

9913-141

PROPOSAL COVER PAGE

Proposal Title: Dead Horse Island Levee Restoration Project, Sacramento County
Applicant Name: Reclamation District #2111, Dead Horse Island
Mailing Address: PO Box 248, Walnut Grove, CA 95690
Telephone: (916) 776-1234 Fax: (916) 776-1670 Email: deadhorse@citlink.net

Amount of funding requested: \$315,000 for 3 years

Indicate the Topic for which you are applying (check only one box).

Habitat Restoration

Does the proposal address a specified Focused Action? yes no

What county or counties is the project located in?

Sacramento County

Indicate the geographic area of your proposal:

Sacramento-San Joaquin Delta: East Delta Ecological Management Unit

Indicate the primary species which the proposal addresses (check all that apply):

East-side Delta tributaries fall-run chinook salmon Delta Smelt

Migratory birds

Splittail

Other: Swainson's Hawk, Neotropical migratory birds, wading birds, and Valley elderberry longhorn beetle

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

- STRATEGIC OBJECTIVE 2: Restore large expanses of all aquatic, wetland, and riparian habitats in the Central Valley and its rivers. (ERP Vol. I pg. 103)
- STRATEGIC SUBOBJECTIVE: Riparian and Riverine Aquatic Habitats – Increase the area of riparian and riverine aquatic habitat as an integral component of restoring large expanses of all major historical habitat types in the Delta, Suisun Bay, Suisun Marsh, San Francisco Bay, and other areas of the Central Valley and its rivers. (ERP Vol. I pg. 104)
- RIPARIAN AND RIVERINE AQUATIC HABITATS, TARGET 4, PROGRAMMATIC ACTION 4A: Restore 5-10 linear miles along the Mokelumne River in the East Delta Ecological Management Unit to create corridors of riparian vegetation (ERP Vol. II pg. 103)
- LEVEES, BRIDGES, AND BANK PROTECTION, TARGET 1, PROGRAMMATIC ACTION 1A: Enter into agreements with willing levee reclamation districts to change levee and berm vegetation management practices to establish and mature shoreline riparian vegetation. (ERP Vol. II pg. 110)
- PROGRAMMATIC ACTION 1D: Develop a cooperative program to restore riparian woodlands along the entire Mokelumne River. (ERP Vol. II p. 378)

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

Local government/district:

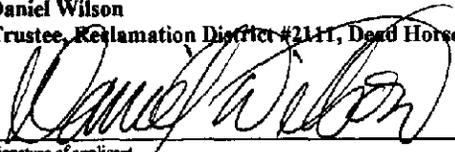
Indicate the type of project:

- Planning Implementation
- Monitoring 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 the 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 2.4) 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.

Daniel Wilson
Trustee, Reclamation District #2111, Dead Horse Island



Signature of applicant

**PROPOSAL TO CONDUCT THE
DEAD HORSE ISLAND
LEVÉE STABILIZATION AND
RIPARIAN RESTORATION PROJECT,
SACRAMENTO COUNTY**

Submitted By: Reclamation District #2111
Dead Horse Island
PO Box 248
Walnut Grove, CA 95690

Contact: Daniel Wilson
Trustee, Reclamation District #2111
Phone: (916) 776-1234
Fax: (916) 776-4670
email: deadhorse@cdlink.net

*Participants
and Collaborators:*
May Consulting Services
Kjeldsen, Smock, & Naudack, Inc.

Type of Organization: Local government District
Tax Status: Tax exempt
Tax Number: 68-0402601

**PROPOSAL TO CONDUCT
THE DEAD HORSE ISLAND
LEVEE RESTORATION PROJECT, SACRAMENTO COUNTY**

Submitted by: **Reclamation District #2111
Dead Horse Island
PO Box 248,
Walnut Grove, CA 95690**

Contact: **Daniel Wilson
Trustee, Reclamation District #211
Phone: (916) 776-1234
Fax: (916) 776-1670
Email: deadhorse@citlink.net**

Participants and Collaborators:
**May Consulting Services
Kjeldsen, Sinnock & Neudeck, Inc.**

Type of Organization: Local government/district
Tax Status: Tax exempt
Tax Number: 68-0402691

Reclamation District #2111
Dead Horse Island
PO Box 248,
Walnut Grove, CA 95690
April 16, 1999

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

**RE: PROPOSAL TO CONDUCT THE DEAD HORSE ISLAND
LEVEE RESTORATION PROJECT, SACRAMENTO COUNTY**

Dear Sir or Madam:

The Walnut Grove Reclamation District 2111 is pleased to submit a proposal to conduct a levee and riparian restoration project on Dead Horse Island, located on the North Mokelumne River, near the confluence of Snodgrass Slough and the North Mokelumne River in Walnut Grove, Sacramento County (Figure 1). Reclamation District 2111 has already altered its levee vegetation maintenance practices to help preserve and promote water-side riparian vegetation at Dead Horse Island.

The proposed project is to create low berms on approximately 3,500 linear feet of levee along Dead Horse Island using a combination of earthwork, natural sediment capture, and riparian habitat restoration. The objective of this project is to reestablish a low-flow berm on the water side of the existing levee. The Dead Horse Levee Restoration Project involves three key elements:

- Reestablishment of a low berm to improve levee integrity;
- Creation of structures to capture sediment and accrete a low berm to stabilize the levee base;
- Using both biotechnical and traditional construction methods to construct sediment capture devices; and
- Establishing riparian plantings on the low berm to restore riparian habitat, create shaded riverine aquatic habitat, and provide fish refugia.

The results of this study, especially information on various berm reestablishment methods; sediment capture rates and effectiveness; and riparian restoration establishment techniques will yield info on effectiveness of low-berm designs that will be directly applicable to several future projects that will occur on the Lower Mokelumne River and throughout lower Delta lands with mineral soils. Information gathered during our three-year program will be directly applicable to several other local CALFED programs that are planned in the lower Delta, including the Corps of Engineer's levee setback feasibility study on the lower Mokelumne, the Lower Mokelumne River Watershed Stewardship Program and Cosumnes River watershed stewardship program, and Woodbridge Irrigation District's improvements to Lodi Lake.

Please contact me at 916/776-1234 or our program coordinator, Matthew Gause, at 916/776-2500 if you have questions regarding the proposed work plan or require additional information. We look forward to your response.

Sincerely,



Daniel Wilson
Trustee, Reclamation District #2111, Dead Horse Island

Attachments

**DEAD HORSE ISLAND LEVEE STABILIZATION AND RIPARIAN
RESTORATION PROJECT**

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I. EXECUTIVE SUMMARY (2pgs)

A. Project Summary

The levees along the Mokelumne River at Dead Horse Island are typical of many of the older levees of the east-side of the Delta. In many instances older levees in the Delta are deteriorating, necessitating frequent spot repairs using traditional revetment techniques such as placement of rock or rubble rip-rap at the levee/water interface. Riparian vegetation is often sparse or absent on deteriorating levees in the Delta and levee repairs often result in further riparian losses. On levees where a low-berm is present at the toe of the levee adjacent to the water surface interface, the need for levee maintenance is greatly reduced and riparian vegetation often proliferates providing habitat for dependant wildlife and fish species. This project aims to reestablish the low berm on 3,500 linear feet of levee along Dead Horse Island using a combination of earthwork, natural sediment capture, and riparian habitat restoration. The Dead Horse Levee Restoration Project involves three key elements:

- Reestablishment of a low berm using three different designs to improve levee integrity and evaluate flood flow effects
- Creation of structures to capture sediment at the low berm and to stabilize the levee base using both biotechnical and traditional construction methods
- Riparian plantings on the low berm to restore riparian habitat, create shaded riverine aquatic habitat, and provide fish refugia.

Our proposed reestablishment of the low-berm and restore riparian habitat is consistent with the selected strategies for levee and habitat improvement identified in CALFED's Long Term Levee Protection Plan (1999). Additionally, the feasibility of our proposed project is supported by data and conclusions contained in the "Tyler Island Levee Protection and Habitat Restoration Plan – Preliminary Geomorphic Review and Preliminary Hydraulic Review" (Inter-Fluve 1999).

