CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Battle Creek Salmon & Steelhead Restoration Project

Project Proponents: US Bureau of Reclamation/Department of Fish and Game
Amount Recommended for Funding: $27,158,100

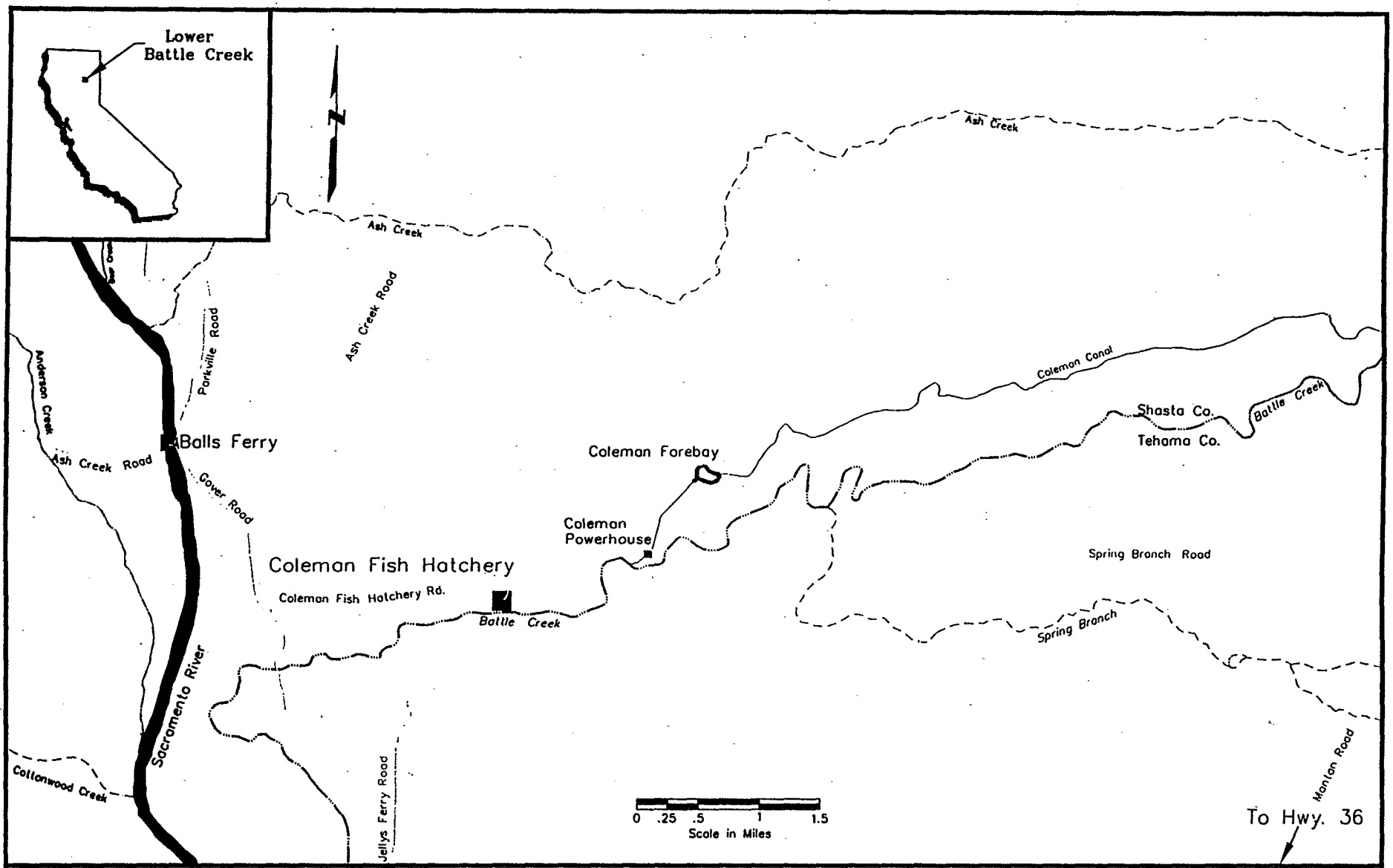
Purpose and Benefits: The Battle Creek Project is a large and complex project which is expected to result in the reopening of 42 miles of historical anadromous fish habitat and the improvement in water quality for Coleman National Fish hatchery. The project would implement the following changes to PGE's facilities and operations on Battle Creek's North and South forks and key tributaries:

- Removing 5 diversion dams
- Laddering three diversion dams and screening their associated diversions
- Increasing flow releases from all remaining diversion dams affecting anadromous fish on Battle Creek
- Constructing powerhouse tailrace connectors to eliminate redundant screening requirements and mixing of North and South Fork waters

The total cost of the project is $50,509,000 of which 27,158,000 (54%) has been requested from CALFED. The remaining funds are being provided by PGE and private foundations. Support of this project allows the leveraging of a substantial amount of funding which will be applied toward achieving CALFED's ecosystem restoration goals. The proposed project is well integrated with previously funded work on Battle Creek which includes an Interim Flow Agreement which has been extended to 2001, restoration planning and feasibility, engineering design, baseline monitoring and watershed stewardship.

The project will make use of monitoring and data collection methods such as underwater video, fish trapping, fish counters and screw traps to monitor adult and juvenile populations. Snorkel, carcass, redd and aerial surveys will be used to monitor spawning efforts. Water temperature and volume will be measured at existing and new monitoring stations.

Integration Panel Comments: The Integration Panel believes that investing in the Battle Creek Salmon and Steelhead Restoration Project provides a unique opportunity to ensure anadromous fish access to historical habitat which is currently unavailable to them. Of particular importance is the "safety net" that Battle Creek can provide to protect winter run chinook salmon and steelhead from extinction. The geographic and genetic diversity that this project can provide are an important part of recovering species at risk. The opportunity to restore habitat of this quality and quantity is extremely rare.



Location Map for
LOWER BATTLE CREEK SYSTEM
near Balls Ferry, California

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Northern District

E-031203

E-031203

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Lower Butte Creek Project - Phase II

Preliminary Engineering and Environmental Analysis for Butte Sink Structural Modifications and Flow-Through System

Project Proponent:

Ducks Unlimited/ California Waterfowl Association

Amount Recommended for Funding:

$750,000

Purpose and Benefits: Improved fish passage through the Butte Sink and its associated water control structures is expected to improve the long-term sustainability of natural production of anadromous fish populations, in particular spring-run chinook salmon and steelhead. Maintaining the viability of associated managed wetlands and agriculture will also benefit numerous other species.

Phase II of the Lower Butte Creek Project is the logical progression of work to improve fish passage through the Butte Sink and its associated water control structures. Phase I of the lower Butte Creek Project was completed in June of 1998 and resulted in an "existing conditions report" that detailed the water control structures located in the lower Butte Creek area and listed alternatives to improve fish passage at each control structure site. Phase II will work with stakeholder groups to select a preferred alternative at each of four sites resulting in preliminary design of major structural modifications.

Additional funding for Phase II activities will be provided by USFWS, USBR and the Four Pumps Agreement. Combined with the amount requested from CALFED, this results in a total of $1,625,000 for this project. An additional $875,000 will be leveraged toward achieving CALFED's ecosystem restoration goals.

Integration Panel Comments: Butte Creek is an important system for anadromous fish, particularly spring-run chinook salmon and steelhead This area has historically had a large number of fish passage barriers and has problems with fish becoming stranded and lost to entrainment. Substantial investment has already been made into Butte Creek with demonstrated success including use by increasing numbers of fish. Many earlier planning and feasibility studies are reaching completion. It is important to fund the implementation and construction of actions which have been identified as contributing to the solution of the problem.

The Integration Panel felt that additional work was needed on the project to improve the hypothesis to be tested and the monitoring and data collection. This is of critical importance in evaluating the success of the project and investment. A small group of Integration Panel members was formed to provide guidance to the project proponent on how to improve these components.

