. HABITAT MONITORING

1. RIPARIAN HABITAT

All areas where Giant Reed has been eradicated will require at least 5 years of treatment of resprouting canes with herbicide. Since reinfestation of the Ventura River by giant reed may occur following completion of deconstruction activities, eradication areas will be monitored annually for the first 5 years. Monitoring will occur every other year after the first 5 years to determine if Giant Reed has been adequately removed. Areas of reinfestaion will be re-treated. Upland and tributary sources of Giant Reed may also be identified and eradicated from the watershed under other projects, funded seperately, as part of a County-wide program.

2. STEELHEAD/AQUATIC HABITAT

River Reaches downstream that have experienced downcutting will be monitored to determine if they experience the aggredation of sediment that is expected – especially Reaches 5 and 3. Sediment grain size in these Reaches will also be monitored to determine if spawning gravels are replenishing these River Reaches. Steelhead/aquatic habitat monitoring will also occur in conjunction with fish surveys as described in section VI.B.2 (e.g., . streamside vegetation, stream substrate, riffle: pool ratios, pool depths, barriers to fish passage, stream flows,tc...).

B. FISH & WILDLIFE MONITORING

1. WATER QUALITY & AQUATIC INVERTEBRATE MONITORING

Routine water quality monitoring will be conducted with fisheries surveys. Parameters such as turbidity, dissolved oxygen, and pH will be taken. (See discussion on Fisheries Monitoring below). In addition to water quality, freshwater benthic invertebrates will also be sampled as an indicator of water quality.

2. FISHERIES MONITORING

Below the deconstructed dam, fisheries monitoring surveys will occur in selected locations in the study area during late spring or summer fro the first five years after construction. Thereafter, fisheries surveys will occur ever other year for the next five years. Primary emphasis will be placed on detecting the presence of salmonids in the study area. Additionally, fisheries/aquatic habitat will be monitored during fish surveys. Habitat parameters such as streamside vegetation, stream substrate, riffle:pool ratios, pool depths, barriers to fish passage, stream flows, and stream velocities will be measured.

In the former reservoir area, fisheries surveys will be conducted every year for a period of ten years following constructions to ensure that the constructed channel provides for fish passage and that recovery of vegetation along the sideslopes is occurring as expected.

3. WILDLIFE MONITORING

(a). RIPARIAN BIRDS

Riparian bird surveys will be conducted in the summer and spring season in the former reservoir area for the first 5 years. Thereafter it will occur in spring and summer every other year to document that the area is recovering and beneficial impacts to riparian species are occurring.

In River Reaches below the deconstructed dam, surveys spring surveys will be conducted for the first 5 years following dam deconstruction, and then conducted every other year to document the beneficial impacts to riparian birds from the recommended plan.

(b). AMPHIBIANS

Protocol surveys for the California red-legged frog and the arroyo toads will be conducted yearly in the former reservoir area and in selected (suitable) locations in the downstream reaches, for the first 5 years following construction. Thereafter, surveys will occur every other year.

VII. SUCCESS (PERFORMANCE) CRITERIA, REPORTING & ADAPTIVE MANAGEMENT

A. SUCCESS (PERFORMANCE) CRITERIA

Success or failure of the restoration will be based on: 1) whether or not fish passage opportunity is restored through the former dam area (but not based on achieving a specific number of steelhead returning to the study area), 2) whether giant reed is effectively eliminated from the study area such that riparian habitat quality is improved/restored, and 3) whether natural