We believe it is important to undertake this project for several reasons.

1) *This project will yield important information on constructing low berms.* The results of this study, especially information on various berm reestablishment methods; sediment capture rates and effectiveness; and riparian restoration establishment techniques may be directly applicable to several future projects that will occur on the Lower Mokelumne River and throughout the Sacramento-San Joaquin Delta.

2) *Information gathered during our three-year program can be directly applicable to several other local CALFED programs* that are planned in the east Delta, including the Corps of Engineer's levee setback feasibility study on the lower Mokelumne, Georgiana Slough and Tyler Island berm restoration, The Nature Conservancy's Staten Island berm restoration, the Lower Mokelumne River Watershed Stewardship Program and Cosumnes River watershed stewardship program, and Woodbridge Irrigation District's improvements to Lodi Lake.

3) *Our project implements key natural resource restoration and management actions on the Lower Mokelumne River that are expressed in several planning documents, including CALFED's Ecosystem Restoration Program Plan (ERPP).* Department of Fish and Game's Lower Mokelumne River Fisheries Management Plan, U.S. Fish and Wildlife Service's Anadromous Fish Restoration Program, and the Lower Mokelumne River Project Joint Settlement Agreement (FERC Project NO. 2916-004).

B. Location

The Project is located on the Lower Mokelumne River, near the confluence of Snodgrass Slough and the Mokelumne River in Walnut Grove, Sacramento County (Figure 1). The proposed project is located entirely within the Lower Mokelumne watershed (Figure 2).

C. Primary Ecological Objectives

The primary ecological/biological objectives of the proposed project are as follows:

- Improve ecosystem quality – by supporting activities that improve riparian habitat, increase or improve fisheries habitat and passage, restore wetlands, and restore the natural stream morphology affecting downstream flows and dependent species;
- Provide levee and channel integrity – by supporting activities that maintain the integrity of the levees thus reducing the loss of riparian and wetland habitats for dependent plant and wildlife species.
- Improve fish habitat quality - by increasing the extent of shaded riverine aquatic habitat and creating in-channel fish refugia and cover.
- Increase the extent of riparian habitat along the Mokelumne River consistent with CALFED Targets/Objectives (Strategic Objective II, Programmatic Action 4A “restore five to 10 miles of riparian habitat along the Mokelumne River, in the east Delta Ecological Management Unit to create corridors of riparian vegetation.”).

D. Costs

The total amount of funding requested for the implementation of this project is \$315,000

E. Adverse and Third Party Impacts

No adverse third party impacts from any of the elements are anticipated, either directly or indirectly.

F. Applicant Qualifications

Reclamation District 2111 has recently implemented several levee repair and passive riparian habitat restoration projects on Dead Horse Island. Reclamation District 2111 currently practices levee maintenance practices which are aimed at preserving, and encouraging, native riparian vegetation on its levees.

Reclamation District 2111 will be assisted by Kjeldsen Sinnock & Neudeck consulting engineers and land surveyors. Kjeldsen, Sinnock & Neudeck, Inc. (KSN), is a full service civil engineering and land surveying firm specializing in the planning, design, and construction of municipal, public works and water resources related projects. The firm has expertise and capability to handle all phases of project development, from initial planning and site surveying through design and construction, and on to maintenance and operation of the completed project. In addition, KSN is participant in the Demonstration Project for the Protection and Enhancement of Delta In-Channel Islands (a CALFED funded project) and actively involved in the habitat restoration on Tyler Island (a CALFED funded project). KSN’s previous work on habitat projects include the Indian Slough Channel Island Berm Revitalization Project, the Canal Ranch Beaver Slough Mitigation SRA Berm Project, Medford Island, and various mitigation and enhancement projects associated with the Delta Levees Subventions Program.

The Reclamation District and KSN will be assisted by May Consulting Services located in Walnut Grove, Sacramento County. May Consulting Services is a full service biological resources consulting firm whose staff has extensive experience in riparian restoration, biological resources permitting, and biological resources conservation issues. Founded in 1995 by Loran May, president and sole proprietor, May Consulting Services strives to keep costs competitive