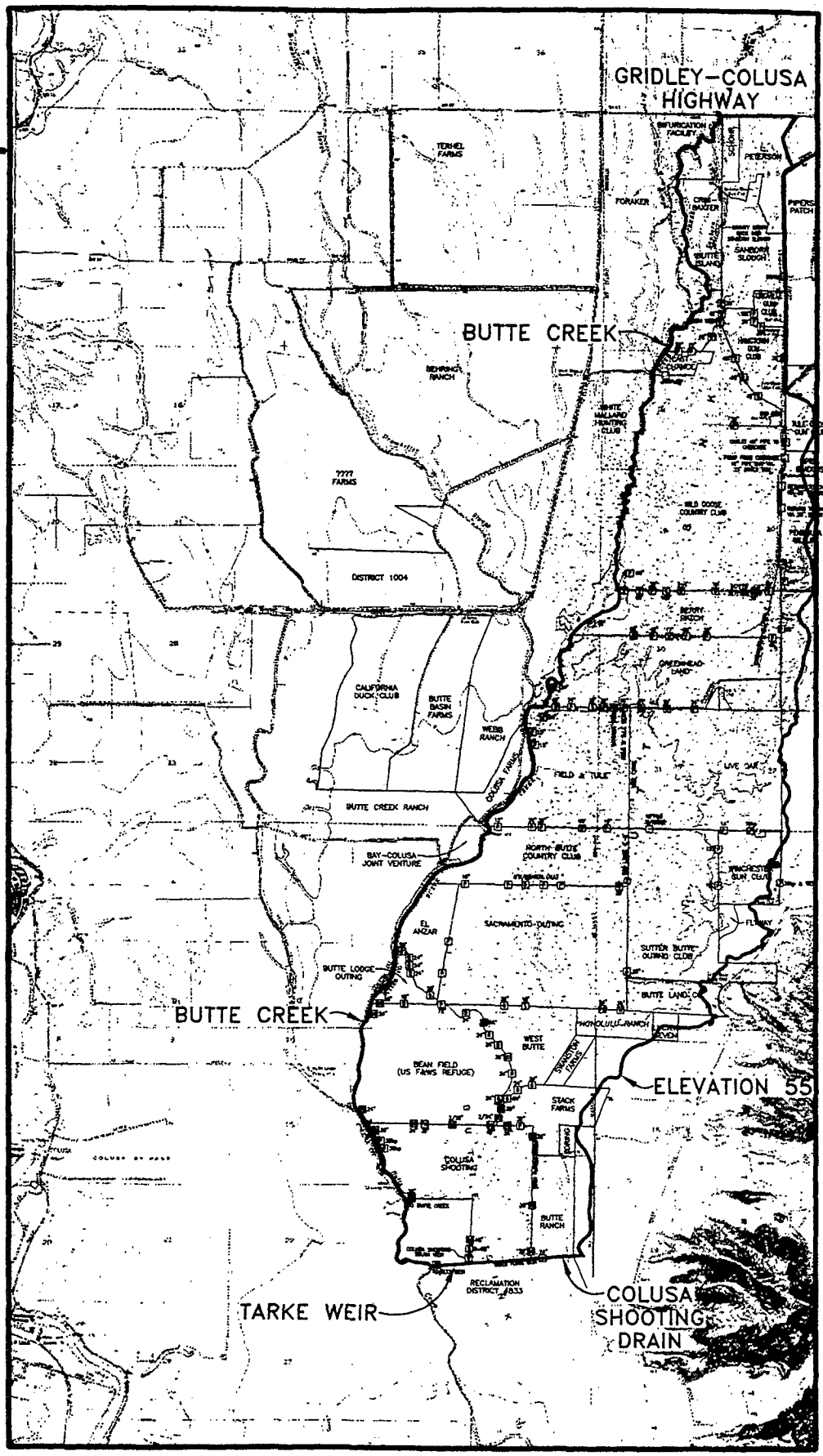
EXHIBIT A

LOWER BUTTE CREEK PROJECT

PHASE II

BUTTE SINK

PROJECT CONTAINS
10,500 ACRES±



DUCKS UNLIMITED INC.
WESTERN REGIONAL OFFICE

E—031205

E-031205

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

ACID Fish Passage Improvement Project: Phase III

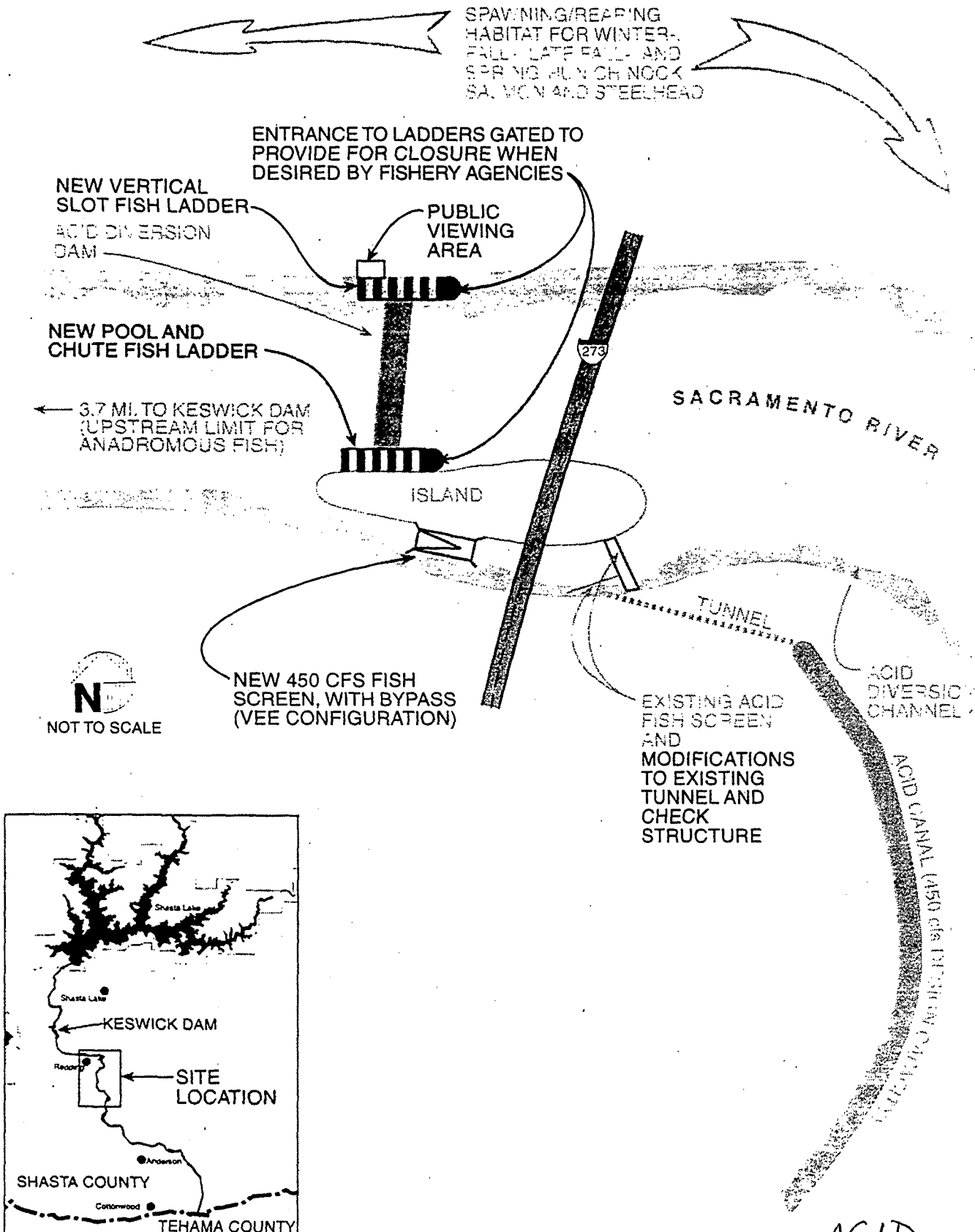
Project Proponent: Anderson-Cottonwood Irrigation District

Amount Recommended for Funding: $10,200,000

Purpose and Benefits: The ACID Project is located within a critically important reach for spawning chinook salmon and steelhead in the upper Sacramento River. This diversion has long been identified as a high priority entrainment and passage problem. To correct these problems, the project will construct of a new fish screen and two ladders. Phases I and II completed feasibility and alternatives analysis, final project design, and completion of environmental documents and permits. In Phase III, a construction contract is expected to be awarded by the end of fiscal year 1999 and construction will begin early in fiscal year 2000. It is planned that the new facilities will be fully operational by April 2001.

