



MONTGOMERY WATSON

179

August 20, 1997

Ms. Kate Hansel  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Re: Erata sheets for Gorrill DamFish Screen and Ladder Project

Dear Ms. Hansel;

Enclosed are the erata sheets for the Gorill Fish Screen and Ladder Project Category III Proposal as discussed on August 18, 1997. Please include these corrected pages with the original proposals. There are 10 sets of erata sheets, one for each copy of the proposal.

Sincerely,

*Neil Schild/sk*

Neil Schild  
Principal Engineer

enc:  
10 sets - Erata Sheets

777 Campus Commons  
Suite 250  
Sacramento, California  
95825-8308

Tel: 916 924 8844  
Fax: 916 924 9102

*Serving the World's Environmental Needs*

I - 0 0 4 0 3 9

I-004039

**GORRILL LAND COMPANY**  
P.O. BOX 427/7935 MIDWAY, DURHAM, CA 95938  
(916) 342-6867/FAX (916) 342-1195

CALFED Bay-Delta Program  
Attn.: Ms. Kate Hansel  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

July 25, 1997

**Project: Gorrill Dam Fish Screen and Ladder Project**  
**Applicant: Gorrill Land Company**

Gorrill Land Company is applying for funds to construct a fish screen and ladder project at its diversion located on Butte Creek. This project will benefit the anadromous salmonids using Butte Creek and using the Sacramento River as a migration corridor. Among the anadromous species using Butte Creek is the spring-run chinook salmon which has recently been listed by the California Department of Fish and Game.

Funds are also being sought from the CVPIA administered by the U.S. Fish and Wildlife Service. The Draft Feasibility Study was completed by the Department of Water Resources office in Red Bluff with support from the California Department of Fish and Game. The draft study was funded with Tracy Pump Funds which are considered federal funds. Gorrill Land Company will assume all long-term operation and maintenance (O&M) costs, donate all rights of way, provide strict project oversight, and \$50,000. The funding costs and the breakdown are included in the application.

Gorrill Land Company has gone one step beyond current fish screen criteria to install screen material fulfilling juvenile steelhead trout criteria. The request for proposal of the design-build option was distributed to qualified bidders, and three proposals were received. Montgomery Watson was selected as the firm selected to complete the project. The construction schedule includes the coordination of funding, environmental documentation and permitting process. Construction activities will be scheduled to meet criteria of and in accordance with the California Department of Fish and Game, Fish and Wildlife Service, and National Marine Fisheries Service.

Please consider this application to involve a significant restoration project. Any questions that arise can be clarified through Mr. Don Heffren, Ranch Manager, Gorrill Land Company, at (916) 342-6867. We will gladly present this application in the interview process if requested.

