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DUCKS UNLIMITED, INC.
WESTERN REGIONAL OFFICE
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DUCKS UNLIMITED INC.

January 14, 1999

Ms. Cindy Darling
Restoration Coordinator
CALFED BAY-DELTA PROGRAM
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Dear Ms. Darling:

Attached, as requested by your letter of December 16, 1998, is the Designated Action Proposal for the Lower Butte Creek Project: Phase II – Preliminary Engineering and Environmental Analysis For Butte Sink Structural Modifications and Flow-through System. Ducks Unlimited, Inc. (DU) and the California Waterfowl Association are co-applicants on this proposal with DU acting as project lead and manager for the project.

The Lower Butte Creek Project is a "grass roots" effort which was initiated in the winter of 1996/1997 to assist agricultural and managed wetland operators located in the lower reaches of Butte Creek and the Sutter Basis with issues related to spring-run salmon passage. The objective of the project is to develop a set of mutually beneficial structural modifications and operational alternatives for fisheries and water users while maintaining the viability of commercial agriculture, managed wetlands and habitat for other species. The project has been accepted by more that 100 stakeholders located in the project area with two water control structural upgrades slated for construction in the summer of 1999.

The information contained in the attached proposal represents the combined efforts of many of the stakeholders. If you have any questions on the proposal or need any additional information please call Olen Zirkle at (916) 852-2000 or e-mail him at ozirkle@ducks.org.

Thank you for the allowing us the opportunity to participate in your important program

Sincerely,

Ronald A. Stromstad
Director of Operations

Cc: Bill Gaines,CWA
Rob Capriola, CWA

I-021173

I. Title Page

Title of Project:

Lower Butte Creek Project: Phase II – Preliminary Engineering and Environmental Analysis For Butte Sink Structural Modifications and Flow-through System

Name of Applicant:

Ducks Unlimited, Inc. (Co-applicant and Project Manager)
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3074 Gold Canal Drive
Rancho Cordova, California 95670-6116
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California Waterfowl Association (Co-applicant)
4630 Northgate Blvd., Suite 150
Sacramento, CA 95834
Tel: (916) 648-1406 Fax: (916) 648-1665
Email: robcap@inreach.com

Participants and Collaborators:

Ducks Unlimited, Inc. (DU), California Waterfowl Association (CWA), The Nature Conservancy, Northern California Water Association, California Department of Fish and Game (CDFG), California Department of Water Resources (CDWR), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service - Anadromous Fish Restoration Plan (AFRP), U.S. Fish and Wildlife Service - Sacramento Refuge Complex, Bureau of Reclamation, Butte Sink Waterfowl Association, Reclamation District 1004, Butte Slough Irrigation Co., Reclamation District 70, Reclamation District 1660, Sutter Bypass/Butte Slough Water Users Association

General Project Description/Executive Summary

The Lower Butte Creek Project was initiated to improve fish passage throughout the Lower Butte Creek region of the Sacramento Valley of Northern California. The objectives of the project are to develop a set of mutually beneficial structural modifications and operational alternatives for fisheries and water users while maintaining the viability of commercial agriculture, managed wetlands and habitat for other species. The project area includes a 60-mile reach of Lower Butte Creek and associated waterways. The area extends from the Gridley-Colusa Highway, south to Sacramento Slough at Verona and includes Butte Creek, Butte Sink, Butte Slough and the Sutter Bypass.

Phase I of the Lower Butte Creek Project, completed June 30, 1998, was designed as a "grassroots" effort to bring all interested stakeholders together in a public forum to address the diverse issues surrounding the use of Lower Butte Creek water. The result of this effort was an "existing conditions report" that detailed the water control structures located in the study area and listed alternatives to improve fish passage at each control structure site. Phase II, the subject of this proposal, will work with the same stakeholder groups to select a preferred alternative at each site. Once a preferred alternative is selected, a preliminary engineering and environmental analysis sufficiently detailed to provide the basis for a request for proposal for final design and

construction of the proposed alternative will be prepared. Additionally, Phase II contains a facilitation/coordination component which will work with the local action committees to identify a lead group to assume responsibility for construction of the chosen fish passage enhancement including both funding and construction contracts.

