

C1049

Proposal for:

**MILDRED ISLAND WETLANDS HABITAT RESTORATION
PLANNING STUDY**

Submitted to:

**CALFED BAY-DELTA PROGRAM
1416 Ninth Street, Suite 1155
Sacramento, CA 95814**

Submitted by:

**MOFFATT & NICHOL ENGINEERS
3000 Citrus Circle, Suite 230
Walnut Creek, CA 94598**

July 2, 1998

M&N File No. 98183

Attachment H

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Mildred Island Wetlands Habitat Restoration, Planning Study
Applicant Name: Moffatt & Nichol Engineers
Mailing Address: 3000 Citrus Circle, Suite 230, Walnut Creek, CA 94598
Telephone: 925-944-5411
Fax: 925-944-4732

Amount of funding requested: \$ 372,985 for 1 years

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page of the Proposal Solicitation Package for more information.

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage Assessment | <input type="checkbox"/> Fish Passage Improvements |
| <input checked="" type="checkbox"/> Floodplain and Habitat Restoration | <input type="checkbox"/> Gravel Restoration |
| <input type="checkbox"/> Fish Harvest | <input type="checkbox"/> Species Life History Studies |
| <input type="checkbox"/> Watershed Planning/Implementation | <input type="checkbox"/> Education |
| <input type="checkbox"/> Fish Screen Evaluations - Alternatives and Biological Priorities | |

Indicate the geographic area of your proposal (check only one box):

- | | |
|---|---|
| <input type="checkbox"/> Sacramento River Mainstem | <input type="checkbox"/> Sacramento Tributary: _____ |
| <input checked="" type="checkbox"/> Delta | <input type="checkbox"/> East Side Delta Tributary: _____ |
| <input type="checkbox"/> Suisun Marsh and Bay | <input type="checkbox"/> San Joaquin Tributary: _____ |
| <input type="checkbox"/> San Joaquin River Mainstem | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Landscape (entire Bay-Delta watershed) | <input type="checkbox"/> North Bay: _____ |

Indicate the primary species which the proposal addresses (check no more than two boxes):

- | | |
|--|--|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | |
| <input checked="" type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Fall-run chinook salmon |
| <input checked="" type="checkbox"/> Delta smelt | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Splittail | <input type="checkbox"/> Steelhead trout |
| <input type="checkbox"/> Green sturgeon | <input type="checkbox"/> Striped bass |
| <input type="checkbox"/> Migratory birds | |

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May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Indicate the type of applicant (check only one box):

- | | |
|--|---|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input type="checkbox"/> Local government/district | <input checked="" type="checkbox"/> Private party |
| <input type="checkbox"/> University | <input type="checkbox"/> Other: _____ |

Indicate the type of project (check only one box):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Planning | <input type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring | <input type="checkbox"/> Education |
| <input type="checkbox"/> Research | |

By signing below, the applicant declares the following:

- (1) the truthfulness of all representations in their proposal;
- (2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and
- (3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Richard Donahelm
Richard Donahelm for Richard Rhoads

(Signature of Applicant)

**MILDRED ISLAND WETLANDS HABITAT RESTORATION
PLANNING STUDY**

EXECUTIVE SUMMARY

a. Project Title and Applicant Name:

Project Title: Mildred Island Wetlands Habitat Restoration
Planning Study
Applicant: Moffatt & Nichol Engineers (MNE)

b. Project Description and Primary Biological/Ecological Objectives:

This application requests funding for a Planning Study to: a) develop a habitat restoration plan for Mildred Island to maximize benefits for CALFED priority species; b) identify an implementation plan for the restoration effort; and c) determine the most advantageous method for public acquisition of the land to ensure preservation of habitat values under public stewardship. Acquisition of the property would likely be achieved through either a permanent conservation easement to a public agency or a non-profit conservation corporation for stewardship, or fee title acquisition. To this end, the owners of Mildred Island, MILLC Development (MILLC), and MNE have entered into a memorandum of understanding to proceed with this application. The location at Mildred Island and a site map are presented in Exhibits 1a and 1b respectively.

This project considers the restoration of wetland habitat on Mildred Island, which is approximately 1,250 acres in size. The Island is currently flooded with the exception of some perimeter levee remnants. The majority of Mildred Island is covered by relatively deep water (average depth greater than 10-feet). By constructing shallow water, tidal perennial and intertidal habitat, mid-channel islands and shoals, and fresh emergent wetlands within the Island, a greater diversity of habitat types and species populations can be achieved. This improvement will not only benefit the local ecosystem, but will help enhance the overall health of the entire Delta. Various species of fish, including winter-run Chinook salmon and Delta smelt should benefit from the habitat created by this project.

c. Approach/Tasks/Schedule:

MNE will oversee a Planning Study for determining the feasibility of restoring CALFED priority habitat consistent with the goals of the Ecosystem Restoration Program Plan (ERPP). The study will consist of five primary tasks, 1) Environmental Assessment and Planning to maximize the benefits for priority species and habitat types, 2) Preliminary Engineering to develop the design necessary to achieve habitat restoration goals, 3) Implementation including recommendations for construction phasing and construction funding sources, 4) Land Acquisition including a detailed appraisal and recommendations for acquisition either by permanent conservation easement or fee title, and 5) Permitting plan for permit acquisition and regulatory compliance. Each task consists of numerous sub-tasks that are discussed in detail in the proposal.