Respectfully submitted,

GORRILL LAND COMPANY

By: *Nancy E. Piret*  
NANCY E. PIRET

cc: Mr. Walter Hoyer  
Metropolitan Water District

F1-179

DWR WAREHOUSE

97 JUL 29 PM 3: 01

**GORRILL DAM FISH SCREEN AND LADDER  
GORRILL LAND COMPANY**

P.O. Box 427  
Durham, CA 95938  
(916) 342-5867  
FAX (916) 342-1195

**Type of Organization and Tax Status: Farming Company**

**Tax Identification Number: 94-6086514**

**Technical and Financial Contact Persons: Don Heffren, Nancy Piret**

**Participants/Collaborators in Implementation:**

**California Department of Water Resources**

**California Department of Fish and Game**

**United States Fish and Wildlife Service**

**United States Bureau of Reclamation**

**National Marine Fisheries Service**

**Montgomery Watson**

**Taber Consultants, Geotechnical Engineering**

**Diamond Oaks Construction**

**RFP Project Group Type: Group I: Public Works/Construction Projects**

# GORRILL DAM FISH SCREEN AND LADDER PROJECT

## EXECUTIVE SUMMARY

**Project:** Gorrill Dam Fish Screen and Ladder Project

**Applicant:** Gorrill Land Company

The Gorrill diversion dam on Butte Creek was built in the 1920's with the right bank fish ladder constructed in 1959 when modifications were made to the diversion dam. The dam provides irrigation water to the Durham area farm. Adult spring-run chinook salmon and other salmonids are impeded in their upstream migration by the diversion dam structure. In addition, the unscreened diversion can divert juvenile salmon and steelhead trout during downstream emigrations. Declining spring-run salmon populations have caused an increase in efforts to preserve and enhance the salmon populations with restoration actions that are compatible with the needs of various stakeholders. The primary biological and ecological objectives include correcting fish passage problems at the diversion by installing a positive-barrier fish screen and two fish ladders to preserve and enhance spring-run chinook salmon and steelhead trout populations.

The project approach involves engineering, planning, and design of two separate fish ladders to function under a wide range of conditions and facilitate maintenance. The scope of work involves tasks divided between two phases of the project. The first phase includes design, permits, and funding followed by the second phase which includes procurement and construction of the fish ladders and screen. The tasks are broken into the major work areas of; project management; funding; environmental and permitting; engineering; and construction for the project. The project schedule has been laid out with the funding as top priority. Environmental and permitting documentation is to follow in a timely fashion. The final engineering and acquisition of materials will follow very closely in order for the construction to begin during the no impact construction season between June 15 through October 15, 1998.

CDFG's "Restoring Central Valley Streams: A Plan for Action" identifies correcting fish passage problems at diversions and installation of fish screens on diversion facilities as top priority to anadromous fish habitat restoration actions. The installation of positive-barrier fish screens to reduce losses of juvenile chinook salmon and steelhead trout has also been identified by CALFED's "Vision for Ecosystem Elements" in the "Ecosystem Restoration Program Plan". Similarly, the Anadromous Fish Restoration Program (AFRP) listed the improvements to Gorrill Dam diversion facilities as a priority among the 24 action items listed.

The cost to complete the engineering, environmental permitting and funding will be \$117,990. The construction management, field engineering, and startup will cost \$80,372. The installation and procurement of materials will cost \$1,163,135. Gorrill Land Company will contribute an annual cost of \$17,500 as well as \$50,000 to fund the Gorrill Dam Fish Screen and Ladder Project.

Facility improvements at Gorrill Dam will enable Western Canal Water District to obtain the 100 cfs of Butte Creek water rights they previously diverted prior to construction of the

Western Canal Siphon which crosses Butte Creek. Construction improvements at Gorrill Dam will also include a stream gage. This stream gage will provide the water master an accurate stream quantity measurement downstream of Gorrill Dam, facilitate the partial achievement of ARFP's action items 1 and 9 for Butte Creek, and help downstream diverters through closer monitoring of instream flows downstream of Gorrill Dam.

The applicant and the contractors are well qualified to complete the project successfully. Gorrill Land Company is a for-profit farming organization with a strong interest and recognition of the importance of the ecological well-being of the Butte Creek watershed. Montgomery Watson is one of the nation's leading consulting engineering firms offering specialized services in water and wastewater-related fields, aquaculture, and bioengineering of fish facilities.

CDFG has existing programs monitoring the river escapement of adult chinook salmon and steelhead trout, primarily spring-run chinook salmon. Concurrently, CDFG has ongoing programs monitoring the juvenile salmon and steelhead trout emigration from Butte Creek and adjacent streams. Gorrill Land Company intends on standard startup procedures with assistance from their consultant. The Gorrill Dam project has been coordinated with similar projects located at Durham Mutual Water Company and Adams Diversion Dam and in conjunction with the Parrot-Phelan Diversion Dam.

The Gorrill Dam project is compatible with CALFED objectives. Both the US Fish and Wildlife Service (Service) through the Anadromous Fish Restoration Plan and CALFED have designated Gorrill Dam as a priority of unscreened diversion facilities. The Service has designated Butte Creek and other diversion facilities located in the rearing reaches of spring-run chinook salmon as a priority through the AFRP. The CALFED Technical Team has determined that the Gorrill Dam Fish Screen and Ladder project is consistent with the Category III program for funding in 1997 (June 5, 1997 Summary of Technical Team Reports Stressors and Example Restoration Actions, page 3).