II. Proposed Scope of Work (see Table 1 for task schedules and deliverables)

General Duties:

1. Preliminary designs of major structural modifications at up to four sites in the Butte Sink (specific sites to be recommended by Phase I (b) currently on-going).
2. Environmental review at proposed construction sites.
3. Final engineering design for upgrade to the flow-through flood-up system for the Butte Sink.
4. Scoping of fisheries issues for Butte Sink flow-through and structural modification upgrades.
5. Facilitation of a cooperative operations agreement of the flow-through system with Butte Sink Clubs.
6. Project Management

Specific Duties:

Task 1: *Preliminary design* includes site characterization, channel capacities, site survey, site map, orientation of proposed structure, Geo-Technical work-up, water use analysis, annual flow analysis and a set of construction plans sufficiently detailed for use in a request for proposal for final engineering and construction.

Task 2: *Environmental review* includes compiling a complete list of aquatic, terrestrial and avian species found at the site, listing any potential CEQA/NEPA issues and working with engineers and other consultants to position the construction site.

Task 3: *Engineering design for flow-through system* includes: 1) a full land survey of the Butte Sink Clubs including elevations and location of levees and water control structures; 2) an inventory of pipes and weirs with size and location and direction of flow, and an operating analysis of existing system; 3) Recommendations for an upgraded system including a full set of engineering plans sufficiently detailed for use with a request for proposal for construction and implementation.

Task 4: *Scoping of fisheries issues* includes a review of fisheries impacts of the recommendations prepared by the engineers for a flow-through system structural modification upgrades for the Butte Sink. The scoping document will be sufficiently detailed to meet environmental compliance and permitting requirements.

Task 5: *Facilitation of a cooperative agreement* includes meeting with the Butte Sink clubs, engineers, fisheries consultants and regulatory agencies to develop and execute a cooperative operations agreement which details how the flow-through system will be operated during various flow regimes. Agreement will be sufficiently detailed to meet environmental compliance and permitting requirements.

Task 6: *Project Management* includes project oversight, project coordination, contract compliance, contract negotiations with funding entity and consultants, supervision of consultants, scheduling and reporting.

Table 1. Summary of task schedules including start/completion dates and deliverables

Task	Start Date	Completion Date	Deliverable
1. Engineering Design	July 1, 1999	March 31, 2001	Prelim. Engineering Plans for recommended structural modifications
2. Environmental Review	July 1, 1999	March 31, 2001	Environmental Review Report on recommended construction sites
3. Flow-through System Design	July1, 1999	March 31, 2001	Survey Map showing water control structure location and elevations, water conveyance and drainage recommendations
4. Fisheries Scoping	July 1, 1999	March 31, 2001	Report of fisheries' issues at major water control and drainage structures and fisheries' issues related to flow-through system.
5. Cooperative Agreement	July 1, 1999	May 31, 2001	A cooperative operations agreement between the hunting clubs using the Project Area
6. Project Management	April 1, 1999	June 30, 2001	Quarterly financial and management reports; Final Project financial and management reports, eng./env. Reports and recommendations

III. Location and/or Geographic Boundaries of the Project

The Butte Sink area for the purposes of this proposal is located between the Gridley-Colusa Highway on the north and the Colusa Shooting Drain and Tarke Weir on the south. It is bounded on the west by Butte Creek and on the east by the 55 foot contour line and the Cherokee Canal as shown on the USGS Project map, attached as Exhibit A. The majority of the Butte Sink area lies within Sutter County with the upper one-third lying in Butte County. The entire project is located within the Butte Creek Watershed.