The project will directly benefit all anadromous Sacramento River fish species within this important spawning reach for federal and state-listed endangered winter-run chinook salmon and all other upper Sacramento River salmon runs currently proposed for listing. The project will also reduce stranding and entrainment, improve access to under utilized habitat and increase production of natural runs of anadromous salmonids and sturgeon.

Integration Panel Comments: Given that this project is not budgeted for funding under CVPIA until the year 2002, the Integration Panel believes it is a high priority action with numerous ecological and biological benefits and should be implemented this year. Some concerns were raised over cost sharing so the Integration Panel also provided additional guidance on the consideration of evaluating ACID's surplus water and the possibility of requiring ACID to provide water as an in kind cost share.



ACID

FIGURE 1b
PROJECT MAP

2633_04 (1/13/99)

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Prospect Island Monitoring Project

Project Proponent:

Department of Water Resources

Amount Recommended for Funding:

$885,737

Purpose and Benefits:

The Prospect Island Monitoring Project is necessary to measure the benefits to a variety of aquatic, avian and terrestrial species including threatened and endangered species such as Delta smelt, Sacramento splittail and Swainson's hawk which could result from the construction of the Prospect Island Habitat Restoration Project. The Prospect Island Habitat Restoration Project will restore approximately 1300 acres of shallow water habitat in the northern Sacramento-San Joaquin Delta creating shallow water freshwater emergent marsh, mudflat, shaded riverine aquatic, riparian and upland habitat.

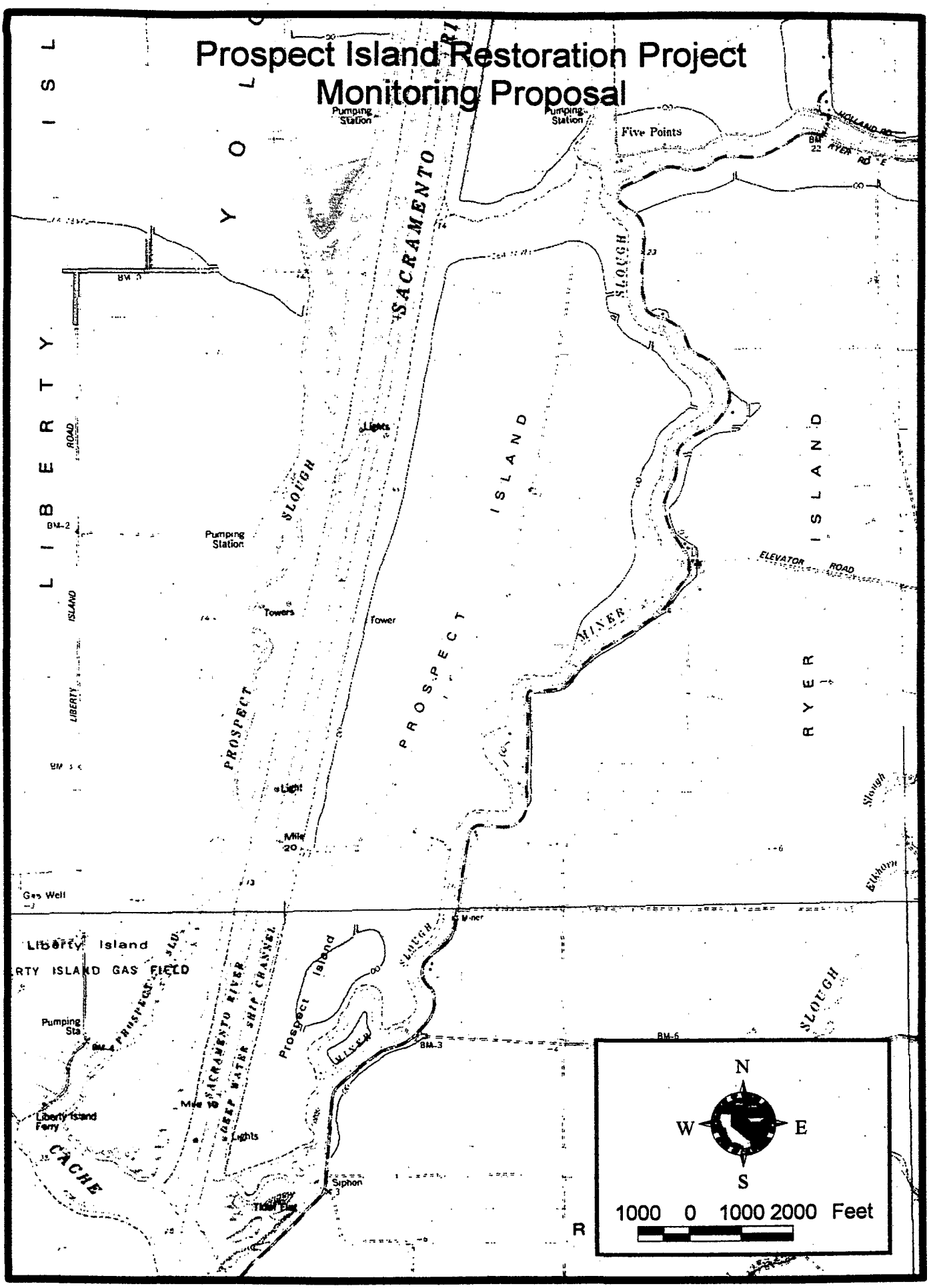
The monitoring program will provide CALFED with information to guide future decision making relative to restoration projects and provide the benefit of establishing a baseline which could be used as a guide for development and implementation of future projects. A comparison of the numbers and types of species found on Prospect Island will help decision makers evaluate the benefit in creating a managed restoration site. Monitoring information will also be used for adaptive management. For example, if post project monitoring shows the need for increased water circulation and greater water exchange, adaptive management can be applied by creating additional breaches to improve the overall success of the project. Without monitoring it would be impossible to determine whether any alteration to the project should be made to the project design.

Integration Panel Comments:

The monitoring of restoration projects is critical to evaluating their success or failure. Information obtained from pre and post project monitoring are the tools to be used in successful adaptive management. Prospect Island is a large and important project in the Delta that has tremendous potential to benefit important species. The Integration Panel strongly supported the monitoring project and recommended that:

- The project address how it fits into the larger context of long term monitoring and establish a plan for how subsequent monitoring will be implemented.
- The hypotheses need to be expanded and explain how the monitoring addresses the hypotheses.
- The monitoring plan be peer reviewed.