**GORRILL DAM FISH SCREEN AND LADDER PROJECT  
GORRILL LAND COMPANY**

**PROJECT DESCRIPTION**

The Gorrill diversion dam on Butte Creek was built in the 1920's with the right bank fish ladder constructed in 1959 when modifications were made to the diversion dam. Dated photos show additional modifications to the dam being constructed in 1969. The diversion dam provides irrigation water in the Durham area to crops such as rice, wheat, sugar beets, and corn. The normal season for irrigation diversion is from April 1 through October 1. Adjudicated water rights, subsequent appropriated rights, and proposed transferred rights allow a maximum instantaneous flow of 121.7 cfs from the Gorrill Dam diversion through the left bank of Butte Creek. Adult spring-run chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) could be impeded in their upstream migration by the diversion dam structure. In addition, the unscreened diversion at Gorrill Dam can divert juvenile salmon and steelhead trout out of the stream during their downstream emigration. High water temperatures have been noted downstream of the dam at certain times and are a result of low stream flows. To resolve these adverse conditions, CDFG has negotiated with operators of Parrot-Phelan Diversion Dam to pass an additional 40 cfs during October 1 through June 30 of each year. The Gorrill Dam Fish Screen and Ladder Project has been designed to accommodate this additional flow in Butte Creek.

According to California Department of Fish and Game (CDFG) records, spring-run chinook salmon populations have declined dramatically since 1963 when an estimated 4,600 adults emigrated back to Butte Creek. As many as 7,500 and as few as 10 adults have returned during subsequent years. The total exceeded 1,000 adults in only six years: 1965, 1986, 1988, 1989, 1995, and 1996. Declining spring-run chinook salmon populations have caused an increase in the efforts to preserve and enhance the chinook salmon populations with restoration actions that are compatible with the needs of various stakeholders. The spring-run salmon is listed as a candidate species by the CDFG as a potential endangered species. This project is part of restoration efforts to stabilize anadromous salmonid populations.

**Approach**

Preliminary engineering, planning, and design have been prepared by Gorrill Land Company, the California Department of Water Resources (DWR), and CDFG. The details of the feasibility design were presented in the Preliminary Engineering Technical Report dated March 1997. As a result of the Request For Proposal made by Gorrill Land Company, Montgomery Watson, Americas was selected to implement an alternative design that enhances the feasibility design proposed by DWR and CDFG. The alternative design selected in June 1997 has received support by CDFG, USBR, US Fish and Wildlife Service (Service), DWR, and National Marine Fisheries Service (NMFS).

Gorrill Land Company will construct a facility with two separate ladders. A single fish ladder cannot function under the wide range of flow conditions expected in Butte Creek without compromising fish friendliness, posing an unacceptable risk of being damaged

during floods, or becoming clogged with debris and gravel after flood events. The alternative design fishways will have the following benefits:

- reduced sediment accumulation in pools, therefore reduced maintenance
- reduced turbulence for easier fish passage
- reduced delay of migrating adults resulting from dependable hydraulics
- reduced O&M costs

Gorrill Land Company selected to build a well proven facility with a low maintenance design. During summer, when the dam boards are in place, a half Ice Harbor fish ladder will be used on the left bank. This ladder is integrated with the fish screen structure to provide sweeping flows and is protected from debris damage by location and design of an upstream training wall. For winter use a vertical slot ladder will be constructed on the right bank. The hydraulic design of this ladder conveys significant attraction flows up to the level of channel flow where a fish can swim directly over the dam (800 cfs). The vertical slot ladder is a proven design that is superior for passing bedload sediment, reducing long-term operation and maintenance costs. Vertical slot ladders are known to operate well at variable head and tail water levels which regularly occur in Butte Creek during the winter. The alternative design will work and have a shelf life to accommodate possible future changes in flows and water levels. The new facilities will also include facilities downstream to better measure flows passing the diversion dam. These facilities have been reviewed by CDFG, DWR and the Service with adaptations made to reflect their concerns.