IV. Ecological Objectives and Related Benefits

Objective:
Within the Butte Sink, reduce or eliminate delay and injury to Butte Creek adult salmon and steelhead and eliminate entrainment of juvenile Butte Creek salmon and steelhead under controlled-flow conditions while maintaining the viability of associated managed wetlands and agricultural operations. (See Table 1 for related detail).

Related Benefits:
Improved fish passage through the Butte Sink and its associated water control structures is expected to improve the long-term sustainability of natural production of anadromous fish populations, in particular spring-run chinook salmon and steelhead. Maintaining the viability of associated managed wetlands and agriculture is expected to improve the health and long-term sustainability of, agriculture, waterfowl and other resident species including species of special concern.

Other Project Phases:
The Lower Butte Creek Project was initiated as a grassroots effort to organize local stakeholders to work with regulatory agencies and non-profit organizations. Their task was to identify and recommend enhancements to the water control structures located in the Butte Sink, Butte Slough

and Sutter Bypass for the improvement of fish passage. The project was divided into three phases with the first phase being the formation of the stakeholders into action committees. These action committees, with the help of engineering and biological consultants, developed an existing conditions report and a list of alternative fish passage enhancements at each water control structure which were acceptable to the local stakeholder groups and the regulatory agencies.

The second phase will take the list of alternatives for each of the sites, select a preferred alternative and complete preliminary engineering design and environmental review sufficiently detailed for use in a request for proposal for final design and construction.

Phase three of the project is the construction phase. Currently, Phase one is complete and an interim phase, Phase I (b) that supplies additional information and data gaps, is in progress with a projected completion date of March 31, 1999.

Phase I of the project was funded equally by National Fish and Wildlife Foundation with funds from the Bureau of Reclamation (BOR) and California Fish and Game Proposition 70 funds. Phase I (b) was funded by ARFP. Several Phase II projects are approved for funding by AFRP, BOR and Tracy Mitigation Fund (see attached Exhibit B). Two Phase III projects are approved for funding. U.S. Fish and Wildlife Service, Sacramento Refuge Complex will fund construction of a replacement weir at the Sanborn Slough Bifurcation and AFRP will fund the replacement and upgrades to the Drumheller Slough Outfall structure.

V. Monitoring and Data Collection Methodology

The existing data and engineering and environmental data collected from the tasks described in this proposal will be used by the Butte Sink Action committee to design and build the proposed structural modifications and flow-through system needed to assist the safe passage of anadromous fish through the Butte Sink. A committee comprised of resource agencies, regulatory agencies, interested non-profits, consultants and stakeholder leadership will oversee the project and advise the project team on their issues and concerns. With this input the proposed construction projects are expected to be coordinated with ongoing Butte Creek restoration projects and meet other watershed objectives and requirements.

Table 2. Summary of ecological/biological objectives, associated hypothesis and monitoring parameters and approaches

1) Biological/Ecological Objective: Within the Butte Sink reduce or eliminate delay and injury to Butte Creek adult salmon and steelhead and eliminate entrainment of juvenile Butte Creek salmon and steelhead under controlled-flow conditions			
Question to be evaluated/Hypothesis	**Monitoring Parameter and Data Collection**	**Data Evaluation Approach**	**Comments**
Can the Butte Sink, east of Butte Creek, extending from the Gridley Colusa Highway downstream to the Colusa Shooting Drain and Tarke Weir be hydraulically configured and operated to allow unimpeded passage of juvenile and adult salmon and steelhead during controlled-flow conditions	Site characterization of entire reach to identify passage restrictions and stranding areas and recommendations for structural and operational remedies	Comparison of existing hydraulic and operational configuration to modified hydraulic and operational configuration to demonstrate unimpeded fish passage during controlled flow conditions	Study Priority and status: High Priority, Included in Existing Plan

VI. Technical Feasibility and Timing

Other Alternatives

Phase I and Phase I (b) of the project identified several alternatives for the Butte Sink area. They are: 1) Butte Creek is the primary fish passage for adults and juveniles. Fish access to Butte Sink would be blocked under controlled-flow conditions; 2) Butte Creek and Butte Sink (primarily Sanborn Slough/Cross Cut Canal/Cherokee Canal) are both available for fish passage under controlled-flow conditions. Adults and juvenile fish would follow the route of predominate flow.