E-031208



E—031209

E-031209

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Preliminary Design and Engineering of Lower Western Stone Restoration Site, Merced River

Project Proponent: Department of Fish and Game/Department of Water Resources

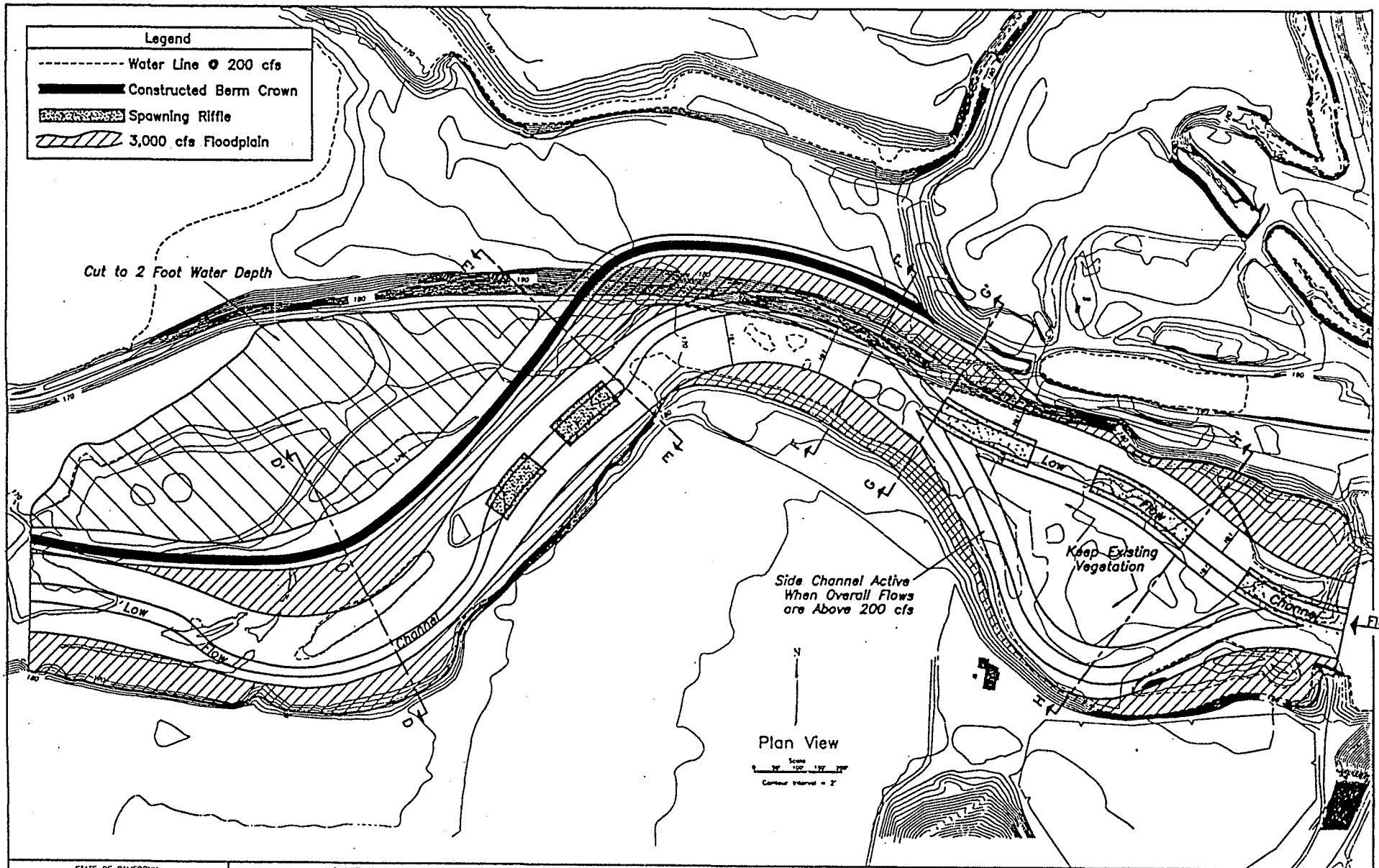
Amount Recommended for Funding: $125,000

Purpose and Benefits: Old gravel mining operations have created large pits in the Merced River floodplain destroying salmonid habitat and creating pools for predatory fish. Isolating these pits is critical to restore habitat and reduce the loss of juvenile fish to unnaturally high levels of predation. The Lower Western Stone project will develop preliminary design and engineering plans to address isolation or filling of the pit at Lower Western Stone, restoration of important salmonid habitat, and reconfiguration of the channel to improve river and floodplain dynamics. This project is closely linked to the Robinson Ranch and Ratzlaff Ranch Restoration Sites. When combined, these projects can restore over 3 miles of important aquatic and riparian habitats.

Funding for preliminary engineering and design has been identified from the CVPIA Anadromous Fish Restoration Program. Additionally, the Four Pumps Agreement managers have identified funding for project management, construction and other items as needed. With these partners, $885,000 will be leveraged toward achieving CALFED's ecosystem restoration goals.

Integration Panel Comments: Implementation of this gravel pit isolation project in conjunction with other ongoing efforts is critical to restoring important salmonid habitat and reducing the existing loss of juvenile fish to unnaturally high levels of predation. To ensure continued local coordination and that the project meets the stated objectives, the Integration Panel recommended the following conditions:

- Require coordination between the Corps, Merced ID, and DWR.
- Refine the project hypotheses. Consider efforts to define hypotheses and associated monitoring for similar projects on the Stanislaus and Tuolumne rivers, as well as comments resulting from the recent Peer Review Forum on Tuolumne River smolt survival investigations.



E-031211

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Phase I - Merced River Salmon Habitat Enhancement: Robinson/Gallo Project, Ratzlaff Reach Site

Project Proponent: Department of Fish and Game/Department of Water Resources

Amount Recommended for Funding: $1,584,002

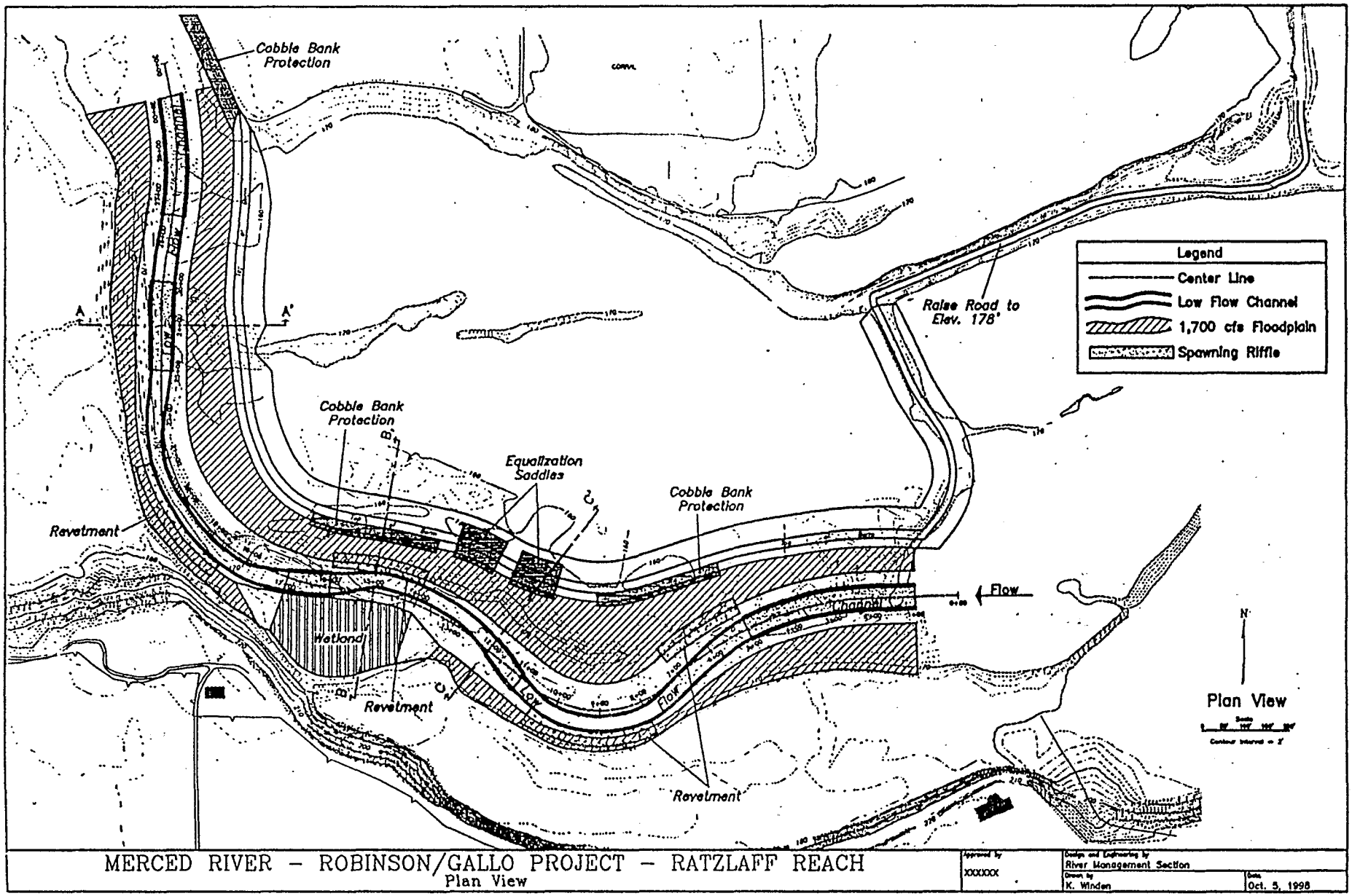
Purpose and Benefits: Old gravel mining operations have created large pits in the Merced River floodplain destroying salmonid habitat and creating pools for predatory fish. Isolating these pits is critical to restore habitat and reduce the loss of juvenile fish to unnaturally high levels of predation. With design engineering complete, the Ratzlaff project will begin construction to isolate predator habitat and create improved habitat for chinook salmon and salmonid species. This will include isolating approximately 45 acres of captured ponds, reconfiguring the channel and increasing spawning habitat, and creating floodplain that will be replanted with native riparian vegetation. This project is closely linked to the Lower Western Stone Project. When combined, these projects can restore over 3 miles of important aquatic and riparian habitats.