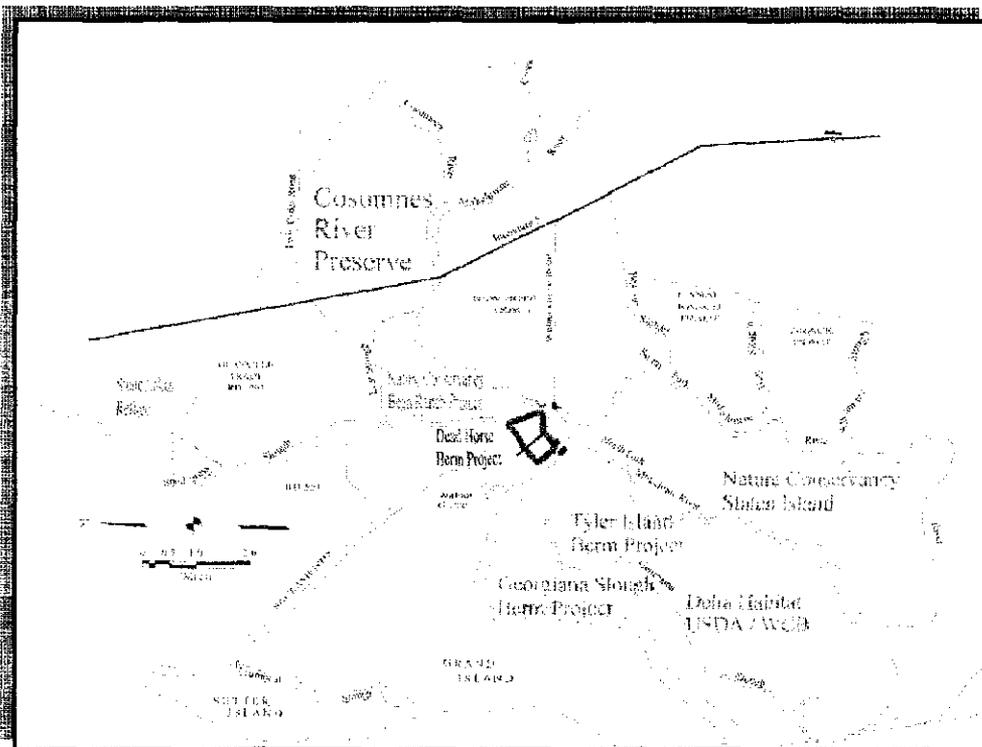


Figure 1. Project Site Vicinity

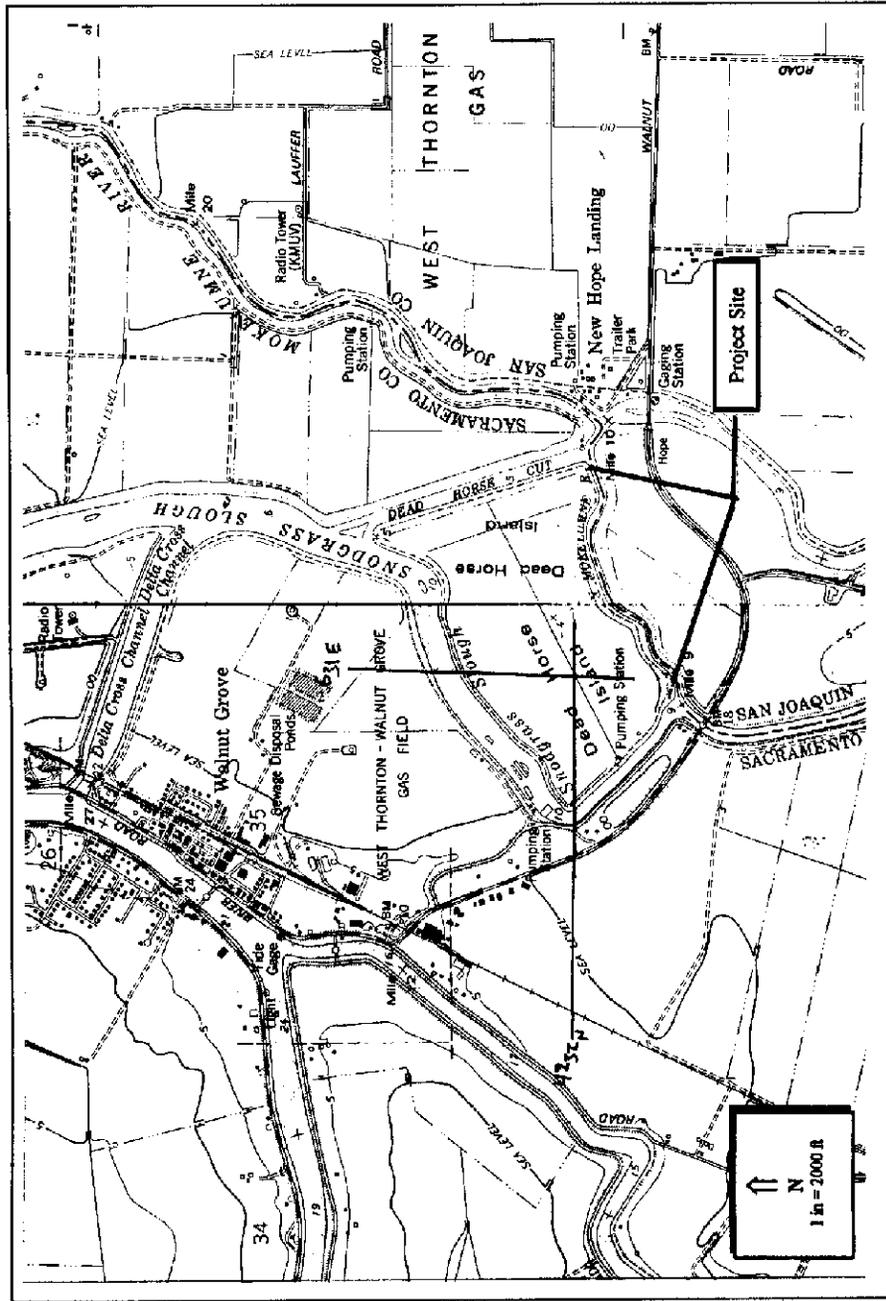


Figure 2. Project Site Location – Dead Horse Island Berm and Riparian Restoration Project

Base map: USGS Isleton and Thornton, California 7.5-minute quadrangle (R.4E. / T.4N.)

while providing the highest quality products. May Consulting Services has prepared numerous wetland and riparian habitat restoration plans and its staff has an extensive working knowledge of riparian ecology and ecosystem processes. May Consulting Services key staff on this proposed project have been involved in large-scale riparian restoration projects for the U.S. Army Corps of Engineers along the Sacramento and American Rivers and with the U.S. Bureau of Reclamation along the San Joaquin River.

G. Monitoring and Evaluation

This program includes several monitoring and evaluation tools that are designed to assess the effectiveness of the proposed approaches. Monitoring and evaluation methods and timing are described in detail in Section V of this proposal.

H. Local Support/Coordination

The Proposed Project is supported by the following local agencies and individuals. The results of this project will be coordinated with the Cosumnes River Task Force, Hart Inc., the San Joaquin Resource Conservation District, EBMUD, and The Nature Conservancy. Letters of support are included in Attachment A.

I. Compatibility with CALFED Objectives

Our proposed Project is consistent with ERP and Strategic Plan Objectives, and addresses both ecosystem and levee integrity issues. This Project meets CALFED's minimum requirements by complying with all applicable laws and regulations, not prejudicing the ultimate decision on CALFED's long-term program, providing coordination and notification of local governments and public involvement. The proposed project also involves only willing landowners and meets CALFED's limitations on funding.

II. PROJECT DESCRIPTION

Proposed Scope of Work.

The levees along the Mokelumne River at Dead Horse Island are typical of many of the older levees of the east-side of the Delta. In many instances these older levees are deteriorating, necessitating frequent spot repairs using traditional revetment techniques such as placement of rock or rubble rip-rap at the levee/water interface. Riparian vegetation is often sparse or absent on these deteriorating levees and levee repairs often result in further riparian losses. On levees where a low-berm is present at the toe of the levee adjacent to the water surface interface, the need for spot repairs is greatly reduced and riparian vegetation often proliferates providing habitat for dependent wildlife and fish species. This project aims to reestablish the low berm using two different designs on 1,500 linear feet of levee along the south side of Dead Horse Island using a combination of earthwork, natural sediment capture, and riparian habitat restoration (Figure 3).

The Dead Horse Levee Restoration Project involves three key elements:

- Reestablishment of a low berm to improve levee integrity
- Creation of structures to capture sediment at the low berm and to stabilize the levee base using both biotechnical and traditional construction methods
- Riparian plantings on the low berm to restore riparian habitat, create shaded riverine aquatic habitat, and provide fish refugia.

Berm reestablishment, sediment capture, and riparian restoration techniques used in this project will be applicable to levees elsewhere in the Sacramento-San Joaquin Delta where riparian habitat once flourished.

Task 1. Project Planning. This task will involve determining site constraints and opportunities and the refinement and selection of three conceptual designs for the project. One of the conceptual designs will utilize woody debris held in place with clean concrete blocks 20 to 30 feet from the base of the levee. Large tree trunks will be intermixed with smaller brush to form a barrier. This approach will immediately create in-stream fish refugia as well as a flow-energy dissipater favoring sediment deposition and accretion. A second design will involve small wing dams of varying lengths and spacing, increasing the overall length of land-water interface. The third design will involve the installation of hardened tree planting structures, such as vertically installed reinforced concrete pipe or wooden barrels. Riparian species would be planted inside these structures to facilitate riparian restoration. We feel that the third design approach may be necessary for some locations because of high-velocity winter flood flows (Inter-Fluve 1999) and boat wakes.

When refining the conceptual designs the following parameters will be considered:

- Levee integrity benefits;
- Riparian habitat restoration opportunities and extent;
- Technical feasibility;
- Fisheries benefits (e.g., shaded habitat, fish refugia, etc.); and
- Long-term levee management and maintenance.

The refinement and selection of the conceptual designs will be performed by a multi-disciplinary team consisting of representatives from Reclamation District 2111, biologists and plant ecologists from May Consulting Services, and Engineers from Kjeldsen, Sinnock & Neudeck, Inc.. The final conceptual designs will be the designs that are most likely to provide substantial benefits in to levee integrity, riparian habitat, and fisheries habitat. Conceptual designs will include both cross-section and plan views of the design as well as suggested planting pallets and layouts. The

product of this task will be three preferred designs for levee berm reestablishment and concomitant riparian restoration.

Task 2. Engineering. This task involves the preparation of detailed engineering plans for the three selected conceptual designs. Engineering of the conceptual designs will be prepared by Kjeldsen, Sinnock & Neudeck, Inc. located in San Joaquin County, California. Engineering will focus on further refining the two selected conceptual designs to meet accepted engineering standards while maintaining associated habitat and levee benefits, as well as, maintenance of channel hydraulics and capacity. In instances where the reestablishment of a levee berm will reduce channel capacity, compensatory channel dredging may be recommended. Any material dredged from the channel would be spoiled on the land side of the levee to offset cost and potential changes in channel capacity due to sediment retention. The product of this task will be detailed engineering drawings for the two conceptual designs identified under Task 1.

Task 3. Permitting. Under this task, May Consulting Services will obtain necessary permits for the project. Permits that may be required include: Clean Water Act Section 404 wetland permit from the U.S. Army Corps of Engineers (USACE), Section 10 of the Rivers and Harbors Act of 1899 permit from USACE, and a Fish and Game Code Section 1600 permit from the California Department of Fish and Game. The product of this task will be permits necessary to implement the final engineering designs.