Phase I (b) of the Project is currently looking at Alternative 2 to determine if the Butte Sink will function as a flow-through system. If it is a flow-through system, then it becomes the preferred alternative due to the difficulty of blocking off Sanborn Slough with a fish screen or by other means. The tasks detailed in this proposal assume that regardless of which alternative is chosen, juvenile salmon and steelhead will be entrained in the Butte Sink under uncontrolled flood conditions and structural modifications and operations agreements will be required for safe fish passage.

CEQA/NEPA Documents

The projects being funded by this proposal will not require any CEQA/NEPA documentation. However, an environmental review of the CEQA/NEPA issues will be conducted in this phase. U. S. Fish & Wildlife Service is preparing a programmatic environmental assessment for the proposed AFRP actions on Butte Creek. This assessment is scheduled for completion in April 1999. The report will serve as an environmental baseline study for the ensuing CEQA/NEPA documents that will be needed for the construction of the proposed fish passage enhancements.

Permits and Agreements

There are no permits required to complete this phase. Once the project reaches the construction phase, permits will be needed for working within the streambed and levee systems at each of the proposed sites.

As part of Phase I (b), working groups and partnerships will be identified and to the extent possible agreements reached on proceeding with the construction of the various Phase III projects. An agreement will be negotiated/facilitated to operate the Butte Sink as a flow-through system as part of this proposal.

Other Outstanding Implementation Issues

The California Fish and Game Commission has listed the spring-run salmon as a threatened species. The results of the Project's investigations will aid in the development of environmental and permitting documents related to the listing and other regulatory issues.

VII. Cost and Cost-Sharing

Identified in Table 3 is the total budgeted costs requested from CALFED for each task listed in the Scope of Work broken down into categories. The Project Budget is also reported in a quarterly format in Table 4.

Funding for Phase II of the Project is being supplied by several funding sources (see Exhibit B). U.S. Fish and Wildlife Service (AFRP) has identified $575,000 in its FY 1999 Budget for Phase II projects. The Bureau of Reclamation has identified $150,000 from its spring-run/coho salmon fund for Phase II projects. Tracy Pumps Mitigation Fund has identified $150,000 for Phase II projects. Further, Bureau of Reclamation through its refuge water supply efforts has identified 1999 funds for Sutter Bypass projects. AFRP has identified an additional $283,000 as a contingency for funding under its FY 1999 program as funds become available.

U. S. Fish and Wildlife Service, Sacramento Refuge Complex received emergency funding to repair and upgrade the Sanborn Slough Bifurcation Dam. This funding, approximately $1.0 million, will be administered by California Waterfowl Association. AFRP FY1999 Budget ($67,000) will fund preliminary engineering and environmental analysis for this site.

Table 3: Total Budget for Lower Butte Creek Project - Phase II
(CALFED Only)

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Miscellaneous and other Direct Costs (CWA)	Total Costs
Task 1: Preliminary Design	375	$19,125	$153,475	$2,400	$25,000	$200,000
Task 2 Environmental Review	125	$6,375	$13,625		$5,000	$25,000
Task 3: Flow-Through Design	375	$19,125	$178,625	$2,250	$25,000	$225,000
Task 4: Fish Scoping	300	$15,300	$94,700		$15,000	$125,000
Task 5: Cooperative Agreement		0	$95,000		$ 5,000	100,000
Task 6: Project Management: Oversight Administration Contract Compliance	1000 180 120	$60,000 $ 8,550 $ 6,450				$75,000
Total		$134,925	$535,425	$4,650	$75,000	$750,000