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We estimate this project will require approximately 12 months to complete from receipt of Notice to Proceed. Pending a favorable finding of the Study, funding requests for subsequent project phases will be made, including land acquisition, final design and environmental certification, restoration construction, and monitoring and data evaluation.

d. Justification for Project and Funding by CALFED:

This project will advance CALFED's goals of restoring several priority habitat types identified in the ERPP within the Central and West Delta Ecological Unit. Also, this project will promote a majority of the priority species identified in the ERPP (see Exhibit II).

e. Budget Costs and Third Party Impacts:

This proposal identifies budgetary costs by task and sub-task, which have been identified for this Planning Study (see Exhibit III). Funding for subsequent phases is not requested in this application but could be requested in later funding cycles.

Analysis of third party impacts indicates that the proposed restoration project should provide beneficial impacts such as improved flood protection for adjacent islands by providing wave sheltering, decreased levee maintenance for adjacent islands, improved opportunities for dredged material reuse and passive recreation. Negative impacts are minor, since the Island is already flooded in its current state.

f. Applicant Qualifications:

MNE has provided planning and engineering related services for numerous large wetlands restoration projects of similar nature. MNE has retained the services of other firms to assist in the areas of environmental planning, geotechnical engineering, surveying, and real estate appraisal.

g. Monitoring and Data Evaluation:

Since no construction will be performed at this time, ecological and biological monitoring will not be conducted. A comprehensive ecological and biological monitoring and data evaluation plan for the proposed restoration will be developed as part of this study as required.

h. Local Support/Coordination with other Programs/Compatibility with CALFED Objectives:

The landowner (MILLC) supports this restoration effort and has entered into a Memorandum of Understanding. Additionally, MILLC has received letters of support for the project from surrounding islands and State Senator Patrick Johnston. Compatibility with the stated CALFED objectives is evidenced by the basic premise of the project wherein shallow water and emergent habitats will be restored benefiting many priority species, while also enhancing flood protection for adjacent islands by providing wave sheltering.

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TITLE PAGE

a. Title of Project:

Mildred Island Wetlands Habitat Restoration
Planning Study

b. Applicant Information:

Moffatt & Nichol Engineers
Contact: Richard M. Rhoads, P.E.
3000 Citrus Circle, Suite 230
Walnut Creek, CA 94598
Phone: (925) 944-5411
Fax: (925) 944-4732
e-mail: rrhoads@moffattnichol.com

c. Type of Organization and Tax Status:

Moffatt & Nichol Engineers is a private, for profit environmental engineering company.

d. Tax Identification Number:

Moffatt & Nichol Engineers - 95-1951343

e. Participants/Collaborators in Implementation:

MILLC Development, LLC - Landowner
Jones & Stokes Associates, Inc. - Environmental Sub-Consultant
Hultgren-Tillis Engineers - Geotechnical Sub-Consultant
Chaudhary & Associates, Inc. - Surveying Sub-Consultant
Duncan Duncan and Associates, Inc. - Land Appraisal Sub-Consultant

**MILDRED ISLAND WETLANDS HABITAT RESTORATION
PLANNING STUDY**

PROJECT DESCRIPTION

a. Project Description and Approach:

In order to help carry out the objectives of the CALFED Bay-Delta Program's mission, we propose to develop a plan for restoring several CALFED priority habitat types on Mildred Island. The resource management goals of this plan are based upon the specific ERPP objectives for the Sacramento-San Joaquin Delta Ecological zone. We have assembled a team to develop a biologically and ecologically sound concept that is engineeringly and economically feasible.

This application requests funding for a Planning Study to: a) develop a habitat restoration plan for Mildred Island to maximize benefits for CALFED priority species; b) identify an implementation plan for the restoration effort; and c) determine the most advantageous method for public acquisition of the land to ensure preservation of habitat values under public stewardship. Acquisition of the property would likely be achieved through either a permanent conservation easement to a public agency or a non-profit conservation corporation for stewardship, or fee title acquisition. To this end, the owners of Mildred Island, MILLC Development, LLC, and MNE have entered into a memorandum of understanding to proceed with this application.

This project considers the restoration of wetland habitat on Mildred Island, which is approximately 1,250 acres in size. The vast majority of the Island is currently flooded with the exception of some perimeter levee remnants. The majority of habitat that presently exists on Mildred Island is considered to be sub-tidal due to the relatively deep water (average depth greater than 10-feet) that covers the Island. By constructing shallow water, tidal perennial and intertidal habitat, midchannel islands and shoals, and fresh emergent wetlands within the boundaries of the island, it is believed a greater diversity of habitat types and priority aquatic and terrestrial species populations can be achieved. This improvement will not only benefit the local ecosystem, but will help enhance the overall health of the entire Delta.

Previous wetland creation projects performed by the Corps of Engineers at Donlon Island and Venice Cut Island have proven the feasibility of creating islands and shallow inter-tidal zone habitat using dredged material. The restoration of habitat at Mildred Island will be achieved through the construction of low islands. It is likely that fill material for this project would be obtained from annual maintenance dredging and channel deepening projects within the Delta performed by the Corps of Engineers. Islands will be constructed either as stand-alone features within the island or attached to existing remnant levees, or both.

While this project will provide significant environmental benefits, it also possesses secondary benefits wherein these improvements will enhance the Island's value for passive recreational use as well as offering wave sheltering to adjacent island

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levees that currently endure significant damage from the large wave fetch during high wind events.

b. Proposed Scope of Work:

Our proposed project envisions five distinct and identifiable work tasks. Each task has been identified and associated sub-tasks have been detailed in Exhibit V. The specific tasks for this project are 1) Environmental Assessment and Planning, 2) Preliminary Engineering, 3) Implementation, 4) Land Acquisition, and 5) Permitting.

During the Environmental Assessment task of the project an assessment of the current ecological values existing within the island boundaries shall be conducted. From this, a projection of the various species benefiting from the island's current habitat shall be made. Deliverables shall consist of a bound report outlining the results of the Biological Assessment.