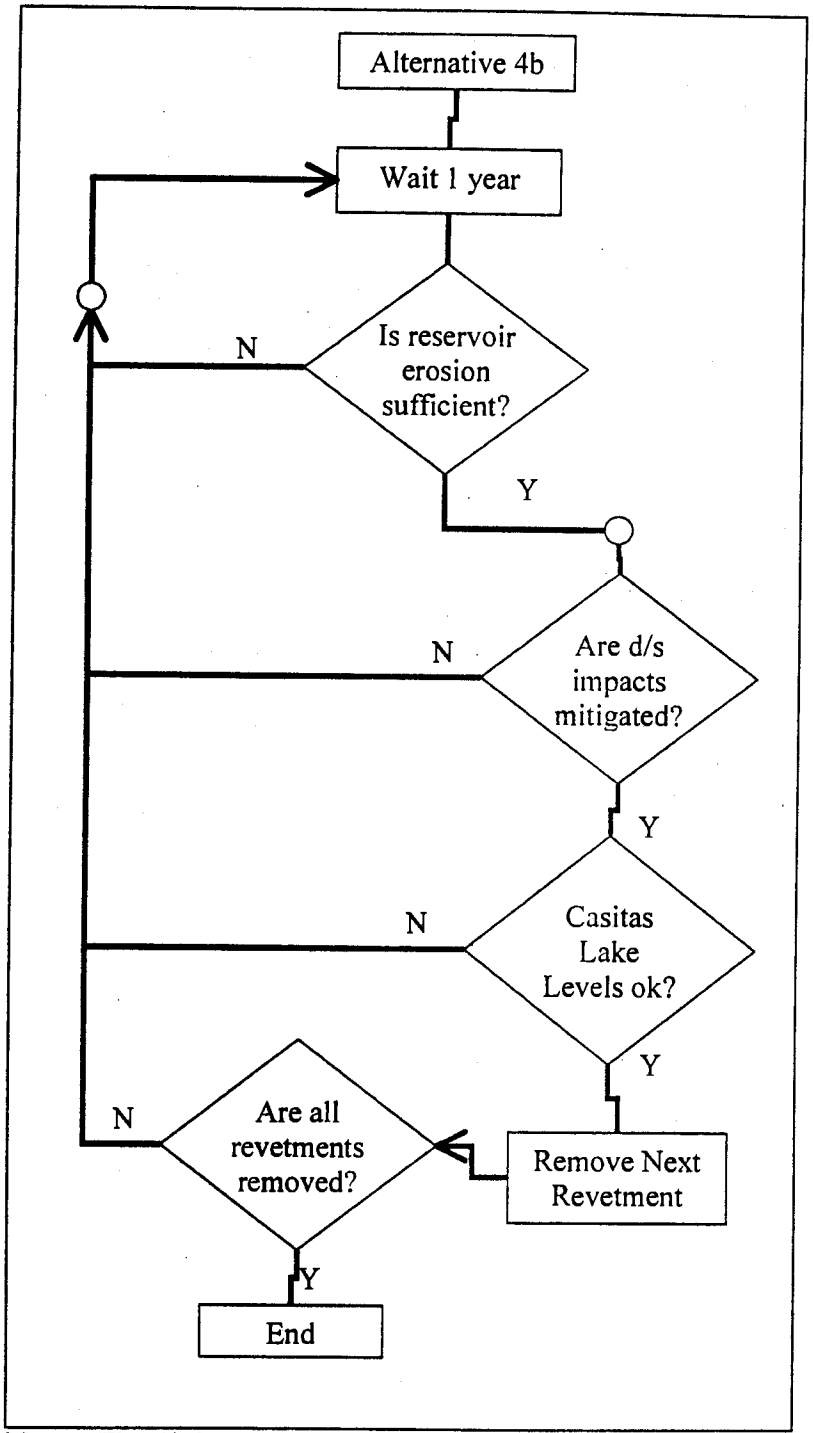
sedimentation processes are approaching a state of equilibrium (i.e., whereby sediment entering the river and leaving the river to the ocean are in balance) such that the mosaic of channel forms characteristic of an undammed southern California river show signs of restoration.

Monitoring will occur as identified in Section 4, above; Monitoring Reports would be prepared at the end of the year by the Corps/Local Sponsor for the first 10 years after initial construction. The need to make adjustments to the constructed project will be based on the results of the Monitoring Reports. If the steelhead, riparian and natural processes components of the riparian ecosystem demonstrate signs of being restored, no modifications will be made.

After the first ten (10) ten years, the non-Federal Sponsor will prepare the Monitoring Reports as established by the Technical Committee (see discussion in the following section).

Hydraulic conditions and sedimentation will be assessed per the following:

1. Adequate flood capacity at each site of flood risk
2. Acceptable deposition behind Robles Diversion Dam and in the entrance to Robles Canal
3. Acceptable turbidity levels and/or duration in Ventura River and Estuary
4. Acceptable turbidity levels and/or duration in Robles Canal
5. Acceptable impacts in WQ at Lake Casitas.
6. Erosion of sediment as temporary structures are removed.



Notes: The d/s impacts are listed in the above paragraph. (Robles operations, Flood risk, Casitas water quality). If it is found that removal of revetment hampers the diversion of water, then the levels of Lake Casitas will be monitored to ensure that revetment removal does not occur during drought periods.