Table 4: Quarterly Budget for Lower Butte Creek Project – Phase II
(CALFED Only)

Task	Apr-Jun 99	Jul-Sep 99	Oct-Dec 99	Jan-Mar 00	Apr-Jun 00	Jul-Sep 00	Oct-Dec 00	Jan-Mar 01	Apr-Jun 01	Total Budget
Task 1: Preliminary Design		$20,000	$50,000	$25,000	$25,000	$40,000	$25,000	$15,000		$200,000
Task 2: Environmental Review		$10,000	$5,000			$5,000		$5,000		$25,000
Task 3: Flow-Through Design		$30,000	$50,000	$25,000	$25,000	$50,000	$25,000	$20,000		$225,000
Task 4: Fish Scoping		$10,000	$20,000	$15,000	$25,000	$25,000	$20,000	$10,000		$125,000
Task 5: Cooperative Agreement	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$20,000	$100,000
Project Management: Engineering Administration Contract compliance	$15,000	$10,000	$6,000	$6,000	$6,000	$10,000	$6,000	$6,000	$10,000	$75,000
Total	$25,000	$90,000	$141,000	$81,000	$91,000	$140,000	$86,000	$66,000	$30,000	$750,000

VIII. Local Impacts, Support and Involvement

The Project is located in both Butte and Sutter Counties. Sutter County is aware of the Project, with one of the county supervisors active on the Sutter Bypass Action Committee. Because of the coordination between the Lower and Upper Butte Creek efforts, much of the Lower Butte Creek information has been made available to Butte County.

Local groups are very active in the Lower Butte Creek process. The local groups include the Butte Sink Waterfowl Association, R.D. 1004, Butte Slough Irrigation Co./R.D. 70 and the Sutter Bypass/Butte Slough Water Users Association. Conservation groups include The Nature Conservancy, California Waterfowl Association and Ducks Unlimited. Northern California Water Association, an association of northern California water districts, supports the Project. All of the above listed groups are supportive of the Project and active in its implementation. From time to time, meetings have been held with Natural Resources Defense Council and the Natural Heritage Institute to update them on the progress of the Project. In general, they have expressed support for the Project.

The Adjacent or affected landowners, facility owners and operators have all been contacted and many of them are active in the project. They are supportive of the project and view it as an excellent way to implement regulatory actions imposed by endangered species listings. Currently, there are no known groups that oppose the Project.

The Project has identified the various groups and has kept them appraised of the progress of the Project. The Phase I report has been made available to any group that requests one. The consultants are aware of the need of public outreach and have been responsive to all inquiries. The Steering Committee has requested involvement by various groups throughout the Phase I process. As a result, the National Marine Fisheries Service and the U. S. Fish and Wildlife Service now sit on the Steering Committee. Once projects have been specifically identified, a formal outreach program will be initiated.

The main third party impact will be to the associated agricultural and managed wetland interests that depend on the water flowing down Butte Creek for flooding of hunting clubs/wetlands and irrigation of agricultural crops. Both of these groups have been invited to help manage and implement the Project. They are quite active through their trade associations. Further, the stated goal of the project is to maintain the viability of associated managed wetlands and agricultural interests. Other possible third party impacts will be to other owners and operators of lands and businesses along the entire Butte Creek Watershed. As a result, a member of the Butte Creek Watershed Conservancy is active in the Project.

IX. Applicant's Ability

The Project is being implemented by a partnership comprised of CWA and DU. Current management agreements include DU as the overall Project lead with the responsibility of funding, contract compliance, reporting, project management/oversight and project lead in the Butte Slough and Sutter Bypass areas. CWA will provide project leadership and coordination of site specific tasks for the Butte Sink area. CWA and DU will share site specific tasks in all three areas of the Project based on their individual skills and relationships. CWA will assist DU in overall project management and oversight with both non-profit entities sharing in project procedural and policy development. A project oversight committee comprised of AFRP, CDFG,

CDWR and stakeholder leadership groups has been formed and will review all project actions. Those individuals directly associated with the management of the Project are:

Ducks Unlimited, Inc.