The Planning task will take information gathered from the Environmental Assessment and Preliminary Engineering tasks to develop a conceptual layout for the proposed restoration. Deliverables shall consist of a bound report with conceptual drawings. This report shall describe the proposed concept, ecological benefits, and impacts to existing habitat. It will describe the required ecological and biological monitoring program, should the restoration project be implemented.

Preliminary Engineering will consist of data gathering and analysis. Items such as hydrographic and topographic surveys shall be performed, wind and wave patterns studied, sediment transport analyzed, hydrodynamic analyses shall be performed for existing conditions and proposed improvements, and subsurface geologic conditions will be identified. From this information, volume calculations for fill will be developed, estimates of consolidation will be made for proposed fills, engineering drawings and sections developed, and construction cost estimates formulated. Deliverables for this task will consist of a report including the results of engineering calculations, proposed basis for design, preliminary engineering drawings showing specific aspects of the proposed restoration, and construction cost estimates.

An Implementation Plan will be developed to identify material sources for proposed habitat fills. Review of previous Corps of Engineers channel maintenance dredging projects will be conducted to develop historical annual dredging volumes and dredged material quality so that a realistic schedule can be developed recognizing dredged material source availability. Based on the availability of dredged material a master schedule for constructing elements of the project will be developed so that the plan can be implemented in phases depending upon dredged material availability. Deliverables shall include a detailed analysis of dredged material availability, identification of proposed construction elements, schedules for permit acquisition and construction, and recommendations for funding of future phases.

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The land acquisition task would consist of a market value appraisal of the property identified for restoration. Based on results of this appraisal, an analysis will be performed and a recommendation proposed for ultimate disposition of the property through either a permanent conservation easement or fee title acquisition. This analysis will identify the recommended recipient of the property whether that is a public agency such as Parks and Recreation, Fish and Game, Fish and Wildlife or a non-profit land trust. Deliverables for this task will include a report presenting the findings of the property appraisal and the recommendation for acquisition.

The Permitting task will identify the permits and approvals that will be required for the construction of the restoration project. Permit acquisition will be pursued in later phases of work.

A detailed schedule for each identified task is provided as Exhibit IV. We believe this project is unique wherein a property that is a liability for the current owners with limited habitat values, is converted into an environmental asset. This enables the owners to realize value for their property, provides the public an opportunity to restore CALFED priority habitat types to the Delta and provides beneficial improvements for many of the priority species identified in the ERPP, as well as flood protection benefits for adjacent islands.

While this proposal seeks funding for the five tasks identified herein, it is possible to perform only certain tasks should CALFED elect to fund only a portion of the proposal. Tasks 1, 2, and 3 are closely interrelated and must be performed as one unit. Tasks 4 or 5 could be funded separately. However, it is important to realize the purpose of this study is to develop a thoroughly researched plan that tests the feasibility of performing such a restoration effort and answers all the questions surrounding such a plan. To separate any of these tasks from the others by not funding the entire proposal would greatly diminish the value of the results obtained in the funded portions since questions would still remain relating to the non-funded tasks of the study.

c. Location:

Mildred Island is located in the southern Delta near Stockton, in western San Joaquin County, California reference Exhibits Ia and Ib. Mildred Island is a 1,250 acre island that is currently flooded over nearly its entire area with the exception of some perimeter levee remnants. Drainage from the San Joaquin River watershed envelops the Island on all sides. Mildred Island is bounded on the north by Mandeville Island, the east by McDonald Island, the south by Lower Jones Tract and the west by Bacon Island and is accessible only by boat. The Island is owned by MILLC Development, LLC. The landowner has entered into a memorandum of understanding with MNE to pursue this project.

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d. Expected Benefits:

Mildred Island is currently flooded over nearly the entire area and the relatively deep water depths (> 10 feet) limit the habitat values. The proposed project will restore CALFED priority habitat types on the Island.

Through the creation of shallow water tidal perennial and intertidal habitat, midchannel islands and shoals, and fresh emergent wetlands, a much greater Delta ecosystem value can be realized.

A prior study performed by the Corps of Engineers identified that shallow-water inter-tidal habitat in the Delta was nearly non-existent. The report indicates that habitat created by low-level islands is much more productive for fish than the deep flooded habitat that it replaced. The shallow water habitat provides more food for fish and waterfowl while providing valuable cover, foraging and breeding habitat for the majority of the fish community.

Creation of the low-level islands will primarily benefit Delta smelt, the fall, winter, spring and late-fall runs of Chinook salmon along with splittail. Species such as striped bass and migratory birds will benefit by the consequential improvements in the food chain. Also, smaller species will receive protection from larger predatory species in the shallow water habitat created.

Water quality improvements should be realized through the natural filtering process that occurs as water passes through the emergent vegetation such as reed mace and bullrush that remove contaminants. Additionally, shallow water areas will increase the ambient temperature of the surrounding water providing for increases in available food sources and species.

Exhibit II identifies the specific ERPP objectives that are addressed by this proposal. This project will provide for a much more balanced and diverse ecosystem than that which currently exists.

e. Background and Biological/Technical Justification:

The technical justification for this project stems from an analysis of the current state of the Delta. The Delta's original habitat contained shallow water emergent wetlands. As development progressed mostly for the purposes of agricultural production, these wetlands were eliminated through the construction of levees for land reclamation and subsidence of the agricultural lands due to dewatering and oxidation. Today, it is estimated that over ninety percent of all wetlands have been lost due mainly to human intrusion.

Accordingly, what remains of these wetlands are numerous narrow and deep channels and sloughs. Such features, while beneficial for agricultural, navigational and recreational purposes, provide for a drastic reduction in the original habitat

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balance in the Delta.