Task 4. Structural/Earthwork. Under this task, Reclamation District 2111 will perform all project related construction, including earthmoving, dredging, sediment capture structure construction, and rootwad and tree placement and cabling. Construction methods will be selected to minimize disturbance to adjacent habitats and in-stream resources. Biologists will monitor all construction activities to ensure that biological resources are adequately protected during construction.

Task 5. Revegetation collection/propagation/installation. Under this task May Consulting Services will collect, propagate, and install riparian revegetation materials. Because of the time needed to collect and propagate revegetation materials this task will be initiated up to one year prior to the initiation of earthwork so that adequate revegetation materials are available for installation at the end of the earthwork phase of the project. Revegetation materials will consist of cuttings and propagules (i.e., rootstock or seeds) of native riparian vegetation. Plant species used for revegetation will be characteristic of those occurring naturally on levee berms in the area. Revegetation materials will be collected from nearby sites on Georgiana Slough and the Mokelumne River. The final product of this task will be riparian plantings on the reestablished levee berms.

Task 6. Monitoring. May Consulting Services biologists will monitor the progress and success of the riparian plantings as well as the effectiveness of sediment capture structures and integrity of the levee berm. The extent of shaded riverine aquatic habitat will also be directly measured in the field. A detailed explanation of the monitoring program is included below under "Section V. Monitoring and Data Collection Methodology."

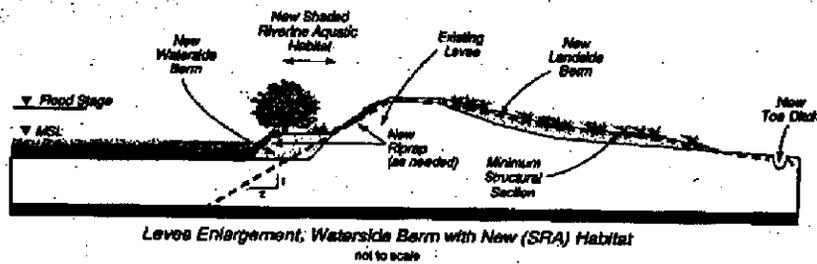
Task 7. Project Management. Under this task, Reclamation District 2111 and May Consulting Services will co-manage the project. Project management will involve preparing progress reports, reviewing monitoring reports, coordinating staff, and local involvement efforts.

Location and/or Geographic Boundaries of the Project.

The proposed project is located on Dead Horse Island in southern Sacramento County along the Mokelumne River immediately north of the San Joaquin County Line (Figures 1 and 2). The proposed project is located entirely within the Lower Mokelumne watershed.

Figure 3. Proposed Project Result

**Selected Strategy for
Levee and Habitat Improvements**



Source: CALFED-Long-term Levee Protection Plan (1999)

CALFED
SACRAMENTO
WATERSHED

III. ECOLOGICAL/BIOLOGICAL BENEFITS

A. Ecological/Biological Objectives. The primary ecological/biological objectives of the proposed project are as follows:

- Improve ecosystem quality – by supporting activities that improve riparian habitat, increase or improve fisheries habitat and passage, restore wetlands, and restore the natural stream morphology affecting downstream flows and dependent species;
- Provide levee and channel integrity – by supporting activities that maintain the integrity of the levees thus reducing the loss of riparian and wetland habitats for dependent plant and wildlife species.
- Improve fish habitat quality - by increasing the extent of shaded riverine aquatic habitat and creating in-channel fish refugia and cover.
- Increase the extent of riparian habitat along the Mokelumne River consistent with CALFED Targets/Objectives (Strategic Objective II, Programmatic Action 4A “restore five to 10 miles of riparian habitat along the Mokelumne River, in the east Delta Ecological Management Unit to create corridors of riparian vegetation.”).

Much of the historic riparian habitat along the Mokelumne River in the East Delta Ecosystem Management Unit has been removed as a result of past flood control projects, levee construction and maintenance, and conversion of floodplain lands to agriculture. As a result of these disturbances riparian habitat has become highly fragmented and little riparian vegetation remains to provide shaded riverine and wildlife habitats. This project will incrementally increase the extent of riparian habitat along the Mokelumne River consistent with the CALFED target for the river.

Currently, many of the levees in the area lack either, or both, a levee berm and/or riparian vegetation. Because of the lack of a levee berm many of the levees entirely lack riparian vegetation and potential for riparian restoration in these areas is extremely limited. Additionally, because many of the levees in this area, and elsewhere in the Delta, lack a levee berm, wave erosion of the levee base has become a major maintenance and levee integrity issue.

The proposed project will demonstrate methods with which the levee berm can be recreated and revegetated using both biotechnical and traditional engineering methods. Elsewhere in the region stabilization of the levee base has focused primarily on hardening the levee base through the placement of rock or rubble rip-rap which provides little, if any, short- or long-term habitat benefits. By utilizing either small engineered structures (e.g., wing-dams or similar) and/or biotechnical structures (e.g., rootballs or logs) to capture sediment at the levee base the low berm can be restored providing an opportunity to restore riparian vegetation. Biotechnical methods also have an added benefit of providing fish refugia and cover and roosting or basking sites for birds and western pond turtles, respectively. Because many of the ecosystem processes that viable riparian systems depend on (i.e., flooding and sediment deposition) are available within the zone of the levee base (and levee berm) there is good potential for successful riparian restoration.

The proposed project intends to restore characteristic low-floodplain riparian habitats including willow scrub, herbaceous riparian habitat, and over the long-term, riparian forest. Riparian habitat restored on the levee berm also benefits endemic fish species (i.e., delta smelt and Sacramento splittail), neotropical song birds, waterfowl, and Swainson's hawk.

B. LINKAGES

Our project will provide important biological and program links to related levee improvement and habitat restoration projects.

Ongoing projects that are all in the immediate vicinity of the proposed Dead Horse Island project site:

- *The Nature Conservancy's Acquisition and Management Modifications of the McCormack-Williamson Tract/Bean Ranch* (located immediately upstream of our proposed project site);
- *Ongoing levee protection and habitat restoration of Tyler Island* (located immediately to the southwest of the project site) (conducted by HART Inc. Funded under an ongoing CALFED grant);
- *waterfowl habitat improvements currently underway on Staten Island* under a partnership between Ducks Unlimited and the North Delta Conservancy (located immediately to the southeast of the project site).

Our proposed project also is linked to the Watershed Stewardship Program underway for the lower Mokelumne River. Proposed improvements on Dead Horse Island will be coordinated with, and are consistent with the stated goals and objectives of the following watershed stewardship programs:

- the San Joaquin Resource Conservation District's Lower Mokelumne River watershed Stewardship Program;

Our proposed project helps implement key natural resource restoration and management actions on the Lower Mokelumne River that are expressed in several planning documents, including CALFED's Ecosystem Restoration Program Plan (ERPP), Department of Fish and Game's Lower Mokelumne River Fisheries Management Plan, U.S. Fish and Wildlife Service's Anadromous Fish Restoration Program, and the Lower Mokelumne River Project Joint Settlement Agreement (FERC Project NO. 2916-004).

C. SYSTEM-WIDE ECOSYSTEM BENEFITS

Expected Ecological /Biological benefits include:

1) The proposed project is a model for riparian restoration projects elsewhere in the Delta. Dead Horse Island is situated in a portion of the Delta that is subject to higher water velocities and shear forces than elsewhere in the Delta. Because of the greater than average forces experienced at this site, it is important to utilize this site as an experimental laboratory to develop levee and riparian restoration techniques at this high energy site that will be applicable to other sites in the Delta that experience significant boat wake or other erosional forces.

2) This project will accomplish some of CALFED stated objective of restoring five to 10 miles of riparian habitat along the Mokelumne River, creating corridors of riparian vegetation.