Olen Zirkle: -Lower Butte Creek Project Manager
Mr. Zirkle brings a diverse background to the Lower Butte Creek Project. Educated as U.C. Davis, earning a Bachelor of Science degree in Agricultural. Production/Agronomy, he has spent a lengthy career working with agriculture on operational and management issues. Mr. Zirkle is currently employed by Ducks Unlimited as an Agricultural Lands and Water Specialist where he manages both the Lower Butte Creek Project and the Sutter Basin Agricultural Easement Project. He recently completed a three and one-half year contract with The Nature Conservancy where he managed their Ricelands Habitat Project and initiated and implemented Phase I of the Lower Butte Creek Project. Mr. Zirkle plans to continue his efforts with the Lower Butte Creek Project where he will supply programmatic management and assist in the facilitation of the large and diverse group of stakeholders.

Robert Charney -Regional Engineering Supervisor
Mr. Charney manages the wetland engineering program for the Western Regional Office of Ducks Unlimited, Inc. His responsibilities include the supervision of professional engineering staff, program management, contract management, and project evaluation. Currently the engineering program has 16 staff members in various job titles and capacities and has worked on a diverse cross-section of wetlands projects including fisheries enhancement projects and the award winning Yolo Basin Wetlands Project. Mr. Charney is a Registered Professional Engineer and earned both his B.S. and M.S. degrees in Civil and Environmental Engineering from the University of California at Davis.

Jim Well: Regional Engineer, California
Mr. Well is responsible for providing engineering on Ducks Unlimited projects within California. He will supply overall project management and coordinator for engineering matters for the Butte Sink Project. He has worked in this capacity on three other fisheries projects, M&T Pumps, Rancho Esquon/Adams Dam and Gorrill Dam. These projects consisted of survey, design, competitive, and negotiated bids for construction, construction management and coordination between funding partners, consultants, contractors, regulatory agencies and other Ducks Unlimited staff. Mr. Well earned a B.S. in Civil Engineering from North Dakota State University.

Peter Schmidt: Project Biologist
Mr. Schmidt is currently a Project Biologist at the Western Regional Office of Ducks Unlimited. He covers the Sacramento Valley and Sacramento/San Joaquin Delta area working on both public and private lands. Mr. Schmidt received his Master's degree in Wildlife Management from Humboldt State University. His Master's work focused on activity budgets and disturbance factors affecting black brant at Humboldt Bay, California. Prior to joining Ducks Unlimited Mr. Schmidt worked for the California Department of Fish and Game in the Humboldt Bay area. Mr. Schmidt also served as a volunteer caretaker for the U. S. Fish and Wildlife Service at the Humboldt Bay National Wildlife Refuge.

Karin Troedsson: Contract Compliance Manager
Ms. Troedsson, Contract Compliance Manager, Western Regional Office, oversees the quality of habitat contracts and compliance with internal policy, external regulations and state and federal law. While at Ducks Unlimited, Ms. Troedsson has coordinated the funding contracts for the Gorrill Land and Rancho Esquon fish screen projects, which were funded in part by CALFED.

Ms. Troedsson earned her J.D. and a Certificate in Environmental and Natural Resources Law from Northwestern School of Law of Lewis and Clark College in Portland, Oregon.