Creation of the proposed low level islands will provide a significant contribution towards the re-establishment of original Delta conditions. This project will provide a substantial basis for the re-establishment of both habitat and aquatic species that have been either eliminated or drastically reduced due to progressive intrusion into the Delta by mankind.

In order to provide a durable habitat that is capable of withstanding the erosive forces of current flow and waves, we intend to perform suitable hydrologic and climatic studies so as to identify the best features for island design, location and form to withstand the elements. Through this analysis, we will be able to produce a viable and long-standing habitat that is self-propagating.

Similar habitat projects, constructed on adjacent delta islands have demonstrated tremendous success. Research carried out on the previously constructed dredged-material islands at Venice Cut and Donlon Islands indicates the creation of shallow water tidal and intertidal habitat clearly benefits the fish and wildlife of the Delta.

Furthermore, in the early 1990's, Moffatt & Nichol performed a similar evaluation of Franks Tract for the State Parks and Recreation Department. The findings of this study clearly support the feasibility of performing similar restoration activities at Mildred Island.

The water depths at Mildred Island are presently too deep, and the water too turbid, to permit adequate penetration of sunlight to reach the bottom. This consequently severely limits the food available in the food chain for zooplankton, benthic invertebrates, small fish and waterfowl, and is the reason that the island currently provides only marginal ecosystem value.

The restoration of Mildred Island poses no agricultural land-use conflicts or water quality conflicts from flooding of agricultural land.

f. Monitoring and Data Evaluation:

Since no construction will be performed at this time, ecological and biological monitoring will not be conducted. A comprehensive ecological and biological monitoring and data evaluation plan for the proposed restoration will be developed as part of this study as required.

g. Implementability:

This project involves improvements constructed entirely within the boundaries of the subject property. The potential for conflict arising from permits, easements, encumbrances and environmental compliance should be minimal.

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Since the construction of low level islands will require the discharge of fill materials into the waters of the State, permits will need to be obtained from the Army Corps of Engineers and the State of California. Materials utilized for fill will be tested in accordance with the requirements of the permitting authorities.

Since the Island has been submerged for many years, it is reasonable to believe the action being proposed will not provoke the water quality concerns that flooding of lands currently in agricultural production would cause. On the other hand, turbidity concerns over placement of fill in open water will be addressed by mitigation measures developed as part of the Preliminary Engineering phase. The Corps of Engineers, Port of Sacramento, and Port of Stockton have all indicated they are supportive of utilizing dredged material from their respective projects for construction of restoration projects. Such use of this material provides a beneficial re-use alternative to more traditional means of disposing of dredged material. Section 204 of the Water Resources Development Act of 1992 provides the Corps of Engineers the necessary authorization to utilize dredged material to beneficially restore aquatic and ecologically related habitats. Accordingly, we believe the Corps of Engineers will likely participate in construction of the proposed improvements at Mildred Island in concert with their ongoing channel maintenance and deepening projects. However, it is necessary for CALFED to fund the development of the proposed restoration plan in order to enable this future cooperative construction.

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COSTS AND SCHEDULE TO IMPLEMENT PROPOSED PROJECT

a. Budget Costs:

Exhibit III has been prepared which identifies the specific tasks and sub-tasks of the proposed study. We are requesting CALFED provide the entire amount requested for the Planning Study. The only alternative sources for funding would likely come from the Corps of Engineers. However, to undertake this would require Congressional authorization, which occurs typically on a bi-annual basis. Furthermore, a "local sponsor" would be required to participate in 50% of the study costs. MILLC has no financial capability to undertake such a financial obligation and would have to request CALFED funding in any case. Consequently, we believe the most expeditious way to move the project forward is to request CALFED funding for the Planning Study at this time.

b. Schedule Milestones:

Exhibit IV presents the schedule for the study. Start and finish dates for each task and sub-task are identified on the schedule. We envision billing on a monthly cycle, based upon percentages complete for each sub-task of work.

c. Third Party Impacts:

Third party impacts resulting from the proposed project are beneficial, and include:

1. Improved opportunities for passive recreation.
2. Decreased levee maintenance costs for adjacent islands due to wave sheltering.
3. Reduced risk of flood damage resulting from levee failure for adjacent islands due to wave sheltering
4. Improve opportunities for reuse of dredged material.

Potential for negative impacts from this proposed action is minor, primarily associated with filling operations within the island boundaries. These include short-term impacts to existing habitat and species. However, the proposed restoration plan mitigates those impacts by creating priority habitat types in their place.

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APPLICANT QUALIFICATIONS

a. **Moffatt & Nichol Engineers (MNE):**

Development or restoration of wetlands requires expertise in various engineering disciplines. A feasible design draws from the experience of civil and structural engineers, combined with wetland biologists and coordinated with the Resource Agencies to devise a workable solution.

Key elements involved in a wetland project include dredging and disposal plan, tidal inlet design, vegetation plan, utility relocation, hydraulics, and culvert design. MNE boast experience in each of the areas and includes the development and application of hydrodynamic and water quality modeling. Models have been developed and calibrated in wetland environments specifically for the design of wetlands. The calibration has been by field testing at Bolsa Chica and Anaheim Bay. Modeling using accurate hydrodynamic algorithms and prototype data are invaluable aids in the design process.

Wetlands occur around bays and in estuaries. Many of these wetlands are exposed to daily tidal action. The rise and ebb of water in tidal marshes produces a zonation of vegetation type determined by both physical and biotic factors. These wetland areas are characterized by an assemblage of plants and animals, an ecological community, adapted to the particular conditions of this transition area between salt water and land.