The fish screen installed will be an inclined wedge wire screen. The opening size will be 1.75mm which will meet steelhead criteria and surpass the salmon criteria. An airburst cleaning system with the capability of cleaning each panel every 20 minutes will be used to maintain proper functioning of the diversion facility. It was determined this criteria should be adequate for the amount of trash anticipated in Butte Creek flows during the diversion season. The upstream exit of the summer ladder will be constructed to allow complete dewatering of the screen bays and provide access to the screen, baffles and cleaning system. The water will be conveyed through the levee in 2-48 inch RCP conduits into an overflow weir. The diverted flow will be measured by two propeller meters in the conduits and flow into an open ditch for delivery.

### **Project Location**

The proposed construction project will be located at the Gorrill Diversion Dam along Butte Creek in Butte County, California. Gorrill Land Company is located about 2 miles south-southeast of the community of Durham. The project area is in Section 7, Township 21N, Range 2E (See Figure 1).

### **Expected Benefits**

The existing diversion dam and unscreened diversion operated by Gorrill Land Company can impede upstream migration of spawning adult chinook salmon (fall-, late fall-, and spring-run) and steelhead trout, as well as divert juvenile chinook salmon and steelhead trout out of the stream during their downstream migrations. The Gorrill Dam Fish Screen and Ladder project is part of a larger effort to enhance spring-run chinook salmon populations,