California Waterfowl Association

Rob Capriola: Program Manager, Butte Sink Action Committee Chairman
Mr. Capriola, waterfowl habitat biologist for CWA since the spring of 1997, and has been coordinating the restoration and enhancement of wetlands on wildlife areas and duck clubs throughout the SacramentoValley including lands within the Butte Sink and Sutter Bypass. He has been actively involved with the Lower Butte Creek Project since its inception serving as project lead for CWA. Prior to his employment with CWA, he spent six years in fisheries and wetland project management as a wetland biologist for Humboldt Bay National Wildlife Refuge. He also co-founded the Pacific Coast Restoration, a private non-profit organization that implements fisheries and wetland restoration and enhancement projects in the north coast region. He earned B.S. degree in Cultural Anthropology at Humboldt State University and a Masters Degree in Natural Resource Management at Humboldt State University.

Bill Gaines: Director of Government Affairs

As Director of Government Affairs, Bill Gaines identifies and influences critical legislative measures that could impact the availability of water for wetlands. Mr. Gaines—through his positions on the CALFED Bay/Delta Ecosystem Restoration Roundtable and the CVPIA Restoration Fund Roundtable—has led wetland interest efforts to achieve consensus solutions to Bay/Delta ecosystem concerns. In these, and other capacities, Mr. Gaines has worked closely with agricultural, fishery and urban interests in a pro-active effort to address fishery and wildlife issues in the Sacramento Valley and throughout California. As a Lower Butte Creek Project co-founder, he has been active with project activities since inception. Bill Gaines received his B.S. degree in Agricultural and Managerial Economics from the University of California at Davis in 1980. He received a M.B.A. degree in Management from Golden Gate University in 1990.

X. Compatibility with Non-Ecosystem Objectives

Many of the structures proposed for modification and upgrades serve a dual purpose as flood control structures. CDWR is active on all of the local action committees and the Steering Committee and will head many of the investigations that have direct flood control implications. Further, the structures being investigated are used to control water flows. It is expected that the recommended upgrades will lead directly to greater water reliability.