Design of wetlands is an art that blends biological expertise with engineering methods. Many wetlands have been constructed which have not met expectations. This is often due to a lack of understanding of the hydrology of the habitat desired. Many variables must be considered in developing a productive wetland, and teamwork among the engineers and ecologists is an important element. Our approach emphasizes a team effort with Resource Agencies and wetland biologists to provide a proper water exchange in terms of tidal ranges and water quality parameters. Grading, sedimentation, plant growth, irrigation and fertilization are also important parameters to incorporate into the design. MNE offers a key element in the design team to see that the hydraulics meet project criteria to satisfy the overall objectives of the design.

MNE provides a wide range of services, with one of the largest coastal engineering staffs in the United States, complemented by an experienced civil and structural engineering staff, the firm is capable of handling large and diverse engineering projects. We have a rapport with resource agencies and have worked with the leading biologists in the area to study and design wetlands. Wetland designs is a service which MNE provide with the same dedication that has earned us respect as a leader in waterfront design projects over the past 45 years. Representative project experience includes:

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FRANKS TRACT STATE RECREATION AREA: MNE developed preliminary engineering documents for a manmade island demonstration project that will restore wildlife habitat, provide wave protection benefits, and increase the recreational land base at the popular 3,300 acre island.

BATIQUITOS LAGOON ENHANCEMENT PROJECT: MNE refined concepts and developed details, criteria and final construction documents and cost estimates for a multi-discipline project to return Batiquitos Lagoon to a productive estuary. The project plan included the creation of a tidal inlet, the construction of two jetties, protection of construction of five bridges and a dredging program in the lagoon to restore the tidal prism, which will promote a stable ocean entrance, provide the desired water quality, and create specific subtidal and intertidal areas. In addition, dredging spoils of sandy material were used as beach replenishment and as fill material to construct nesting sites for least terns and snowy plovers.

BOLSA CHICA WETLAND RESTORATION: MNE designed a wetland restoration plan for over 900 acres of coastal wetlands. Tidal water flow through the wetlands was determined using specialized hydraulic engineering and numerical models. Various tide control structures were designed to provide the desired flow conditions and to restore the wetlands. MNE also investigated ocean entrance alternatives for non-navigable tidal inlets and evaluated historical shoreline and tidal boundaries.

ANAHEIM BAY MITIGATION: MNE designed the creation and restoration of 117 acres of wetlands in Anaheim Bay within the Seal Beach Naval Weapons Station for the Port of Long Beach. The project was required to replace critical habitat lost in San Pedro Bay because of port development. The mitigation plan created various types of wetlands and submerged lands, as specified by resource agencies. The details of this project included contour and grading plans for the mitigation sites, the analysis of tidal flushing and water quality characteristics, the design of culverts as roadways and railroad tracks to accommodate tidal flow to the sites, and relocation of utilities.

Jones & Stokes Associates, Inc. (JSA):

JSA is experienced in environmental restoration, including planning, design, and construction. JSA's greatest ability is to integrate restoration opportunities with flood control designs to achieve both flood control protection and environmental restoration. JSA provides multidisciplinary services to meet the objectives of natural resource management, habitat restoration and mitigation, and environmental compliance and permitting. JSA has acquired extensive experience in restoring riparian systems and wetland communities by designing, implementing, maintaining, and monitoring restoration projects throughout California and in the Great Basin. We have developed a habitat restoration philosophy that is a systems-based approach, integrating the vegetation and wildlife resources of the restored habitat into the surrounding landscape and connecting watersheds. Our process for

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designing habitat restoration plans includes identifying goals and objectives, conducting site analysis, identifying opportunities and constraints, developing alternative plans, and implementing the preferred alternative. We have been involved with creating and restoring over 1,100 acres of wetlands and riparian communities in the last 6 years. JSA has been involved integrally in hydrologic, hydraulic, sedimentologic and geomorphic analyses to support aquatic and terrestrial wildlife restoration and mitigation efforts. Project work ranges from preparation of master plans for stream rehabilitation to specific designs, including riffle drops, meander restoration, current deflectors, thalweg pools, and structural diversion dam modifications to permit fish passage. Representative project experience includes:

SHERMAN ISLAND WETLAND RESTORATION PROJECT: JSA, in association with Northwest Hydraulics Consultants, Inc., is designing an in-channel island in the Sacramento-San Joaquin Delta, adjacent to the San Joaquin River side of Sherman Island. The island is a demonstration project intended to provide new habitat for fish and wildlife, levee protection through the attenuation of wave energy, and the beneficial reuse of dredged materials. The island would be located in a portion of the Delta where tides, winds, ship wakes, and high river flows cause high levels of levee erosion. These factors have required the use of innovative construction techniques and materials, including the use of geotextile containment tubes to anchor both the island material and the vegetation. The creation of an island in such circumstances has not previously been attempted in the Delta. In addition to contributing to the overall design of the island, JSA also provided the following services: site constraints analysis (biological and physical); island construction and habitat revegetation planning and design; permit assistance and regulatory compliance (ESA, Clean Water Act, CEQA); construction cost estimating; and construction document preparation.

DELTA WETLANDS - DELTA ISLAND FLOODING - EIR/EIS: JSA was retained by Bedford Properties to prepare a joint EIR/EIS for the Delta Wetlands project. The project involved diverting high-quality spring runoff from the Delta to four centrally located Delta islands for temporary storage and eventual sale to various water users. Food for waterfowl would be grown during non-storage periods, and wetland vegetation would be allowed to invade the perimeters of the islands to provide suitable resting and nesting habitat. Water quality tasks on the project included conducting a trihalomethane formation potential (THMFP) study of agricultural drainage waters on each island, performing surface and subsurface pesticide residues investigations, estimating nutrient loads and algae production, and identifying potential sources of water contaminants. The THMFP of project waters and effects on ambient Delta concentrations also were evaluated. Water quality of a specially constructed, 50-acre demonstration wetland was monitored for 4 months during the study.