The Four Pumps Agreement has already provided funds for design engineering and will contribute additional monies for the remainder of the project. Additional funding has also been identified from the CVPIA Anadromous Fish Restoration Program. With these partners, $3,280,000 will be leveraged toward achieving CALFED's ecosystem restoration goals.

Integration Panel Comments: Continuation of this gravel pit isolation project as well as the Lower Western Stone project is important to restore habitat and reduce the loss of juvenile fish to unnaturally high levels of predation. Ready to go to construction, the Integration Panel recognized the time-sensitivity of funding this project this year. To ensure continued local coordination and that the project meets the stated objectives, the Integration Panel recommended the following conditions:

- Require coordination between the Corps, Merced ID, and DWR.
- Refine the hypotheses. Consider efforts to define hypotheses and associated monitoring for similar projects on the Stanislaus and Tuolumne rivers, as well as comments resulting from the recent Peer Review Forum on Tuolumne River smolt survival investigations.

E-031212



MERCED RIVER – ROBINSON/GALLO PROJECT – RATZLAFF REACH
Plan View

Approved by	Design and Engineering by
XXXXXX	River Management Section
Drawn by: K. Winden	Date: Oct. 5, 1998

E—031213

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Tuolumne River Special Run Pool (SRP) 10 Restoration

Project Proponent: Turlock Irrigation District

Amount Recommended for Funding: $160,000

Purpose and Benefits: Old gravel mining operations have created large pits in the Tuolumne River floodplain destroying salmonid habitat and creating pools for predatory fish. Additionally, recent high flow events have breached private levees designed to separate the mining pits from the river which provides access for predatory fish to enter the channel and prey upon juvenile anadromous fish, in particular San Joaquin fall-run chinook. Since nearly all naturally produced juvenile salmon must pass through this project site, isolating SRP 10 is critical to restore habitat and reduce the loss of juvenile fish to unnaturally high levels of predation.

The SRP 10 restoration project will rebuild a portion of the Tuolumne River channel in the next three to four years. In the short term, funding will be provided to cover an additional year or pre-project monitoring and to facilitate the repairs to a breach in the dike. The repair of the dike will eliminate two years of predation and entrapment in the pond adjacent to SRP 10 prior to the full restoration work being constructed.

Previous funding for this project has been provided by the CVPIA Anadromous Fish Restoration Program. This project is identified as a high priority action in the local Tuolumne Restoration Plan and is coordinated with other ongoing restoration projects in this reach.

Integration Panel Comments: The Integration Panel believed this was an excellent opportunity do pre-project monitoring to learn more about fish use in this area, and also an important step to reducing predation to juvenile salmon. This project, combined with the other projects on the Tuolumne, will move toward meeting CALFED ecosystem restoration goals as well as goals identified in the local restoration plan.

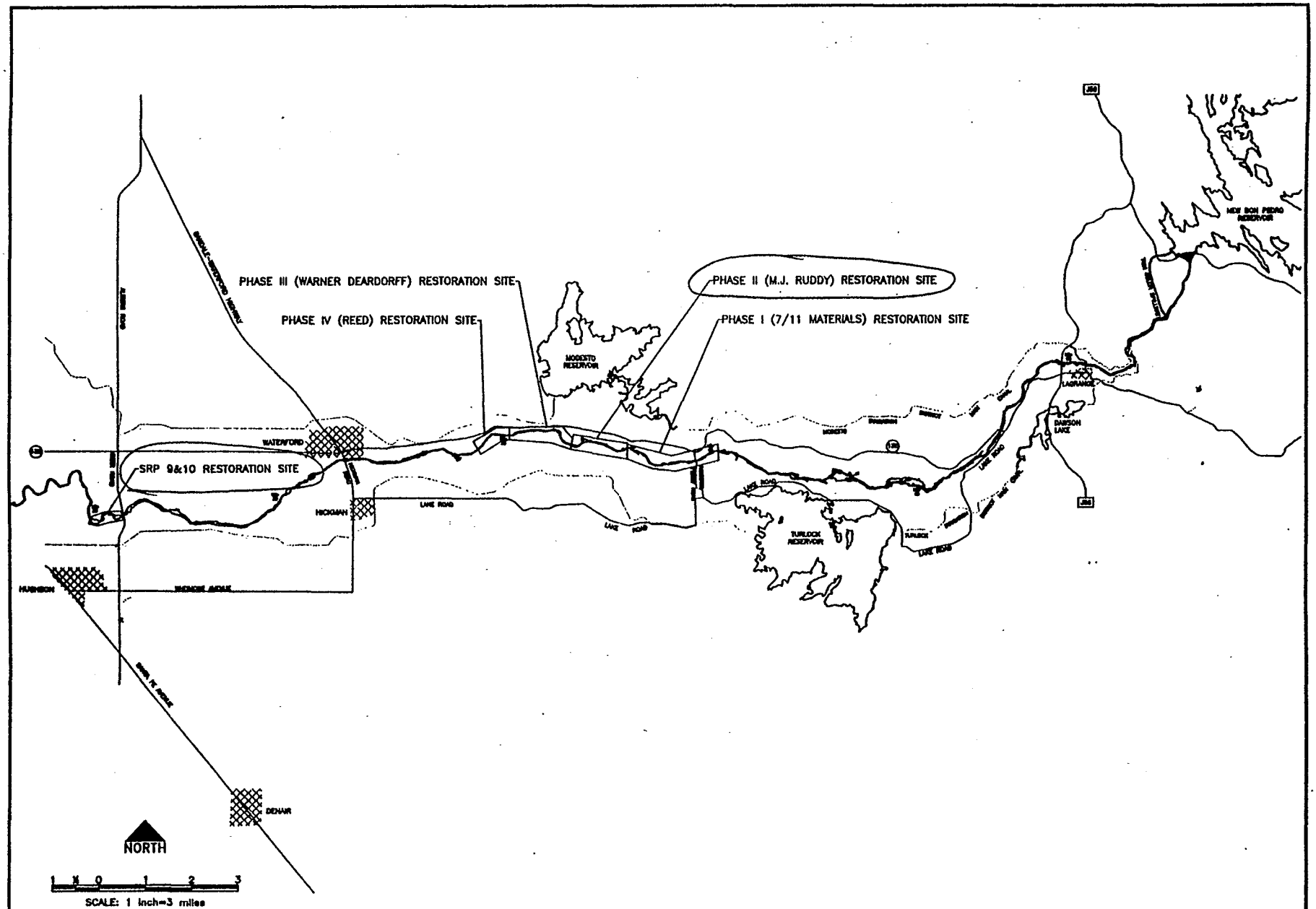


FIGURE 2 TUOLUMNE RIVER
GRAVEL MINING REACH AND SRP 9&10
RESTORATION SITE LOCATIONS

6/18/98

McBain & Trush 1998

E-031215

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Tuolumne River Mining Reach Restoration Project No. 2 - MJ Ruddy Segment