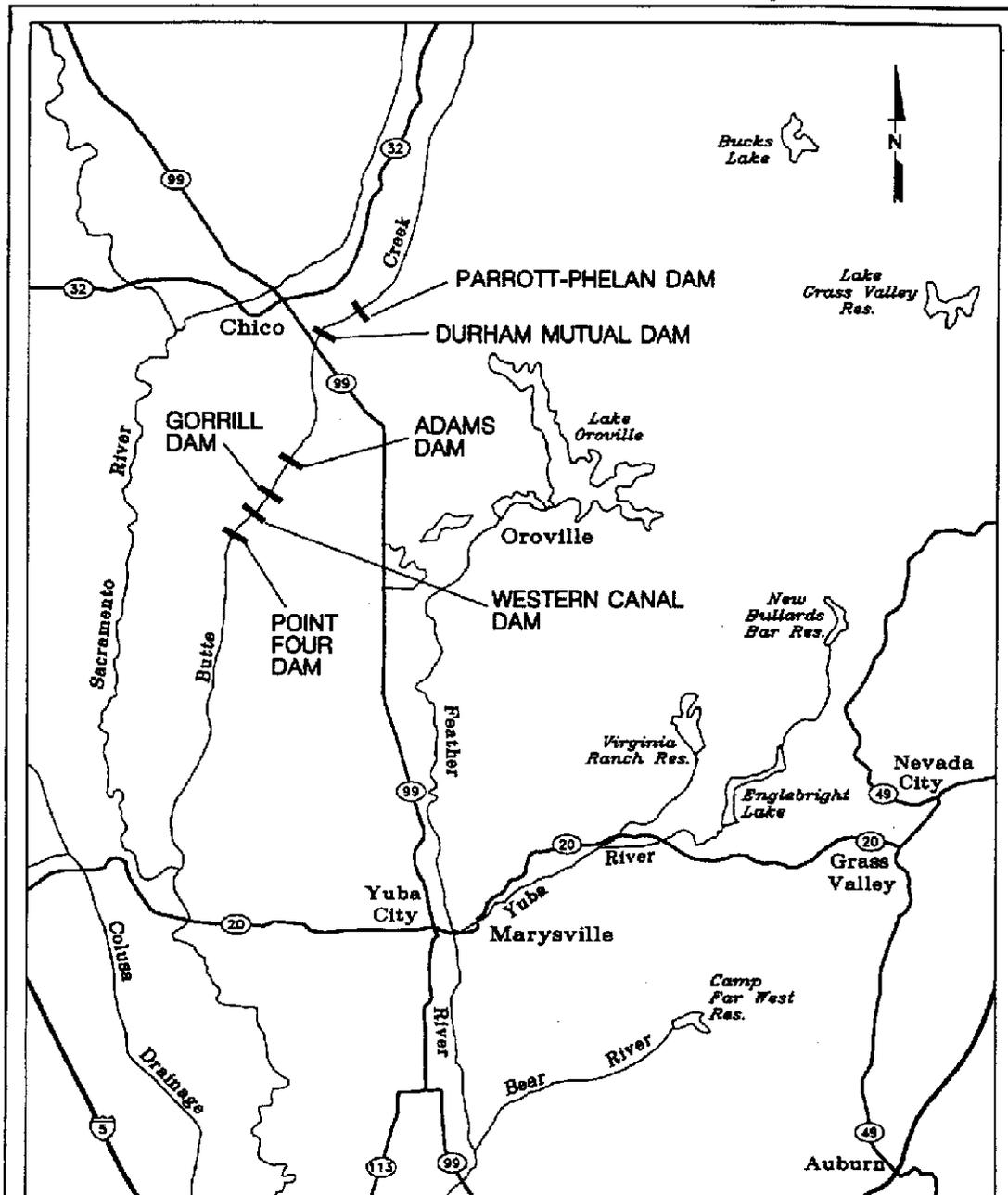


FIGURE 1

MAP OF BUTTE COUNTY  
AND THE SURROUNDING AREA

because Butte Creek is one of several streams used by spring-run chinook salmon. CDFG's report titled "Restoring Central Valley Streams: A Plan for Action" described Butte Creek as supporting over 4,000 adult spring-run chinook salmon, a lesser number of fall- and late fall-run chinook salmon, and a small number of steelhead trout. More recently, the adult spring-run chinook salmon populations have been variable as described previously. Fall-run chinook salmon population varies between a few fish to as many as 1,000, while the numbers of late fall-run chinook salmon and steelhead trout are unknown.

The following is a summary of expected primary benefits from the Gorrill Project:

- The ecological benefits of improved passage facilities for juvenile and adult life stages are reduced impediments and delay to emigration and migration.
- Biological effects of positive-barrier fish screens is reduced entrainment of emigrating juvenile salmonids, and therefore improved survival conditions.
- The proposed project will construct facilities that benefit all salmonid species, spring-, fall-, and late fall-run chinook salmon and steelhead trout.
- The combined improvements of the positive-barrier fish screens and fish ladders will contribute to improved survival conditions of critical fresh water life stages. Larger populations of salmonids such as the special status spring-run chinook salmon could be expected as a result of these improvements.

CALFED selection criteria for Category III Funding identifies several factors including;

- Relative level of decline,
- Future risk to the species and / or habitat, and
- Does the proposed project mitigate ecosystem stressors and what is the relative benefit to the particular species and / or habitat.

Both the US Fish and Wildlife Service (Service) through the Anadromous Fish Restoration Plan and CALFED have designated Gorrill Dam on the priority list for unscreened diversion facilities. The Service has designated Butte Creek and diversion facilities located in the rearing reaches for spring-run chinook salmon as a medium priority. The CALFED Technical Team has determined that the Gorrill project is consistent with the Category III program for funding in 1997 (June 5, 1997 Summary of Technical Team Reports Stressors and Example Restoration Actions, page 3).