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COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

Proposal forms required of MNE for Services/Private Contracts are included herein.

(Please see attached forms)

U.S. Department of the Interior

**Certifications Regarding Debarment, Suspension and
Other Responsibility Matters, Drug-Free Workplace
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used or use this form for certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12.)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

01-2010
June 1998
(This form replaces 01-1987, 01-1984,
01-1985, 01-1989 and 01-1992)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification numbers(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Moffatt & Nichol Engineers

3000 Citrus Circle, Suite 230

Walnut Creek, CA 94598

Check if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

01-2010
June 1996
(This form replaces OI-1993, OI-1994,
OI-1995, OI-1996 and OI-1997)

**PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements**

**CHECK IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND
THE AMOUNT EXCEEDS \$100,000; A FEDERAL GRANT OR COOPERATIVE AGREEMENT;
SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.**

**CHECK IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL
LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

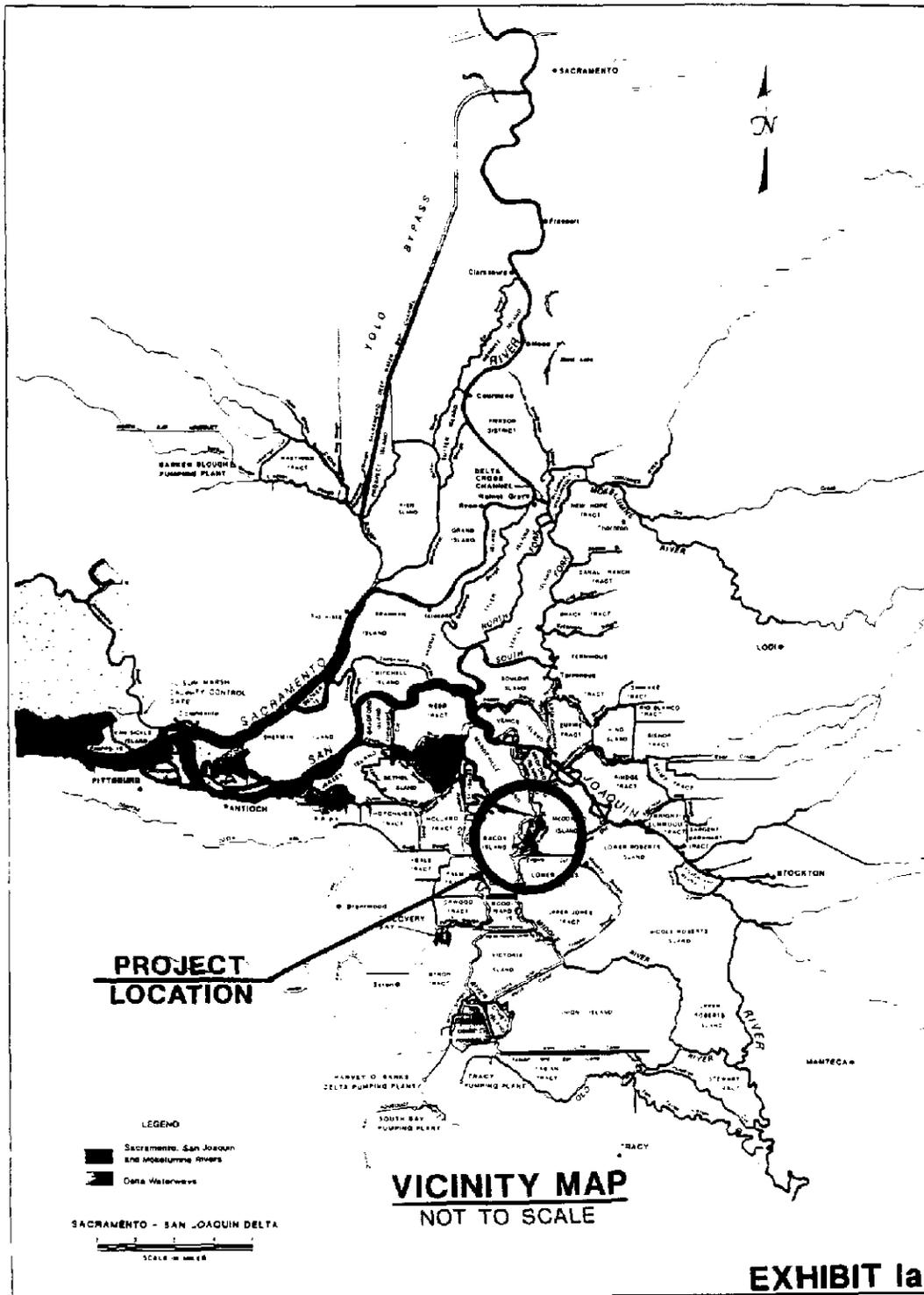


TYPED NAME AND TITLE Richard B. Dornhelm, Vice President

DATE July 2, 1998

DI-2010
June 1986
(This form replaces DI-1959, DI-1954,
DI-1955, DI-1956 and DI-1987)