Project Proponent: Turlock Irrigation District

Amount Recommended for Funding: $3,235,000

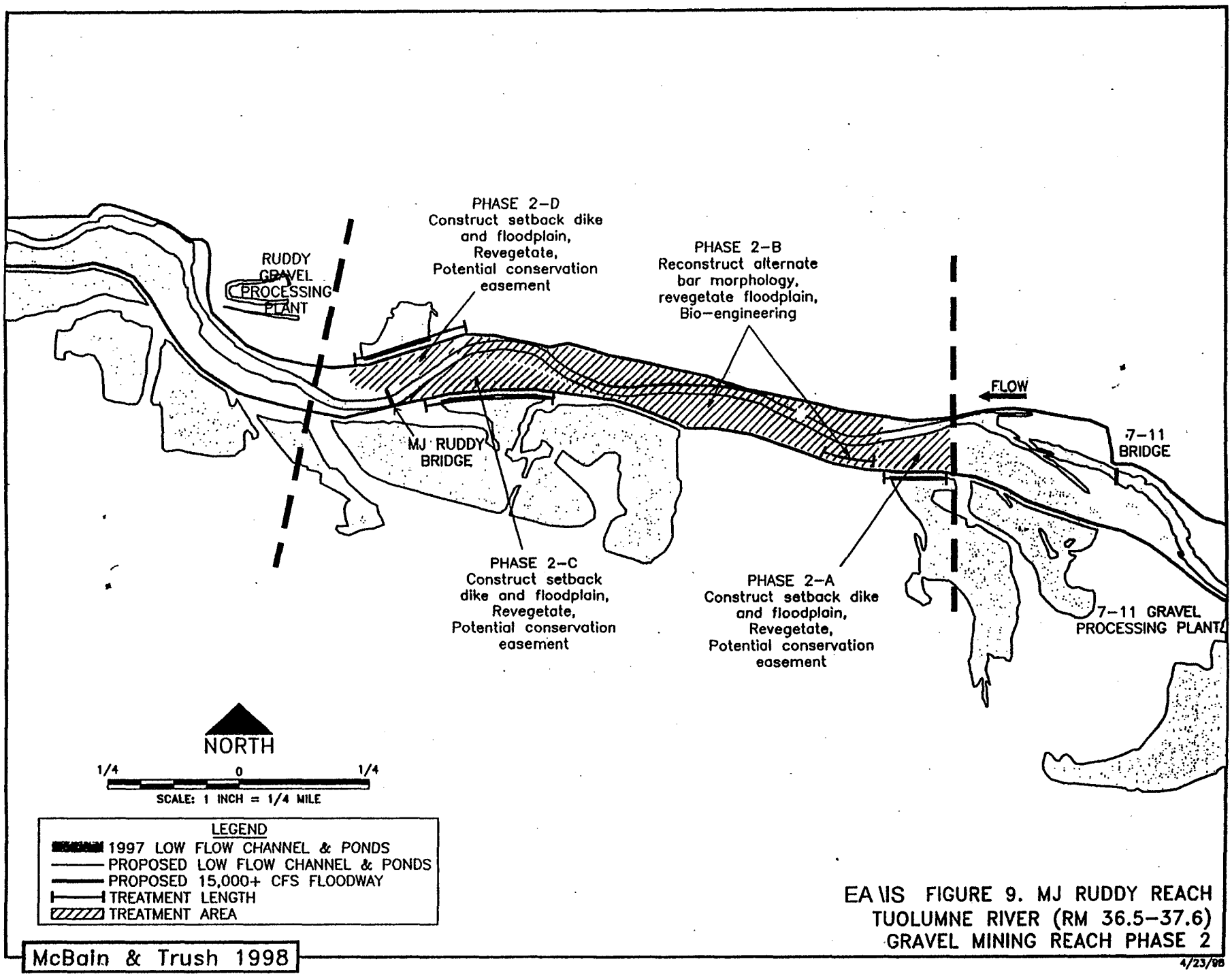
Purpose and Benefits: Old gravel mining operations have created large pits in the Tuolumne River floodplain destroying salmonid habitat and creating pools for predatory fish. The funding for construction of the MJ Ruddy segment, one of four projects on the Mining Reach Project, will restore instream aquatic habitat and shaded riverine habitat for the primary benefit of San Joaquin fall-run chinook salmon in the lower Tuolumne.

Significant funding for this project have been, or will be provided by the CVPIA Anadromous Fish Restoration Program to cover the cost of this over $6,000,000 effort. This project is identified as a high priority action in the local Tuolumne Restoration Plan and is closely coordinated with work occurring on the other three sections of Mining Reach.

Once completed, over 6.1 miles of the river will be restored to a more natural channel morphology which will improve salmonid habitat and help regain natural hydrological and geomorphic processes. Information gained from this project through monitoring and assessment can be applied to other rivers within the Central Valley.

Integration Panel Comments: The Integration Panel believed this was an excellent opportunity to partner and advance work on the lower Tuolumne. This project, combined with the other projects on the Mining Reach will move toward meeting CALFED ecosystem restoration goals as well as goals identified in the local restoration plan.

E-031216



EA\IS FIGURE 9. MJ RUDDY REACH
TUOLUMNE RIVER (RM 36.5-37.6)
GRAVEL MINING REACH PHASE 2

4/23/98

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Floodplain Easements - Lower Tuolumne and San Joaquin Rivers

