

Exhibit A**Scope of Services****a. Background of the Project**

Sediments from locations in the Bay-Delta and tributaries have been shown to have contaminant concentrations above currently accepted sediment quality guidelines (U.S. Environmental Protection Agency 1997; Long et al. 1995; Brown 1998). However, these guidelines may not be appropriate for the Delta because these primarily, concentration-based criteria do not consider site-specific physical and chemical characteristics of the sediments, pore water, and overlying water column which affect bioavailability, and ultimately the environmental impact. Studies have shown that bulk sediments and sediment elutriates from Delta and upstream locations are toxic to aquatic life in place and when disturbed (Fujimura et al. 1995; Regional Water Quality Control Board (RWQCB), unpublished data 1995; California Department of Fish and Game (CDFG) unpublished data 1992). Contaminants of concern include salinity, ammonia, hydrogen sulfide, copper, tin, mercury, zinc, PAHs, dioxins, organophosphate insecticides, and DDT and other chlorinated compounds from agricultural, industrial, chemical, municipal, mining, and recreational operations. However, this information is fragmented among several, unrelated studies. The data suggest that the most contaminated sediments are closely associated with discharge outfalls (i.e., municipal sumps, acid mine drainage, agricultural drains) or sites nearest processing or manufacturing facilities. Sediments serve as pools of contaminants into aquatic food webs which can be transferred to higher trophic levels, including fish, shellfish, birds, and mammals including humans.

Ecosystem restoration projects proposed by CALFED may involve the removal, reuse, and disposal of sediments. The removal, reuse and disposal of Delta sediments may represent potential hazard to water quality and fish and wildlife because of sediment resuspension and leaching of interstitial water

from terrestrially deposited sediment. It is important to know whether removal, transport, or deposition of sediments positively influence the success of individual CALFED restoration projects or cause additional ecological damage.

Dredging activities in the Delta have been minimal due to a lack of information focused on Delta-specific sediment quality criteria and impacts of various sediment reuse and disposal alternatives on the environment. Agencies including the U.S. Army Corps of Engineers, Department of Water Resources and reclamation districts dredge sediments from Delta channels to maintain navigation, create wetlands, and reinforce levees. Delta dredging materials could be used in the CALFED Delta Ecosystem Restoration activities (i.e., creation of wetlands and riparian areas). Reuse of dredged Delta sediments could include the following options: (1) levee placement, dry environment, land side; (2) levee placement, wetland, land side; (3) levee placement, waterside; (4) open water; (5) open water, capped and covered; and (6) unrestricted use. Presently, dredging activities are assessed on a project-by-project basis because there are no Delta-specific sediment quality criteria or comprehensive strategy for assessing sediment reuse and disposal options. The U.S. Environmental Protection Agency (1998) and Corps of Engineers have recently produced an Inland Testing Manual which provides guidance on how to determine the potential effects of dredged material on the physical, chemical, and biological components of aquatic environments. A similar approach could be used for investigating impacts to terrestrial and wetland environments.

CALFED should develop a Regional Dredge Material Management Plan (RDMMP) to guide the dredging, use, and disposal of Delta sediments in CALFED Ecosystem Restoration Programs. The RDMMP would have broader application in general dredging and levee maintenance activities. The RDMMP will contain a Comprehensive Strategy for Delta sediments and Delta-specific Sediment Quality Criteria. The RDMMP will allow the regulatory agencies to expedite pre-project assessment and monitoring and determine the appropriate reuse option or required disposal method.

The proposed sediment reuse and disposal alternatives and sediment quality criteria contract will

accomplished six tasks during two phases. The following six tasks are: Phase I: (Task 1) convene an Advisory Panel under the existing Delta Levees and Habitat Advisory Committee to develop a Comprehensive Strategy for Delta sediments and quality criteria for assessing sediment reuse and disposal options; (Task 2) develop a Comprehensive Strategy by reviewing and assessing existing chemical, toxicological, and geographical information on sediment quality in the Delta and recommending studies to collect additional information within the context of existing regulations and dredging guidelines; (Task 3) receive approval from CALFED on the Comprehensive Strategy; and Phase II: (Task 4) develop Delta sediment quality criteria through the assessment of existing information and collection of additional information on sediment quality and environmental impacts associated with different sediment dredging, reuse, and disposal options; (Task 5) develop a RDMMP for use in the permitting process of sediment dredging, disposal and reuse activities in the Delta; and (Task 6) receive approval of the RDMMP from the Regional Water Quality Control Board.