EXHIBITS



**MILPITAS ISLAND WETLANDS HABITAT RESTORATION
PLANNING STUDY**

ERPP OBJECTIVES			
SECTION	OBJECTIVE	PAGE	VOL.
Ecological Process Visions - Bay Delta Aquatic Foodweb	<ul style="list-style-type: none"> • Increase the amount and diversity of organic matter input from Bay-Delta Watershed by restoring aquatic, riparian and wetlands habitats. 	60	1
Ecological Process Visions - Midchannel Islands and Shoals	<ul style="list-style-type: none"> • Install structures to weaken the force of waves to reduce midchannel erosion in sensitive areas. 	87	1
Ecological Process Visions - Fresh Emergent Wetland	<ul style="list-style-type: none"> • Increase land elevations in the interior of Delta islands where subsidence has lowered land elevations below tidal emergent wetlands. • Use substrate materials to create levee berms at elevations necessary for fresh emergent vegetation. 	97	1
Visions for Reducing or Eliminating Stressors - Dredging and Sediment Disposal	<ul style="list-style-type: none"> • Coordinate all actions closely with federal, State and local agencies charged with regulating dredging activities in the Bay-Delta. • Maximize the reuse of dredged materials for habitat restoration and other beneficial uses and minimize the amount of disposed material that is subject to resuspension and subsequent redredging. • Support continued research on sediment transport and deposition, sediment quality and toxicity testing, the environmental effects of suspended sediment and contaminants, and the beneficial reuse of dredged materials so that dredging and sediment disposal management will continue to improve. 	238	1
Sacramento-San Joaquin Delta Ecological Zone - Perennial Aquatic Habitat	<ul style="list-style-type: none"> • Increase the area of shallow-water and intertidal mudflat habitat to improve conditions that support increased primary and secondary productivity; provide rearing and foraging habitat, and escape cover for fish; and provide foraging and resting habitat, and escape cover to water birds. 	43	2
Sacramento-San Joaquin Delta Ecological Zone - Midchannel Islands Shoals	<ul style="list-style-type: none"> • Protect and enhance existing remnant channel islands in the Delta. Prioritize island restoration starting with those that have greatest chance to be maintained by restored streamflow patterns, hydraulic conditions, sediment transport, and other restored ecosystem processes. 	45	2
Sacramento-San Joaquin Delta Ecological Zone - Fresh Emergent Wetland Habitat (Tidal)	<ul style="list-style-type: none"> • Protect and enhance existing wetlands by restoring tidally influenced freshwater emergent wetland in the Delta to: <ul style="list-style-type: none"> Provide high-quality habitat for waterfowl, shorebirds, and other associated wildlife; Provide rearing, foraging, and escape cover for fish; and Expand the populations and ranges of associated special-status, federally listed, and State-listed plant and animal species. • This will help to restore and maintain the ecological health of the aquatic resources in and dependent on the Delta. 	46	2

EXHIBIT II

I-010057

I-010057

**MILDRED ISLAND WETLANDS HABITAT RESTORATION:
PLANNING STUDY**

Prepared for: CALFED
Prepared by: Moffatt & Nichol Engineers
Submitted: July 2, 1998

Budget Summary

Task No.	Task/Subtask Description	Direct Labor Hours	Total M&M	Overhead Labor (General, Admin and Fee)	Service Contracts	Material and Acquisition Contracts	Miscellaneous and other Direct Costs	Task Total
1.00	Environmental Assessment and Planning							
1.01	Initiate Project	14	\$ 2,532		\$ 1,765		\$ 127	\$ 4,424
1.02	Site Field Review	20	\$ 2,164		\$ 12,553		\$ 905	\$ 15,622
1.03	Habitat Restoration Plan	56	\$ 5,280		\$ 46,987		\$ 264	\$ 52,531
1.04	Ecological and Biological monitoring Plan	0	\$ -		\$ 7,828		\$ -	\$ 7,828
	TOTAL Environmental Assessment and Planning	100	\$ 9,976	\$ -	\$ 69,433	\$ -	\$ 1,296	\$ 80,705
2.00	Preliminary Engineering							
2.01	Site Survey	8	\$ 952		\$ 44,068		\$ 48	\$ 45,068
2.02	Geotechnical Investigation	24	\$ 2,424		\$ 61,295		\$ 121	\$ 63,840
2.03	Hydrodynamic and Water Quality Analysis	395	\$ 35,653		\$ -		\$ 1,790	\$ 37,443
2.04	Wind and Wave Analysis	64	\$ 5,655		\$ -		\$ 284	\$ 5,939
2.05	Volume Computations	144	\$ 11,600		\$ -		\$ 580	\$ 12,180
2.06	Preliminary Design	504	\$ 44,200		\$ -		\$ 2,214	\$ 46,414
2.07	Construction Cost Estimates	80	\$ 3,240		\$ -		\$ 412	\$ 3,652
	TOTAL Preliminary Engineering	1220	\$ 109,652	\$ -	\$ 105,363	\$ -	\$ 5,463	\$ 219,968
3.00	Implementation							
3.01	Review Designing Records	80	\$ 5,224		\$ -		\$ 413	\$ 5,637
3.02	Identify Construction Phases	108	\$ 9,960		\$ -		\$ 498	\$ 10,458
3.03	Develop Schedules for Construction	25	\$ 2,900		\$ -		\$ 145	\$ 3,045
3.04	Analysis & Recommendation for Future Funding	80	\$ 8,963		\$ 5,750		\$ 445	\$ 15,158
	TOTAL Implementation	293	\$ 30,052	\$ -	\$ 5,750	\$ -	\$ 1,501	\$ 37,353
4.00	Land Acquisition							
4.01	Appraisal	4	\$ 476		\$ 14,375		\$ 24	\$ 14,875
4.02	Transfer Recommendation Plan	16	\$ 1,090		\$ 14,375		\$ 54	\$ 16,147
	TOTAL Land Acquisition	20	\$ 2,164	\$ -	\$ 28,750	\$ -	\$ 108	\$ 31,022
5.00	Permitting							
5.01	Initiate Permits and Approvals	16	\$ 1,688		\$ 2,310		\$ 84	\$ 4,082
	TOTAL Permitting	16	\$ 1,688	\$ -	\$ 2,310	\$ -	\$ 84	\$ 4,082
	TOTAL PROJECT COST	1,652	\$ 152,932	\$ -	\$ 211,606	\$ -	\$ 8,447	\$ 372,985