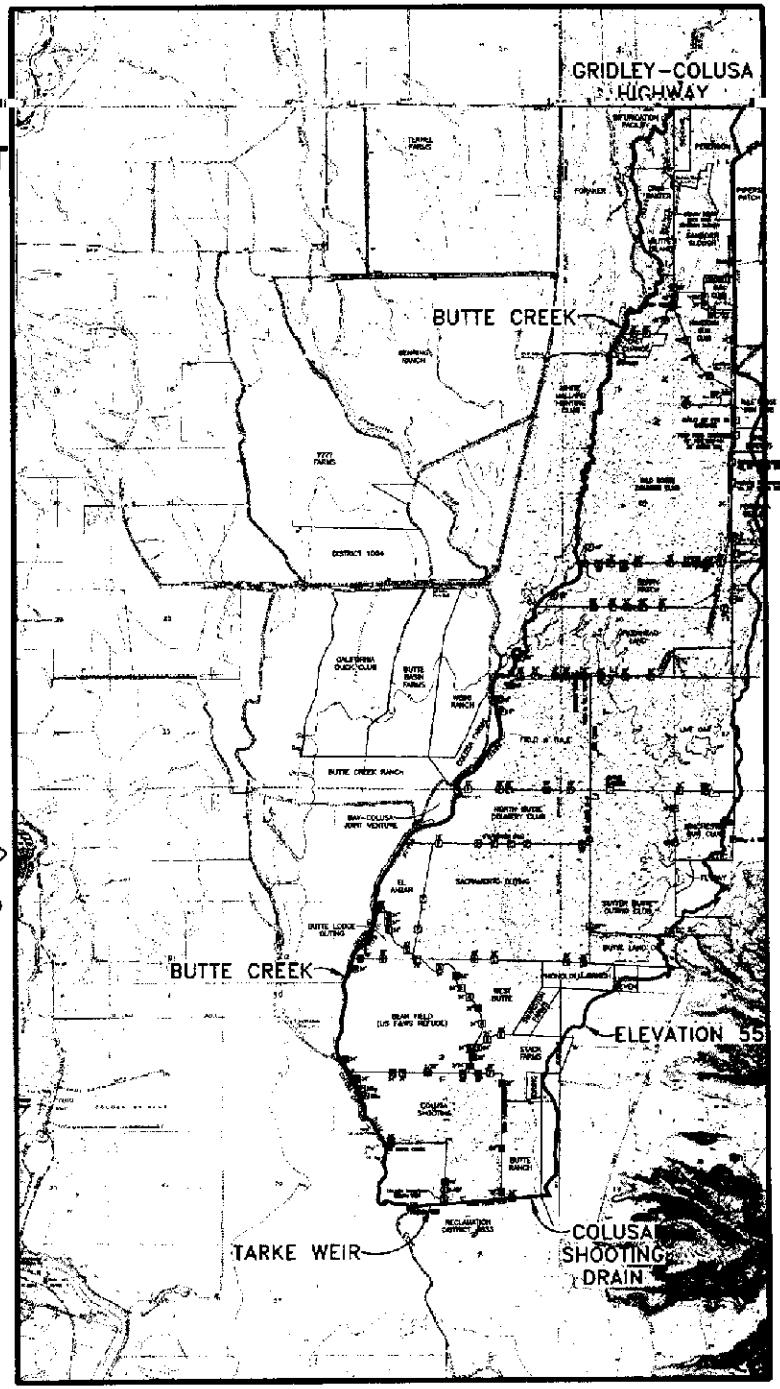
EXHIBIT A

LOWER BUTTE CREEK PROJECT

PHASE II

BUTTE SINK

PROJECT CONTAINS
10,500 ACRES±



DUCKS UNLIMITED INC.
WESTERN REGIONAL OFFICE

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Exhibit B: Lower Butte Creek Project
Phase II Projects - Estimated Costs FY 1999
Ducks Unlimited - December 16, 1998

No.	Name	Est. Cost	AFRP FIRM	AFRP CONTGY	BOR FIRM	TRACY MIT FIRM	CALFED POTENTIAL
1	Bifurcation Analysis 1/	$200,000	$67,000	$133,000			
2	Bifurcation Operation	$50,000		$50,000			
3	White Mallard Dam/Diversion	$100,000			$100,000		
4	Butte Sink Engineering	$250,000					$250,000
5	Butte Sink Fish Passage	$150,000					$150,000
6	Butte Sink Cooperative Agreem't	$100,000					$100,000
7	Butte Sink Str. Modifications	$250,000					$250,000
8	Butte Slough Outfall Gates	$50,000				$50,000	
9	East-West Diversion Weir	$50,000	$50,000				
10	Weir #5 Upgrade	$100,000	$100,000				
11	Weir #3 Upgrade/Removal/Guisti	$100,000	$50,000	$50,000			
12	Weir #1 Upgrade/Removal	$50,000			$50,000		
13	Weir #2 Upgrade/Screen	$100,000				$100,000	
14	Wadworth Slough Barrier 2/	$50,000			$50,000		
15	Willow Slough Upgrade	$50,000		$50,000			
16	Project Coord./Facilitation	$75,000	$75,000				
	Phase II Costs	$1,725,000	$342,000	$283,000	$200,000	$150,000	$750,000
Phase III Projects - Estimated Costs							
1	Drumheller Slough Outfall	$200,000	$200,000				
	Total Costs	$1,925,000	$542,000	$283,000	$200,000	$150,000	$750,000

Funding Summary:	
Funds Needed	$1,925,000
AFRP (Firm)	($542,000)
Tracy Mitigation (Firm)	($150,000)
Bureau of Reclamation (Firm)	($200,000)
CALFED (Potential)	($750,000)
AFRP Contingency (Balance)	$283,000

Funding Distribution:	
Ducks Unlimited	$1,375,000
Dept of Water Resources	$217,000
AFRP Contingency	$283,000
Total	$1,875,000

1/ $67,000 was advanced to DWR using FY 1998 funds
2/ Funds for prilim. design are included in Refuge Water Supply Budget