b. Scope of the Project

We propose a two and a half year study to complete the full proposal.

c. Objectives and Benefits of the Project

The proposed contract would be done in two phases with the first phase culminating with the development of a Comprehensive Strategy for Delta sediments approved by CALFED, and the second phase culminating with the development of a RDMMP approved by the Regional Water Quality Control Board. This will allow for the removal, reuse, and disposal of sediments in CALFED Ecosystem Restoration projects which are consistent with protection of fish and wildlife, water quality, safe navigation, and structural integrity of levees. Ultimately, the Delta environment will benefit from sediment removal, reuse, and disposal activities which are protective of fish and wildlife.

d. Responsibilities of Each Party

The contract is administered by the Department of Fish and Game. The existing Delta Levees and Habitat Advisory Committee will oversee the work of the contract through an Advisory Panel

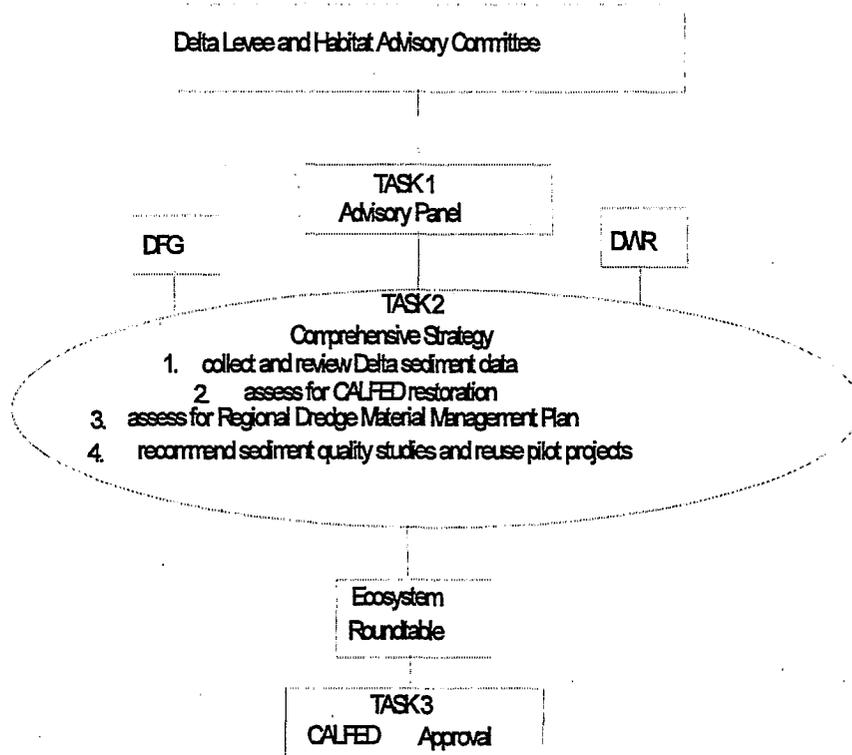
consisting of one representative each from the Department of Fish and Game, Department of Water Resources, Regional Water Quality Control Board, Corps of Engineers, U.S. Fish and Wildlife Service, Delta Protection Commission, and San Francisco Bay Institute (no direct charge to contract). Additionally, the Advisory Panel will seek assistance from one person (eligible for per diem expenses) from each of the following areas: (1) academic community (i.e., UC or CSU); (2) consulting expert (i.e., environmental engineering); (3) environmental interest (i.e., Delta Keeper or Sierra Club); and (4) levee maintenance district.

e. Work to be performed for the period of January 1999 to July 2001

Phase I - Comprehensive Strategy (January 1999 to January 2000)

Task 1. Convene Advisory Panel: January 1999 to July 2001

**Sediment Reuse and Disposal Alternatives and Sediment Quality Criteria
Phase I - Development of Comprehensive Strategy**



An Advisory Panel will be formed to undertake development of the Comprehensive Strategy for the assessment and control of Delta sediments and to provide guidance for the contract; the Advisory Panel will meet bimonthly. The Advisory Panel will serve at the pleasure of the existing Delta Levees and Habitat Advisory Committee. The eleven-member panel would consist of one representative from (1) Department of Fish and Game, (2) Department of Water Resources, (3) Regional Water Quality Control Board, (4) U.S. Army Corps of Engineers, (5) U.S. Fish and Wildlife Service, (6) Delta Protection Commission, and (7) San Francisco Estuary Institute. Additional assistance will be sought from one representative in the following areas: (8) academic community (i.e., UC or California State University); (9) consulting expert (i.e., environmental engineering); (10) environmental interest (i.e., Delta Keeper or Sierra Club); and (11) dredging interest (i.e., levee maintenance district). The Department of Fish and Game (or the Delta Protection Commission) would schedule meetings, prepare minutes, and secure meeting locations.