EXHIBIT III

1-010058

1-010058

**MILDRED ISLAND WETLANDS HABITAT RESTORATION:
PLANNING STUDY**

ID	Task Name	1996												1997											
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan				
1	0.00 CONTRACTUAL	[Task bar from Jun 1996 to Dec 1996]																							
2	0.01 Submit Proposal to CALFED	[Task bar from Jun 1996 to Jul 1996]																							
3	0.02 CALFED Review Proposal	[Task bar from Jul 1996 to Sep 1996]																							
4	0.03 CALFED Recommendation for Funding	[Task bar from Sep 1996 to Oct 1996]																							
5	0.04 Negotiate Contract	[Task bar from Oct 1996 to Dec 1996]																							
6	0.05 Notice to Proceed													[Task bar from Jan 1997 to Dec 1997]											
7	1.00 ENVIRONMENTAL ASSESSMENT AND PLANNING													[Task bar from Jan 1997 to Sep 1997]											
8	1.01 Initiate Project													[Task bar from Jan 1997 to Feb 1997]											
9	1.02 Site Field Review													[Task bar from Feb 1997 to Mar 1997]											
10	1.03 Habitat Restoration Plan													[Task bar from Mar 1997 to May 1997]											
11	1.04 Ecological and Biological Monitoring Plan													[Task bar from Aug 1997 to Sep 1997]											
12	2.00 PRELIMINARY ENGINEERING													[Task bar from Jan 1997 to Sep 1997]											
13	2.01 Site Survey													[Task bar from Jan 1997 to Feb 1997]											
14	2.02 Geotechnical Investigation													[Task bar from Feb 1997 to Mar 1997]											
15	2.03 Hydrodynamic Analysis													[Task bar from Mar 1997 to May 1997]											
16	2.04 Wind and Wave Analysis													[Task bar from May 1997 to Jun 1997]											
17	2.05 Volume Computations													[Task bar from Jun 1997 to Jul 1997]											
18	2.06 Preliminary Design													[Task bar from Jul 1997 to Sep 1997]											
19	2.07 Construction Cost Estimates													[Task bar from Sep 1997 to Oct 1997]											
20	3.00 IMPLEMENTATION													[Task bar from Oct 1997 to Dec 1997]											
21	3.01 Review Dredging Records													[Task bar from Oct 1997 to Nov 1997]											
22	3.02 Identify Construction Phases													[Task bar from Nov 1997 to Dec 1997]											
23	3.03 Develop Schedules for Construction													[Task bar from Dec 1997 to Jan 1998]											
24	3.04 Analysis & Recommendations for Future Funding													[Task bar from Jan 1998 to Feb 1998]											
25	4.00 LAND ACQUISITION													[Task bar from Jan 1997 to Dec 1997]											
26	4.01 Appraisal													[Task bar from Jan 1997 to Feb 1997]											
27	4.02 Transfer Recommendation Plan													[Task bar from Dec 1997 to Jan 1998]											
28	5.00 PERMITTING													[Task bar from Aug 1997 to Sep 1997]											
29	5.01 Identify Permits and Approvals													[Task bar from Sep 1997 to Oct 1997]											

Project: Mildred Island Wetlands
Habitat Restoration, Planning Study
Date: Mon 6/29/96

Task [Bar] Milestone [Diamond] Rolled Up Task [Thick Bar] Rolled Up Progress [Thin Bar] External Tasks [Dotted Bar]
 Progress [Thin Bar] Summary [Thick Bar] Rolled Up Milestone [Thin Diamond] Split [Dotted Line] Project Summary [Thick Bar]

EXHIBIT IV

I-010059

I-010059

MILDRED ISLAND WETLANDS HABITAT RESTORATION PLANNING STUDY

Prepared for: CALFED
Prepared by: Moffatt & Nichol Engineers
Submitted: July 2, 1998

Tasks Summary

Task No.	Task/Subtask Description	Lead Consultant	Deliverable
1.00	Environmental Assessment and Planning		
1.01	Initiate Project	JSA	PROGRESS REPORT
1.02	Site Field Review	JSA	FINAL REPORT
1.03	Habitat Restoration Plan	JSA	FINAL REPORT
1.04	Ecological and Biological Monitoring Plan	JSA	FINAL REPORT
2.00	Preliminary Engineering		
2.01	Site Survey	CHAUDRAY & ASSOCIATES, INC.	SURVEY
2.02	Geotechnical Investigation	HULTGREN & TILLIS, ENGINEERS	FINAL REPORT
2.03	Hydrodynamic and Water Quality Analysis	MNE	FINAL REPORT
2.04	Wind and Wave Analysis	MNE	FINAL REPORT
2.05	Volume Computations	MNE	FINAL REPORT
2.06	Preliminary Design	MNE	FINAL REPORT
2.07	Construction Cost Estimates	MNE	FINAL REPORT
3.00	Implementation		
3.01	Review Dredging Records	MNE	FINAL REPORT
3.02	Identify Construction Phases	MNE	FINAL REPORT
3.03	Schedules for Construction	MNE	SCHEDULES
3.04	Analysis & Recommendation for Future Funding	MNE	FINAL REPORT
4.00	Land Acquisition		
4.01	Appraisal	DUNCAN, DUNCAN & ASSOCIATES, INC.	APPRAISAL
4.02	Transfer Recommendation Plan	DUNCAN, DUNCAN & ASSOCIATES, INC.	FINAL REPORT
5.00	Permitting		
5.01	Identify Permits and Approvals	JSA	PERMIT APPLICATION

EXHIBIT V

I - 0 1 0 0 6 0

I-010060