3) This project is consistent with other habitat restoration projects that are planned or underway along the Lower Mokelumne River (e.g., the adjacent TNC McCormack-Williamson Tract, Tyler Island berm restoration project, EBMUD, AFRP-CVPIA projects, the San Joaquin RCD's Lower Mokelumne River Watershed Stewardship Program, NRCS's Wildlife Habitat Improvement Program, and fish passage improvement projects proposed by Woodbridge Irrigation District).

4) The project is being conducted with full landowner cooperation, consistent with CALFED's stated objectives to accomplish restoration through voluntary landowner activities and local watershed stewardship.

5) . *This program will benefit instream aquatic and shaded riverine habitats, two of the CALFED priority habitats, and will ultimately benefit primary and secondary priority species including, but not limited to, Delta smelt, Sacramento splittail, Chinook salmon, steelhead trout, and several migratory bird species (waterfowl, Swainson's hawks, songbirds).*

D. COMPATIBILITY WITH NON-ECOSYSTEM OBJECTIVES.

This proposed research provides multiple direct and indirect benefits for other CALFED objectives, principally supporting levee system integrity, habitat preservation, habitat enhancement, and invasive species control. All of these benefits are promulgated without conflict to larger CALFED mission. This project will also allow for investigations into the effect of levee berms on channel capacity.

IV. TECHNICAL FEASIBILITY AND TIMING

The proposed project has widespread support, a high quality research and management team, is consistent with existing CALFED objectives, and will be coordinated with other similar research programs.

The proposed project is considered technically feasible to undertake. Similar investigations in the vicinity of the project area have been successfully undertaken by The Nature Conservancy, HART Inc., EMBUD, and others. Our program will compliment, but not repeat these other studies, by adding information on levee and riparian restoration under very adverse flow situations (i.e. high flow velocities and shear forces) (Inter-Fluve 1999). The proposed project follows recognized scientific methods, and will be peer-reviewed by other program managers to ensure consistency with other adjacent projects.

A. OTHER PROJECT ALTERNATIVES CONSIDERED

The following other project alternatives were considered but rejected during selection of this project:

1. No- Project Alternative (Rejected - would result in the status quo of levee degradation and lack of riparian habitat);
2. The Rip-Rap Levee Option (Rejected as supporting the status quo of levee degradation and lack of riparian habitat, no concomitant ecosystem benefit);
3. The Habitat Restoration Only Alternative (Rejected because similar projects selecting this option have resulted in project failure during flood events).

B. CEQA/NEPA COMPLIANCE, PROJECT PERMITTING

The proposed project will support key natural resource restoration and management actions in the Delta that are expressed in several existing NEPA and CEQA planning documents, including:

1. CALFED's Ecosystem Restoration Program Plan (ERPP), and
2. Department of Fish and Game's Lower Mokelumne River Fisheries Management Plan.

We anticipate a CEQA Notice of Exemption will be processed in support of the Section 1600 Agreement with the Department of Fish and Game. No other CEQA or NEPA documentation is anticipated for the proposed project.

We anticipate a need to obtain or comply with the following permits:

- Section 1600 et. seq. Agreement with the Department of Fish and Game;
- Section 10 Rivers and Harbors and Section 404 CWA permits for in-stream fish refugia work.

These permits and agreements are provided for in Task 3 of this project.

C. TIMING CONSTRAINTS

This project has timing constraints. Levee berm construction and fish refugia development must be conducted during low flow periods (i.e. summer to early fall), when the historic low berm would have been exposed. Additionally, work will need to be conducted during periods of low-tidal effect.

V. MONITORING AND DATA COLLECTION METHODOLOGY

A. BIOLOGICAL/ECOLOGICAL OBJECTIVES.

For biological and ecological objectives see Section III-A above. The hypothesis testing procedure is presented in the form of the null hypothesis (N_o = no difference), with the expected outcome presented as an alternative hypothesis (N_A). Specific paired hypotheses are as followed:

1. *Improve Ecosystem Quality*

N_o = no significant change in ecosystem quality compared to before Project implementation.

N_A = the ecosystem quality at the project site will be significantly greater after Project implementation when compared to that of before.

Specific components and associated sub-hypotheses to test changes in ecosystem quality at the project site are:

i. *Provide Levee and Channel Integrity*

N_o = no significant change in sediment deposition and accretion at the levee base compared to before Project implementation.

N_A = the amount of sediment deposition and accretion on the levee base will be significantly greater after Project implementation when compared to that of before.

ii. *Improve Fish Habitat Quality*

N_o = no significant differences in the extent of shaded riverine aquatic habitat at the project site will be present after Project implementation when compared to pre-project conditions.

N_A = the extent of shaded riverine aquatic habitat will be significantly greater after Project implementation in comparison to before.

iii. *Increase the Extent of Riparian Habitat along the Mokelumne River*

N_o = no significant differences in riparian habitat extent or cover in the project area compared to before Project implementation.

N_A = the extent and cover of riparian vegetation in the project area will be significantly greater after Project implementation in comparison to before.

B. MONITORING PARAMETERS AND DATA COLLECTION APPROACH

The following monitoring methods will be used to collect data to measure improvements in ecosystem quality at the project site:

- Directly measuring the elevation of accreted sediment at the levee base through the use of surveying equipment tied to a benchmark elevation established for the project;
- Assessing the survival rate of riparian species plantings through an on-ground inventory of surviving plants;
- Directly measuring the extent of shaded riverine aquatic habitat at the project site following establishment of the riparian vegetation; and
- Through the use of permanently located photographic monitoring stations.

C. DATA EVALUATION APPROACH.

Data collected prior to, and following, project implementation will be analyzed for significant differences using an appropriate statistic and method. Monitoring will be conducted in late summer before plant senescence and following peak seasonal flows. The results section of the monitoring report will include data on survival of riparian plant species; a qualitative and quantitative estimate of sediment accretion at the levee base; data on the extent of shaded riverine aquatic habitat; and copies of photographs taken at the permanent photographic monitoring stations. Results of the monitoring and evaluation program will be summarized on an annual basis in a brief Project Monitoring and Evaluation Report prepared in the fall of the monitoring year. (see Table 2).

Table 2. Monitoring and Data Collection Information

Biological/ Ecological Objectives	Null Hypothesis	Monitoring Parameters and Data Collection Approach	Data Evaluation Approach	Comments/ Data Priority
Improve ecosystem quality	no significant change in ecosystem quality compared to before Project implementation	Monitoring parameters and data collection necessary to test this hypothesis are described below	The data collected through the monitoring described below for levee and channel integrity, improve fish habitat quality, and increase the extent of riparian habitat along the Mokeelumne River	High Priority
Provide Levee and Channel Integrity	No significant change in sediment deposition and accretion at the levee base compared to before Project implementation.	Monitoring will be conducted by qualitatively and quantitatively assessing accretion at the levee base using traditional surveying methods and photographic monitoring methods.	The pre- and post-project elevations of the levee berm will be compared to assess rates of accretion. Pre- and post-construction photographs will be compared on an annual basis to qualitatively describe restoration of the levee-berm and associated vegetation.	High Priority
Improve Fish Habitat Quality	No significant differences in the extent of shaded riverine aquatic habitat at the project site will be present after project implementation when compared to pre-project conditions.	Monitoring will be conducted by qualitatively and quantitatively assessing changes in shaded riverine aquatic habitat at the project site. Shaded aquatic habitat will be directly measured in the field using photographic or cartographic methods.	Measurements of shaded aquatic habitat will be compared to pre-project conditions. Pre- and post-construction photographs will be compared on an annual basis to qualitatively describe the extent and quality of shaded aquatic habitat.	High Priority

1-015036

<p>Increase the Extent of Riparian Habitat along the Mokelumne River</p>	<p>No significant differences in riparian habitat extent or cover within the project area compared to before project implementation</p>	<p>Data collection will consist of annual monitoring of riparian species plantings for survival. Natural recruitment of riparian species in the treated areas will also be assessed</p>	<p>Riparian planting survival rates will be assessed as well as natural recruitment rates. Permanent point photodocumentation photographs will be used to visually portray riparian species growth over time. The performance standard for riparian plantings will be 80% survival of installed plantings by the end of year 3.</p>	<p>High Priority</p>
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VI. LOCAL INVOLVEMENT

The trustees for RD 2111 also serve Tyler, Andrus and Walnut Grove Islands. Both Tyler and Andrus are involved in similar berm projects in a variety of different situations. There will be many aspects of these projects that can be shared. By taking some different approaches on Dead Horse we expect the Andrus/Tyler projects to benefit from our research.