Task 2. Development of Comprehensive Strategy: January 1999 to January 2000

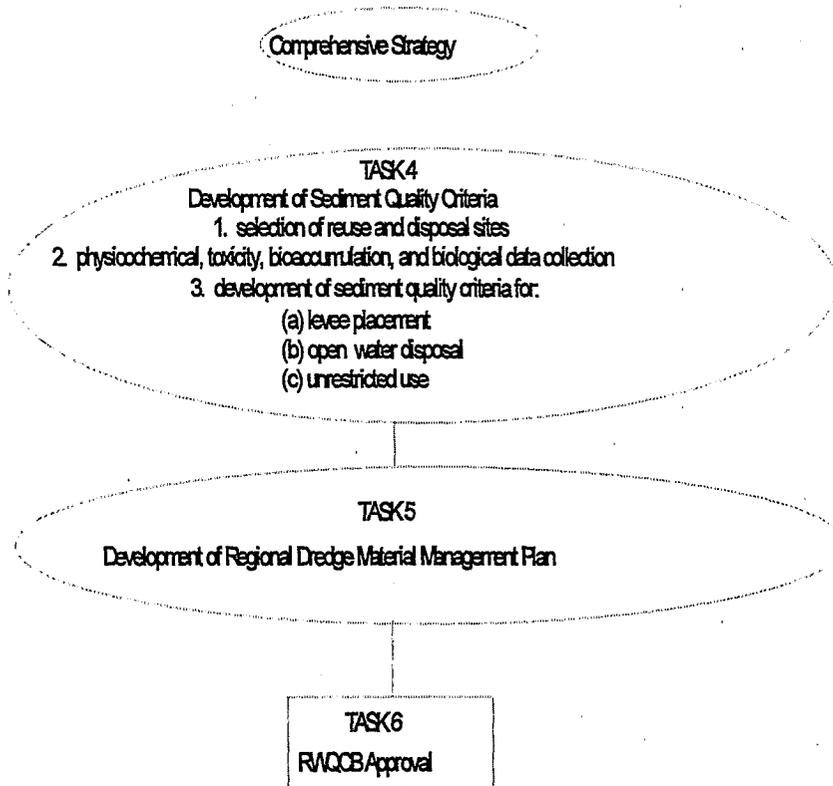
A Comprehensive Strategy will be developed by the Advisory Panel. The Department of Fish and Game and Department of Water Resources staff associated with the SB 34 Program would collect and present existing information on sediment quality in the Delta for review and assessment by the Advisory Panel. The need to develop additional information for Sediment Quality Criteria would be evaluated within the context of existing regulations and dredging guidelines. Experimental, pilot projects where the impacts of different sediment reuse and disposal options would be proposed. The Comprehensive Strategy developed by the Advisory Panel would include (a) discussion of available information on Delta sediment quality, (b) relevance of information to anticipated CALFED ecosystem restoration activities, and (c) recommended strategy for priority data gathering actions for collecting additional information on sediment quality and evaluation of impacts of sediment reuse and disposal alternatives.

Task 3. Approval of Comprehensive Strategy for Delta Sediments: January 2000

Following the development of a Comprehensive Strategy (including work plan for additional information and pilot projects) by the Advisory Panel (with feedback from the existing Delta Levees and Habitat Advisory Committee), the Comprehensive Strategy would be presented to the Ecosystem Roundtable and then approved by the CALFED Policy Group.