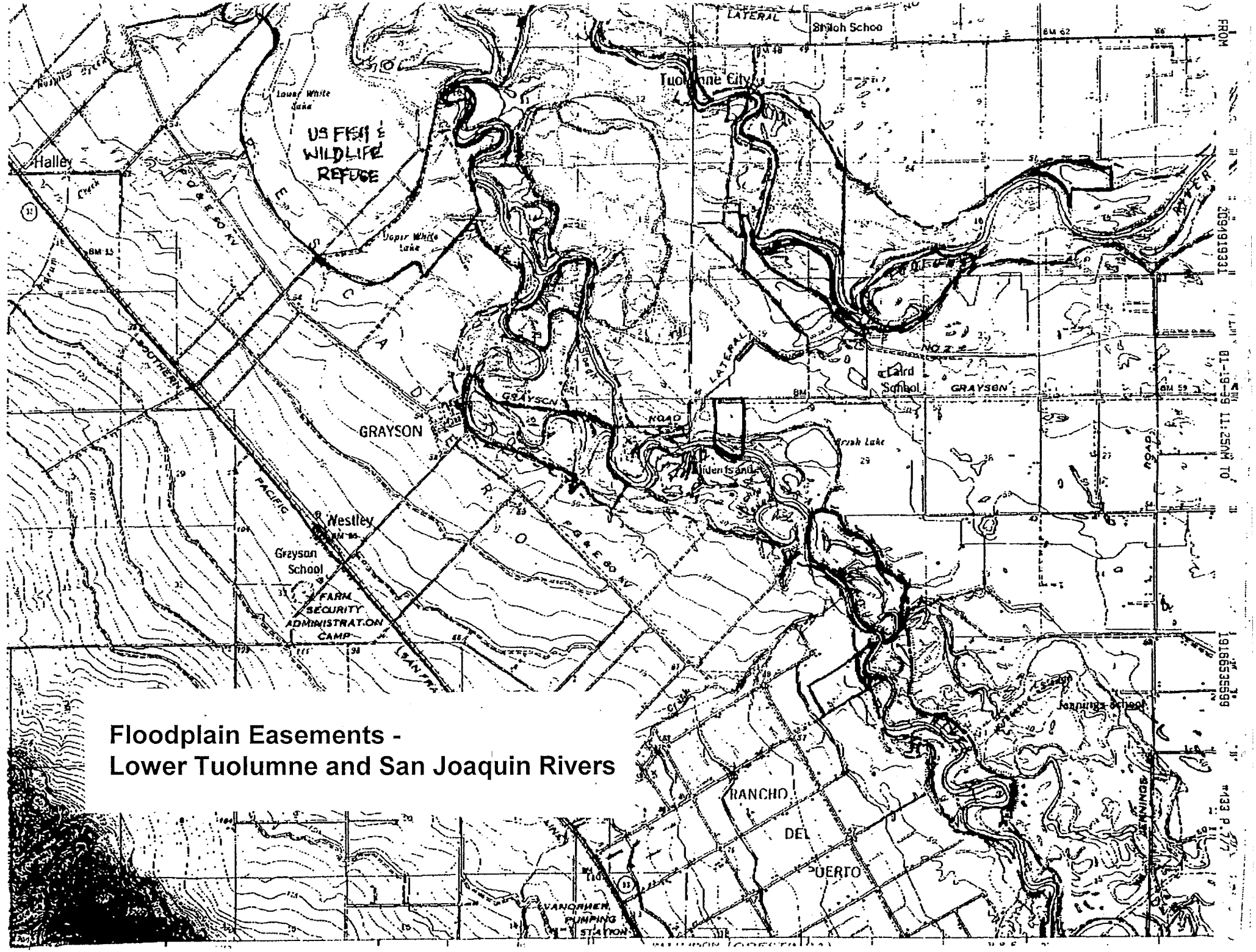
Project Proponent: USDA Natural Resources Conservation Service

Amount Recommended for Funding: $1,500,000

Purpose and Benefits: CALFED is being given the unique opportunity to participate in the USDA Emergency Watershed Protection Program which will allow CALFED to make significant progress towards ecosystem restoration goals while achieving multiple CALFED benefits. This program will convert approximately 1,200 acres of previously cultivated farmland to seasonal wetlands and shaded riverine aquatic habitat through conservation easements. This landuse change will provide benefits to important terrestrial and aquatic species including improved habitat, reduced water temperature and stream velocity, and improved food resources for migrating and rearing salmonids. In addition, this program will provide important flood control benefits including reduced public risk to flood damages and increased protection of lives and property.

This program allows retention of private property ownership and rights. Most of the areas affected consist of marginal soils which contribute minimally to the farm income and local economy. This program contributes to the economic viability of participating farms by providing compensation for marginal lands. This program is also consistent with the Sacramento/San Joaquin River Basin Comprehensive Study objectives.

Integration Panel Comments: The Integration Panel felt that participation in the USDA Emergency Watershed Protection Program is a unique opportunity to make significant progress towards ecosystem restoration goals while also achieving non structural flood protection benefits. The project was considered to be time sensitive with funding necessary in FY99 to allow participation in the program.



E-031219

E—031219

Cosumnes and Mokelumne River Feasibility Studies

East Delta Corridor Habitat Study

Project Proponent: The Nature Conservancy and East Bay Municipal Utility District

Amount Recommended for Funding: $400,000 to each

Purpose and Benefits: Identification of restoration and flood damage reduction opportunities in this area is a critical link for this corridor, and even more important given the recent progress towards acquisition of McCormack-Williamson Tract. CALFED's Ecosystem Restoration Program has identified restoration of the East Delta Habitat Corridor as a high priority area for improving habitat and ecological process, including flood processes. Restoration of this corridor will bolster rearing and migration of salmon from the Mokelumne and Cosumnes rivers, benefitting numerous species.

The Army Corps of Engineers is managing and conducting this feasibility study and work closely with The Nature Conservancy and East Bay Municipal Utility District and other as local partners. The study will identify, design and estimate costs for environmental restoration and flood damage reduction opportunities along the Cosumnes and Mokelumne Rivers, and will include an extensive public involvement process.

Integration Panel Comments: The Integration Panel felt the Corps study was an important first step to identify potential restoration actions in this critical corridor. They felt strongly that the project should be addressed in larger context and show how results can be applied to other areas within the Bay-Delta system. In that regard, they also requested that the project describe the benefits relative to the whole system.