We also intend to coordinate our efforts with The Nature Conservancy. They have on going projects upstream on the McCormack-Williamson Tract. Directly across the river is Staten Island. Staten Island has been utilizing rock prism berms for many years. They have recently joined the Nature Conservancy. This will allow all of us to pool our knowledge on a small scale. When the Nature Conservancy begins it large scale conversion of McCormack-Williamson Tract, sound economical methods will have been established.

VII. COST

A. BUDGET.

The total budget for the proposed Dead Horse Island Levee Stabilization and Riparian Restoration Project is presented in Table 3. Estimated quarterly expenditures for the proposed budget are presented in Table 4.

B. SCHEDULE.

The schedule to complete the proposed project is included below in Table 5. Because of the interconnected nature of the individual tasks and the need for all project components to be implemented to ensure success and proper function of the project, incremental funding may not be possible.

Table 3. Total Budget (CALFED funds only)

ELEMENT/ TASK NAME	DIRECT LABOR HOURS	DIRECT SALARY AND BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	RD 2111 OVERHEAD (7.5%)	TOTAL COST
Dead Horse Island Levee Stabilization and Riparian Restoration Project							
Task 1. Project Planning	200	\$18,500	\$5,000			\$1,500	\$25,000
Task 2. Engineering			\$35,000				\$35,000
Task 3. Permitting			\$15,000				\$15,000
Task 4. Structural/Earthwork	4,200	\$41,625	\$10,000	\$60,000	\$25,000	\$3,375	\$140,000
Task 5. Revegetation collection/propogration, installation	1,500	\$27,750	\$10,000	\$10,000		\$2,250	\$50,000
Task 6. Monitoring			\$35,000				\$35,000
Task 7. Program Management	150	\$15,000					\$15,000
GRAND TOTAL - CALFED							\$315,000

1-015040

Table 4. Quarterly Budget- Dead Horse Island Levee Stabilization and Riparian Restoration Project

	Quarterly Budget Jul-Sept 1999	Quarterly Budget Oct-Dec 1999	Quarterly Budget Jan-Mar 2000	Quarterly Budget Apr-Jun 2000	Quarterly Budget Jul-Sept 2000	Quarterly Budget Oct-Dec 2000	Quarterly Budget Jan-Mar 2001	Quarterly Budget Apr-Jun 2001	Quarterly Budget Jul-Sept 2001
Task 1. Project Planning	\$25,000								
Task 2. Engineering		\$35,000							
Task 3. Permitting	\$2,000	\$2,000	\$6,000	\$5,000					
Task 4. Structural/Earthwork				\$60,000	\$80,000				
Task 5. Revegetation collection/propagation	\$5,000	\$15,000	\$5,000	\$5,000	\$10,000	\$10,000			
Task 6. Monitoring	\$3,000					\$3,500	\$2,000		\$3,000
Task 7. Project Management	\$2,000	\$1,000	\$1,500	\$1,500	\$1,000	\$1,000	\$1,000	\$500	\$1,000
Subtotal	\$37,000	\$53,000	\$12,500	\$71,500	\$91,000	\$14,500	\$3,000	\$500	\$4,000

	Quarterly Budget Oct-Dec 2001	Quarterly Budget Jan-Mar 2002	Quarterly Budget Apr-Jun 2002	Quarterly Budget Jul-Sept 2002	Quarterly Budget Oct-Dec 2002	TOTAL BUDGET
Task 1. Project Planning						\$25,000
Task 2. Engineering						\$35,000
Task 3. Permitting						\$15,000
Task 4. Structural/Earthwork						\$140,000
Task 5. Revegetation collection/propagation						\$50,000
Task 6. Monitoring	\$5,000	\$2,000		\$7,500	\$9,000	\$35,000
Task 7. Project Management	\$1,000	\$1,000	\$500	\$1,000	\$1,000	\$15,000
Subtotal	\$6,000	\$3,000	\$500	\$8,500	10,000	\$315,000

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Table 5. Project Schedule Presented by Task

TASK	DESCRIPTION	START DATE (MO/YR)	COMP DATE (MO/YR)
1	Project Planning	7/99	9/99
2	Engineering	9/99	12/99
3	Permitting	9/99	4/00
4	Structural/Earthwork	5/00	9/00
5	Revegetation collection/propagation	9/99	10/00
6	Monitoring	7/99	9/02
7	Project Management	7/99	11/02

VIII. COST SHARING

There are no other funding commitments or cost sharing requirements related to this project.

IX. APPLICANTS QUALIFICATIONS

Daniel Wilson, trustee for Reclamation District 2111, will act as project manager. In a 25 year farming career in the Delta he has been involved extensively in flood control. As contract administrator for the 1986 Tyler Island flood he administered all aspects of the restoration. Currently he is serving on the board of trustees for Reclamation District 563, Tyler Island. He has supervised the restoration of levees at Dead Horse Island three times. Currently, Daniel Wilson is the manager of a diversified farming operation and grain storage company. Mr. Wilson graduated Cum Laude with a Bachelors of Science degree in Mechanical Engineering from the University of California at Davis.

Reclamation District 2111 will be assisted by Kjeldsen Sinnock & Neudeck consulting engineers and land surveyors. *Kjeldsen, Sinnock & Neudeck, Inc. (KSN), is a full service civil engineering and land surveying firm specializing in the planning, design, and construction of municipal, public works and water resources related projects. The firm has expertise and capability to handle all phases of project development, from initial planning and site surveying through design and construction, and on to maintenance and operation of the completed project. In addition, KSN is participant in the Demonstration Project for the Protection and Enhancement of Delta In-Channel Islands (a CALFED funded project) and actively involved in the habitat restoration on Tyler Island (a CALFED funded project). KSN's previous work on habitat projects include the Indian Slough Channel Island Berm Revitalization Project, the Canal Ranch Beaver Slough Mitigation SRA Berm Project, Medford Island, and various mitigation and enhancement projects associated with the Delta Levees Subventions Program.*

Key staff at KSN will be engineers Stephen K. Sinnock and William G. Darsie.

Stephen Sinnock has 22 years experience in the field of civil engineering with emphasis in the planning, design and construction of municipal, public works and water resource related projects. As a principal in the firm of Kjeldsen, Sinnock & Neudeck, Inc., Mr. Sinnock is responsible for managing the projects undertaken by the firm, coordinating with the client and consultants, and reviewing all technical calculations and design decisions. Mr. Sinnock's previous assignments have provided him with the background and experience to undertake all phases of project development from initial planning through operation and maintenance of the completed project.

Mr. Sinnock currently serves as the City Engineer for the City of Isleton, the District Engineer for the San Andreas Sanitary District, and as District Engineer for numerous Reclamation Districts in the Sacramento-San Joaquin Delta.

Mr. Sinnock has served as president of the Central Valley Chapter of the American Society of Civil Engineers and is currently a Director of the Sierra Chapter of the Consulting Engineers and Land Surveyors of California. Mr. Sinnock holds a Bachelor of Science in Civil Engineering from the University of California, Davis and is registered in the State of California, RCE 32192.