Phase II - Regional Dredge Material Management Plan (January 2000 to July 2001)

Sediment Reuse and Disposal Alternatives and Sediment Quality Criteria
Phase II - Development of Regional Dredge Material Management Plan



Task 4. Development of Sediment Quality Criteria: January 2000 to January 2001

The development of Delta-specific sediment quality criteria described in the Comprehensive Strategy will build upon previous efforts of the Bay Protection and Toxic Cleanup Program (BPTCP), U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration and others. These efforts have studied numerous sites where a variety of parameters including sediment toxicity, sediment chemistry, benthic community, fish tissue measurements, and other factors were measured and assessed. A tiered approach (i.e., Inland Testing Manual) would be used to evaluate the need for additional physical, chemical, toxicity, biological, and bioaccumulation information from sediments in the Delta.

It is anticipated that additional information on sediment quality throughout the Delta will be collected under the contract. Additionally, the contract will complete several pilot projects where various sediment dredging, reuse, and disposal options are monitored for environmental impacts. Some contaminants in the sediments may affect water quality and water column toxicity and bioaccumulation in aquatic organisms, especially during periods of sediment resuspension but have little impact on terrestrial use such as levee maintenance. Other contaminants in the sediments dredged for wetlands creation may not adversely affect open water but may be taken up by terrestrial vegetation. These issues will be addressed in studies using a tiered approach as suggested in the Inland Testing Manual (U.S. Environmental Protection Agency 1998). Although the number and type of studies to be completed are dependent on recommendations in the Comprehensive Strategy, it is currently anticipated that the majority of this work will be conducted by the Department of Water Resources (field studies) and the Department of Fish and Game (laboratory studies). The Advisory Panel would oversee these studies.

The physicochemical, toxicity, bioaccumulation, and biological data will be examined to identify useful indices of sediment quality for the Delta. Previously published sediment quality criteria (U.S. Environmental Protection Agency 1997; Long et al. 1995) will be evaluated for effectiveness in predicting aquatic toxicity and effects on water quality and the benthic communities and their

relationship to sediment reuse options and disposal alternatives. Delta-specific sediment quality criteria will be proposed for levee placement, open water disposal, and unrestricted use.

Task 5. Development of Regional Dredge Material Management Plan: January 2000 to July 2001

The proposed sediment quality criteria along with the Comprehensive Strategy for Delta sediments will be combined into a RDMMP. The RDMMP will be drafted by personnel of the Department of Fish and Game and Department of Water Resources under the direction of the Advisory Panel. The RDMMP can be used in the permitting process of sediment dredging, disposal, and reuse activities in the Delta. It will contain a decision matrix of contaminants, concentrations, anticipated aquatic and terrestrial impacts for various dredging, reuse, and disposal options, tiered pre- and post-project monitoring techniques for effective assessment, and mitigation measures. The RDMMP will be presented to the Regional Water Quality Control Board for approval and use in the permitting of sediment dredging, reuse, and disposal options for the Delta.

Task 6. Approval of RDMMP by Regional Water Quality Control Board: July 2001

Following the development of the RDMMP and concurrence by the Advisory Panel (with feedback from the existing Delta Levees and Habitat Advisory Committee), the RDMMP would be presented to the Regional Water Quality Control Board for approval as part of their permitting process.

f. Schedule for Milestones - Time Frame and Deliverables

Task 1: Convene Advisory Panel

Period: January 1999 - July 2001

Sub-tasks: The Department of Fish and Game or the Delta Protection Commission appoints the Advisory Panel, schedules bimonthly meetings, prepares minutes, and secures meeting locations.

Deliverable: Roster of Advisory Panel members (February 1999), and agendas and meetings minutes

every two months, beginning March, 1999.

Task 2: Development of Comprehensive Strategy

Period: January, 1999 -January, 2000

Sub-tasks: Obtain existing chemical, toxicity, biological, and physical information on Delta sediments, information from previous sediment dredging, reuse, and disposal operations, and anticipated future CALFED restoration activities and other Delta sediment-related projects. The Comprehensive Strategy will list priorities and a "road map" for studying the issue of sediment reuse and disposal alternatives and developing Sediment Quality Criteria for the Delta.

Deliverable: Comprehensive Strategy: January, 2000

Task 3: CALFED Approval of Comprehensive Strategy

Period: January, 2000

Sub-tasks: The Comprehensive Strategy is presented by the Delta Levees and Habitat Advisory Committee to the Ecosystem Roundtable and CALFED Policy Group for approval.