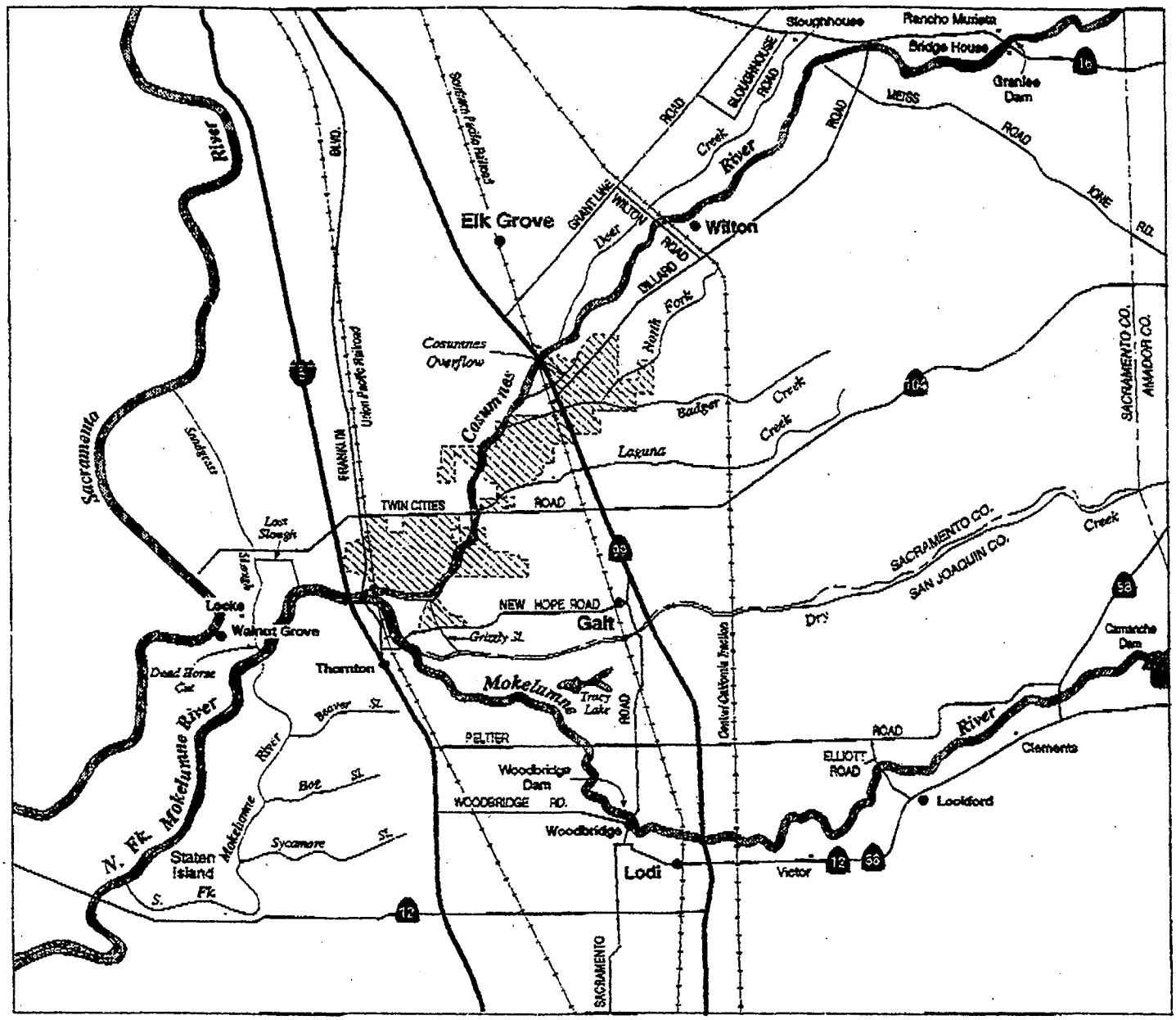


Plate 1
Study Area

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

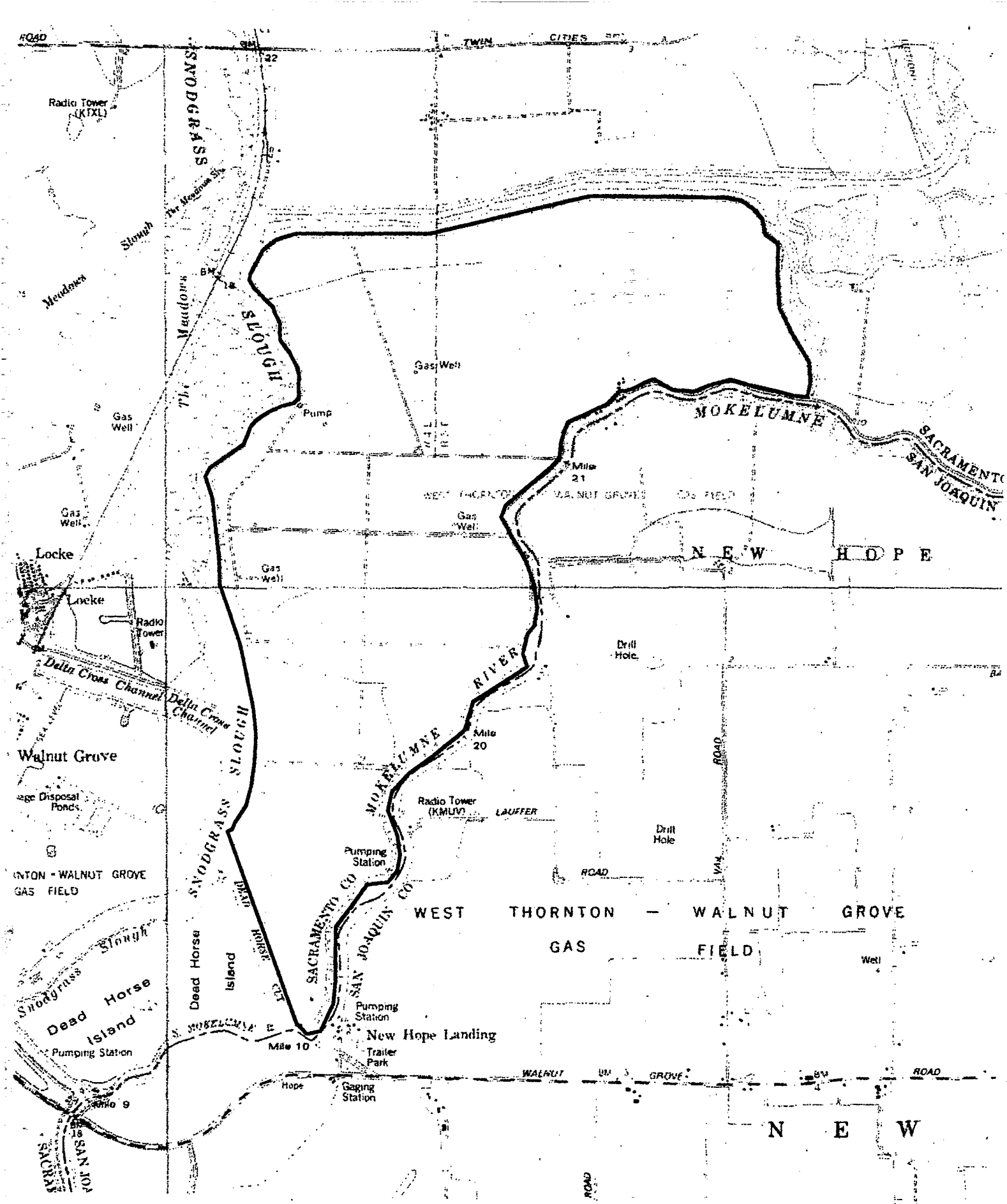
McCormack Williamson Tract Start Up Stewardship and Levee Pilot Program

Project Proponent: The Nature Conservancy (TNC)

Amount Recommended for Funding: $835,707

Purpose and Benefits: McCormack Williamson Tract is a critically important property in pursuing ecological restoration of the eastern delta and linking this restoration to the eastside habitat corridor along the Cosumnes and Mokelumne Rivers. Acquisitions and future potential restoration of this island also has the potential to address and resolve critical flood related issues in the area. In 1998, funds were approved to acquire the property. Originally TNC had intended to acquire the property and then immediately transfer the property to DWR and therefore startup and stewardship costs were not included in the cost of the property. DWR has declined to accept the property at this time, therefore funds are necessary for the acquisition and stewardship of the land.

Integration Panel Comments: The Integration Panel strongly supports the acquisition of this property and is willing to recommend funding for any costs necessary to acquire it. Because negotiations on the property were not completed until the day the proposal was due, the Integration Panel was unable to evaluate accurate information relative to the acquisition of the property. The Integration Panel supported the baseline monitoring proposed for the project but felt it would benefit from a more comprehensive review during the public solicitation process and recommended that restoration planning and baseline monitoring (Tasks 4 and 5), be resubmitted during the public solicitation.



McCormack-Williamson Tract

CALFED Bay-Delta Program
Projects Recommended for Funding as Designated Actions in FY99

Assessment of Ecological and Human Health Impacts of Mercury in the Bay-Delta Watershed

Project Proponent: Department of Fish and Game
Amount Recommended for Funding: $3,700,000

Purpose and Benefits: It is critical to the success of future restoration activities that there is a better understanding of information that will lead to the reduction of mercury in resident fish tissues to levels that are not harmful to humans or wildlife. In order to ensure that ecosystem restoration activities do not contribute to a human health risk from mercury contamination, studies need to be undertaken to better understand:

- the most bioavailable source of mercury in the watersheds
- where the most active methylation is occurring downstream
- existing levels of mercury in sport fish to better evaluate the potential human health risk
- whether mercury levels are high enough to affect birds in the Delta, and
- how mercury mines and mercury in contaminated sediments can be better managed.

Recent studies have determined that large amounts of mercury are still being transported annually into the Bay-Delta. Methyl mercury is a potent human neurotoxin. The principal route of human exposure is through consumption of mercury contaminated fish. An objective or the CALFED Ecosystem Restoration Program is to restore aquatic habitat and increase fish abundance. However, unless there is a successful mercury control program increased fish populations could also be contaminated with mercury. As a result, a successful fish restoration program may increase an already significant human health problem.

Integration Panel Comments: The Integration Panel felt that this study could contribute significantly to the understanding of mercury and its relationship to ecosystem restoration activities. Addressing the issue of human health risk associated with contaminated fish is important to insure that there are no significant redirected impacts associated with the Ecosystem Restoration Program. Because of the importance of this study and its potential to be challenged, the Integration Panel is extemely concerned that the study be scientifically sound and have imposed the following conditions on funding:

- Independent scientific peer review be completed as the first task of the study and be presented to CALFED for consideration as a deliverable.
- The applicant provide information on previous peer reviews of this study design
- The study area be expanded to include San Pablo Bay.