William Darsie has over 20 years experience in field of Agricultural Business Management. He has been responsible for planning and daily operations of large diversified farming corporations encompassing thousands of acres. As a Trustee for several Reclamation Districts, he has been responsible for the management of Reclamation District works, including maintenance of levees, pumps, and other related facilities. He has been responsible for the supervision and implementation of levee, road, and pump station construction and repairs, including the coordination of Federal, State and local agencies, selection of engineers and contractors, contract

administration, financial administration, and environmental regulation and mitigation. Mr. Darsie has been actively involved in every major Delta flood fight since 1964.

Through his many years of work in the Sacramento-San Joaquin Delta region, Mr. Darsie has developed a vast working knowledge of the regulatory permit process as well as the State and Federal Grant Programs including the Delta Levees Subventions Program, and the FEMA / OES Disaster Assistance Programs.

Mr. Darsie currently serves as a Trustee to Reclamation District No. 2086. He is a member of the Board of Directors of the California Central Valley Flood Control Association. Over the last 15 years he has served multiple terms as a Trustee to Reclamation District Nos. 2084 and 556 and is a past Director of the Woodbridge Sanitary District. Mr. Darsie holds a Bachelor of Science degree in Agronomy from California State University, Chico.

The Reclamation District and KSN will be assisted by **May Consulting Services** located in Walnut Grove, Sacramento County. May Consulting Services is a full service biological resources consulting firm founded in 1995, whose staff has extensive experience in riparian restoration, biological resources permitting, and biological resources conservation issues. May Consulting Services has prepared numerous wetland and riparian habitat restoration plans and its staff has an extensive working knowledge of riparian ecology and ecosystem processes. **Matthew Gause** will be May Consulting Services' key staff on this proposed project. Mr. Gause will be responsible for project coordination and preparation of planting palettes, planting designs and project monitoring.

Matthew Gause is a botanist and restoration ecologist with over 7 years of experience in environmental consulting, specializing in habitat restoration and rare plant ecological studies. Mr. Gause's professional experience includes conducting baseline vegetation mapping and rare plant surveys; assessing project impacts on vegetation resources, planning for habitat mitigation, and preparing and implementing habitat restoration, including habitat for endangered plant and wildlife species. Mr. Gause has extensive experience conducting wetland delineations; wetland permitting (Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act); *endangered species compliance* (Sections 7 and 10 of the federal Endangered Species Act); and large vegetation mapping and classification projects.

Mr. Gause has prepared and implemented a variety of large and small habitat restoration plans for riparian woodlands, vernal pools, seasonal wetlands, native bunchgrasses, and for a variety of rare and endangered plant and wildlife species. Mr. Gause has an extensive working knowledge of riparian and wetland ecosystems and has participated in numerous riparian habitat investigations and biotechnical bank stabilization projects. Recently, Mr. Gause prepared planting specifications and design parameters for large-scale riparian habitat mitigation projects for levee improvements along the Sacramento River and the Lower American River (while employed by Jones & Stokes Associates). These projects focused on establishing self-sustaining riparian habitats in areas where past disturbance has resulted in the eradication of the natural habitats.

Mr. Gause holds a Bachelor of Science degree in Botany from the University of California at Davis.

X. LITERATURE CITED

CALFED Bay-Delta Program, 1999. Revised draft long-term levee protection plan. CALFED Bay-Delta Program, Sacramento, CA.

Inter-Fluve, 1999. Tyler Island levee protection and habitat restoration plan, preliminary geomorphic & hydraulic review – technical memorandum. Inter-Fluve, Bozeman, MT

ATTACHMENT A. LETTERS OF SUPPORT



Cosumnes River Preserve
13501 Franklin Boulevard
Galt, California 95632

International Headquarters
Arlington, Virginia

TEL 916 683-2142
FAX 916 683-1702

April 9, 1999

Mr. Daniel Wilson
Reclamation District #211 (Dead Horse Island)
PO Box 25
Walnut Grove, CA 95690

Dear Dan:

We have reviewed your proposal to CALFED for levee stabilization and riparian restoration on Dead Horse Island. We believe that your concepts have merit and hope that the project will be funded by CALFED.

Since the Cosumnes River Preserve has an active presence both upstream and downstream of Dead Horse Island, we recognize the value of working together to maximize opportunities for improving levee stability and achieving river restoration goals, as well as avoiding activities that might have adverse consequences. We very much look forward to working with you, the Resource Conservation District, and the other stakeholders in the corridor.

I look forward to talking with you about this project soon.

Sincerely,

A handwritten signature in cursive script that reads "Mike Eaton".

Mike Eaton
Project Director



DENNIS M. DIEMER
GENERAL MANAGER

April 15, 1999

Mr. Daniel Wilson
Reclamation District #211, Dead Horse Island
PO Box 25
Walnut Grove, CA 95690

Dear Mr. Wilson:

Thank you very much for the opportunity to review your proposal to undertake a levee stabilization and riparian restoration on Dead Horse Island. The District is supportive of the proposal and agrees that the program will result in substantial benefits to riparian aquatic ecosystems and levee integrity.

Sincerely,

A handwritten signature in cursive script that reads 'Dennis M. Diemer'.

Dennis M. Diemer

375 ELEVENTH STREET, OAKLAND, CA 94607-4210 - (510) 287-0301
BOARD OF DIRECTORS: JOHN A. COLEMAN, KATY FOLKES, LESA R. MCNISH
FRANK BELLON, WILLIAM B. PATTERSON, DAVID RICHARDSON, DANNY DE WAIN

MELLO FARMS, INC.

P.O. BOX 305 • WALNUT GROVE, CA 95690
(916) 776-1801 • (916) 777-8057

April 13, 1999

Reclamation District 2111
P.O. Box 248
Walnut Grove, CA 95690
Att: Daniel Wilson

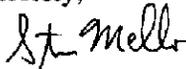
Dear Daniel,

I am pleased to see your Reclamation District begin to research different methodologies of berm reconstruction. As you know, I am involved in a similar project on Tyler Island. The area you are working with is substantially different than the area we are working on. This implies you will be able to experiment under different conditions than our project.

I believe yours is the first project to begin looking into the implications of berms on flood flows. Your project is upstream of Tyler Island, so I will be watching it with interest.

Your project begins to implement CALFED's levee reconstruction plans. As a Delta farmer, I support your project. In addition as a trustee for Tyler Island and a board member of the Delta Protection Commission, I intend to encourage them to support this project.

Sincerely,



Steve Mello

PETER BROWN
P.O. Box 247 Walnut Grove, CA 95690

April 14, 1999

Reclamation District 2111
P.O. Box 248
Walnut Grove, CA 95690
Attn: George C. "Tim" Wilson

Dear Tim,

Daniel laid out your proposed berm project on Dead Horse. I have been involved in flood control for over thirty years, and I am pleased to see a project that begins to study the consequences of these berms on flood flows.

I have worked with Delta Habitat to acquire our ranch on Tyler Island to create 900 acres of waterfowl habitat. Your project will help connect our project to the Cosumnes River Preserve. This should increase the productivity of our waterfowl habitat.

I support your berm project on Dead Horse Island.
As a trustee for Reclamation District 563, Tyler Island, I intend to encourage them to support this project.

Sincerely,



Peter Brown

Reclamation District #2111
Dead Horse Island
P.O. Box 248
Walnut Grove, CA 95690
April 15, 1999

Ms. Margit Arambu
Delta Protection Commission
14215 River Road
PO Box 530
Walnut Grove, CA 95690

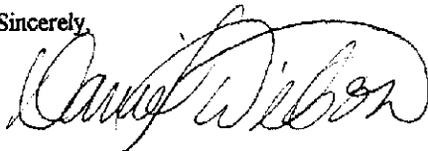
**RE: NOTIFICATION OF APPLICATION FOR CALFED FUNDING
FOR THE PROPOSED DEAD HORSE LEVEE STABILIZATION AND
RIPARIAN RESTORATION PROJECT, WALNUT GROVE,
SACRAMENTO COUNTY**

Dear Ms. Arambu:

This letter is to inform you that Reclamation District 2111 is applying for a CALFED grant to conduct a levee stabilization and riparian restoration project on Dead Horse Island in Walnut Grove, southern Sacramento County. A brief description of our proposal is attached.