Deliverable: Comprehensive Strategy to CALFED Policy Group: January, 2000

Task 4: Development of Sediment Quality Criteria

Period: January, 2000 - January, 2001

Sub-tasks: Collect additional physical, chemical, toxicity, biological, and bioaccumulation information from sediments in the Delta associated with specific pilot sediment dredging, reuse, and disposal projects. These projects will involve levee placement and open water disposal of sediments. This information will be assessed in conjunction with existing sediment quality criteria and tiered testing procedures for predicting environmental impacts. This analysis will guide the development of proposed Delta-specific sediment quality criteria for various dredging, reuse, and disposal options. The criteria may contain maximum contaminant concentrations for various options and a decision matrix on recommended pre- and post-project monitoring activities.

Deliverable: Proposed Delta-specific Sediment Quality Criteria: January, 2001

Task 5: Development of Regional Dredge Material Management Plan

Period: January, 2000 - July, 2001

Sub-tasks: The Comprehensive Strategy and the proposed Delta-specific Sediment Quality Criteria will be combined into the Regional Dredge Material Management Plan (RDMMP) which will culminate the policy on the manner in which Delta sediments are evaluated and controlled in the future for CALFED ecosystem restoration and other sediment-related projects. Deliverable: RDMMP: July, 2001

Task 6: Approval of Regional Dredge Material Management Plan by Regional Water Quality Control Board

Period: July, 2001

Sub-tasks: The RDMMP is presented by CALFED to the Regional Water Quality Control Board for approval and use in their permitting process for Delta sediments.

Deliverable: RDMMP: July, 2001

Additional deliverables: Quarterly progress reports will be submitted beginning April 10, 1999 to July 10, 2001.

References

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Environment Canada. 1995. Interim sediment quality guidelines. Ecosystem Conservation Directorate, Evaluation and Interpretation Branch, Ottawa, Ontario, 63 pp.

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Keswick Reservoir sediments; final report to State Water Resources Control Board (I.A. 2-107-250-0). California Department of Fish and Game, Aquatic Toxicology Laboratory, Elk Grove, CA, March 31, 1995, 69 pp.

Long, E., D. MacDonald, S. Smith, and F. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environmental Management* 19:81-97.

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U.S. Environmental Protection Agency (USEPA). 1997. The incidence and severity of sediment contamination in surface waters of the United States - EPA-823-R-97-006,-007,008. Office of Science and Technology, Washington, D.C., September 1997.

USEPA. 1998. Evaluation of dredged material proposed for discharge in waters of the U.S. - Testing Manual, Inland Testing Manual - EPA-823-B-98-004. Office of Water and Office of Science and Technology, Washington, D.C., February 1998.

Exhibit B: Budget

Budget Justification

The following budget will be used for all contracting and invoicing activities. These are upper limits for the various activities associated for Phase I and Phase II of the contract.

Phase I Task	Labor (hours)	Salaries & Benefits	Misscel. Costs	Travel	Overhead (17.3%)	Total Costs
1 ¹				13,800	2,387	16,187
2	2,080	70,606	10,000		13,945	94,551
3			10,000		1,730	11,730
TOTAL		\$70,606	\$20,000	\$13,800	\$18,062	\$122,468

Task 1: Costs for hotel and per diem for four people for 15 meetings at \$130/meeting/person (\$7,800) and air fare for four people for 15 meetings at \$100/meeting/person (\$6,000).

Task 2: Costs for two Environmental Specialist III positions working half-time for 12 months in the development of the Comprehensive Strategy.

Task 3: Cost for producing the Comprehensive Strategy.

Phase II Task	Labor (hours)	Salaries & Benefits	Misscel. Costs	Travel	Overhead (17.3%)	Total Costs
4			271,549		46,978	318,527

¹Costs associated with Advisory Committee also occur in Phase II.

Phase II Task	Labor (hours)	Salaries & Benefits	Misscel. Costs	Travel	Overhead (17.3%)	Total Costs
5	1,040	35,303	5,000		6,972	47,275
6			10,000		1,730	11,730
TOTAL		\$35,303	\$286,549		\$55,680	\$377,530

Task 4: Cost for doing the field and laboratory work associated with the sediment quality criteria studies and sediment dredging, reuse, and disposal pilot studies.

Task 5: Costs for two Environmental Specialist III positions working quarter-time for 12 months on the production of the Regional Dredge Material Management Plan.

Task 6: Costs for producing the Regional Dredge Material Management Plan.