If you have questions, please call.

Sincerely,



Daniel Wilson
Trustee, Reclamation District #2111

Attachment

*Reclamation District #2111
Dead Horse Island
P.O. Box 248
Walnut Grove, CA 95690
April 15, 1999*

Sacramento County Board of Supervisors
700 H Street
Sacramento, CA 95816
Fax: (916) 874-7593

**RE: NOTIFICATION OF APPLICATION FOR CALFED FUNDING
FOR THE PROPOSED DEAD HORSE LEVEE STABILIZATION AND
RIPARIAN RESTORATION PROJECT, WALNUT GROVE,
SACRAMENTO COUNTY**

Dear Board of Supervisors:

This letter is to inform you that Reclamation District 2111 is applying for a CALFED grant to conduct a levee stabilization and riparian restoration project on Dead Horse Island in Walnut Grove, southern Sacramento County. A brief description of our proposal is attached.

If you have questions, please call.

Sincerely,



Daniel Wilson
Trustee, Reclamation District #2111

Attachment

Reclamation District #2111
Dead Horse Island
P.O. Box 248
Walnut Grove, CA 95690
April 15, 1999

Sacramento County Planning Department
827 7th Street
Sacramento, CA 95816
Fax: (916) 874-7499

**RE: NOTIFICATION OF APPLICATION FOR CALFED FUNDING
FOR THE PROPOSED DEAD HORSE LEVEE STABILIZATION AND
RIPARIAN RESTORATION PROJECT, WALNUT GROVE,
SACRAMENTO COUNTY**

Dear Planning Department:

This letter is to inform you that Reclamation District 2111 is applying for a CALFED grant to conduct a levee stabilization and riparian restoration project on Dead Horse Island in Walnut Grove, southern Sacramento County. A brief description of our proposal is attached.

If you have questions, please call.

Sincerely,



Daniel Wilson
Trustee, Reclamation District #2111

Attachment

Attachment

The levees along the Mokelumne River at Dead Horse Island are typical of many of the older levees of the east-side of the Delta. In many instances older levees in the Delta are deteriorating, necessitating frequent spot repairs using traditional revetment techniques such as placement of rock or rubble rip-rap at the levee/water interface. Riparian vegetation is often sparse or absent on deteriorating levees in the Delta and levee repairs often result in further riparian losses. On levees where a low-berm is present at the toe of the levee adjacent to the water surface interface, the need for levee maintenance is greatly reduced and riparian vegetation often proliferates providing habitat for dependant wildlife and fish species. This project aims to reestablish the low berm on 3,500 linear feet of levee along Dead Horse Island using a combination of earthwork, natural sediment capture, and riparian habitat restoration. The Dead Horse Levee Restoration Project involves three key elements:

- Reestablishment of a low berm using three different designs to improve levee integrity and evaluate flood flow effects
- Creation of structures to capture sediment at the low berm and to stabilize the levee base using both biotechnical and traditional construction methods
- Riparian plantings on the low berm to restore riparian habitat, create shaded riverine aquatic habitat, and provide fish refugia.

Our proposed reestablishment of the low-berm and restore riparian habitat is consistent with the selected strategies for levee and habitat improvement identified in CALFED's Long Term Levee Protection Plan (1999). Additionally, the feasibility of our proposed project is supported by data and conclusions contained in the "Tyler Island Levee Protection and Habitat Restoration Plan - Preliminary Geomorphic Review and Preliminary Hydraulic Review" (Inter-Fluve 1999).

We believe it is important to undertake this project for several reasons.

1) *This project will yield important information on constructing low berms.* The results of this study, especially information on various berm reestablishment methods; sediment capture rates and effectiveness; and riparian restoration establishment techniques may be directly applicable to several future projects that will occur on the Lower Mokelumne River and throughout the Sacramento-San Joaquin Delta.

2) *Information gathered during our three-year program can be directly applicable to several other local CALFED programs* that are planned in the east Delta, including the Corps of Engineer's levee setback feasibility study on the lower Mokelumne, Georgiana Slough and Tyler Island berm restoration, The Nature Conservancy's Staten Island berm restoration, the Lower Mokelumne River Watershed Stewardship Program and Cosumnes River watershed stewardship program, and Woodbridge Irrigation District's improvements to Lodi Lake.

3) *Our project implements key natural resource restoration and management actions on the Lower Mokelumne River that are expressed in several planning documents, including CALFED's Ecosystem Restoration Program Plan (ERPP), Department of Fish and Game's Lower Mokelumne River Fisheries Management Plan, U.S. Fish and Wildlife Service's Anadromous Fish Restoration Program, and the Lower Mokelumne River Project Joint Settlement Agreement (FERC Project NO. 2916-004).*

ATTACHMENT B.
COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
)
)as
COUNTY OF Sacramento)

Daniel Wilson , being first duly sworn, deposes and
(name)
says that he or she is Trustee of
(position title)
Reclamation District #2111
(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: April 15, 1999

By *Daniel Wilson*
(person signing for bidder)

Subscribed and sworn to before me on



(Notarial Seal)

Leslie M. Eddy
(Notary Public)

BUDGET INFORMATION -- Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case you will be notified.

COST CLASSIFICATION		a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Column a-b)
1.	Administrative and legal expenses	\$ 15,000	\$ 0	\$ 15,000
2.	Land, structures, rights-of-way, appraisals, etc.	\$ 0	\$ 0	\$ 0
3.	Relocation expenses and payments	\$ 0	\$ 0	\$ 0
4.	Architectural and engineering fees	\$ 35,000	\$ 0	\$ 35,000
5.	Other architectural and engineering fees	\$ 0	\$ 0	\$ 0
6.	Project inspection fees	\$ 0	\$ 0	\$ 0
7.	Site work	\$ 65,000	\$ 0	\$ 65,000
8.	Demolition and removal	\$ 0	\$ 0	\$ 0
9.	Construction	\$ 140,000	\$ 0	\$ 140,000
10.	Equipment	\$ 0	\$ 0	\$ 0
11.	Miscellaneous	\$ 60,000	\$ 0	\$ 60,000
12.	SUBTOTAL	\$ 315,000	\$ 0	\$ 315,000
13.	Contingencies	\$ 0	\$ 0	\$ 0
14.	SUBTOTAL	\$ 315,000	\$ 0	\$ 315,000
15.	Project (program) income	\$ 0	\$ 0	\$ 0
16.	TOTAL PROJECT COSTS (subtract #15 from #14)	\$ 315,000	\$ 0	\$ 315,000
17.	Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share). Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X	%	\$ 315,000

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Prescribed by OMB Circular A-102

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ASSURANCES -- CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET, SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. Secs. 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. Secs. 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. Secs. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Secs. 794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. Secs. 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) Secs. 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. Secs. 3601 et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made, and (j) the requirements of any other non-discrimination Statute(s) which may apply to the application.

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Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and Federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

Will comply with the provisions of the Hatch Act (5 U.S.C. Secs. 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

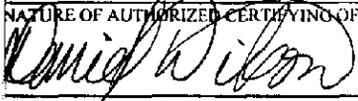
Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. Secs. 276a to 276a - 7), the Copeland Act (40 U.S.C. Secs. 276c and 18 U.S.C. Sec. 174), the Contract Work Hours and Safety Standards Act (40 U.S.C. Secs. 327-333), regarding labor standards for Federally assisted construction subagreements.

Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.

Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the

National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. Secs. 1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clear Air Act of 1955, as amended (42 U.S.C. Secs. 7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).

16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. Secs. 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. Sec. 470), EO 11593 (identification and preservation of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.
19. Will comply with all applicable requirements of all other Federal laws, Executive Orders, regulations and policies governing this program.

NATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Trustee, Reclamation District #2111
LICANT ORGANIZATION Reclamation District #2111	DATE SUBMITTED April 15, 1999

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