The proposed project is consistent with CALFED objectives:

- Ecosystem Quality
- Water Supply
- Water Quality
- System Vulnerability

The Gorrill Dam Fish Screen and Ladder Project will provide benefits to the Butte Creek watershed ecosystem quality and health through improved juvenile and adult salmonid passage facilities. The project will also enhance Gorrill Land Company's ability to divert irrigation water from Butte Creek in accordance with adjudicated water rights, subsequent appropriated rights, and proposed transferred rights. Downstream water quality (water

temperature) should improve with the addition of 40 cfs negotiated by CDFG. This additional flow will be allowed to pass Gorrill Dam and measured at the stream gage located downstream of the new facility. The project has been designed for reliable service to the operator and contribute to improved ecosystem conditions in the Butte Creek watershed. Therefore, vulnerability of the physical diversion dam, fish screens and ladder will be minimized as well as providing enhanced passage of juvenile and adult salmonids.

### **Background and Biological / Technical Justification**

The decline of chinook salmon and steelhead populations in Butte Creek is influenced by factors such as inadequate flows, unscreened diversions, inadequate passage at diversion dams, agricultural return drains, poor water quality, reduced spawning gravel, and illegal harvest. All of these factors contribute towards the cumulative adverse conditions present in Butte Creek from the headwaters to its confluence with the Sacramento River.

CDFG's "Restoring Central Valley Streams: A Plan for Action" identifies correcting fish passage problems at diversions and installation of fish screens and diversion facilities as A-1 Priority to Anadromous Fish Habitat Restoration Actions. Similarly, the installation of positive-barrier fish screens to reduce losses of juvenile chinook salmon and steelhead trout has been identified as an objective in the CALFED "Vision for Ecosystem Elements" in the "Ecosystem Restoration Program Plan." In addition, the Anadromous Fish Restoration Program (AFRP) has listed the improvements to the Gorrill Dam fish screen and ladder facilities and other similar diversion and fish ladder facilities as medium priority among the 24 action items listed. The Gorrill Dam facilities are listed as action items 12 and 13, with 8 of the action items listed above Gorrill Dam already addressed or currently being addressed. Those diversion and fish ladder facilities already addressed are the Point Four Ranch Dam, Parrot-Phelan Dam, and Western Canal (Figure 1). Facilities that will be addressed by the end of 1998, included Durham Mutual Dam, Adams Dam, and Gorrill Dam (Figure 1). Each of the diversion facilities listed impedes upstream migration of adult salmon and steelhead trout and entrains juvenile chinook salmon and steelhead trout emigrating from Butte Creek.

CALFED, CDFG, and the AFRP recognize the importance of Butte Creek as a quality habitat for spring-run chinook salmon and an opportunity to reestablish a healthy population in the Sacramento River basin. Representatives of these groups recognize the need to enhance upstream passage of migrating adult chinook salmon and steelhead and improve survival conditions of emigrating juvenile chinook salmon and steelhead. The Approach section of this report discusses a comparison of this proposed approach along with the durability of the benefits resulting from implementation of the proposed project.

During 1998, three priority projects in the middle reach of Butte Creek will initiate construction. Facilities at Gorrill Dam, Adams Dam and Durham Mutual will all begin construction to improve diversion facilities including new positive-barrier fish screens and fish ladders. Individually these projects are a small piece of the larger picture, but together these projects create a significant positive step forward. The combined package will yield greater biological and ecosystem benefits. Therefore, coordination of the Gorrill Dam project with similar projects at Durham Mutual and Adams Dams is critical to achieving the long-term biological and ecological benefits sought for Butte Creek.

### Proposed Scope of Work

This section describes the scope of work necessary to complete the Gorrill Dam Fish Screen and Ladder project. The project is logically divided into pre-construction and construction phases (Table 1).

**Table 1. Gorrill Dam Fish Screen and Ladder Design, Construction**

Phase	Description	Approximate Duration
Phase 1, Preconstruction	Design, Permits, and Funding	8/1/97 - 3/1/98
Phase 2, Construction	Procurement and Construction of Fish Ladders and Screen	1/1/98 - 10/15/98

Both Phase I and Phase II will be contracted to Montgomery Watson to reduce uncertainties and lower the estimated construction cost. Table 2 provides a breakdown of the tasks in major work areas including project management, funding, environmental documentation, permitting, engineering, and construction for the project.

**Table 2. Gorrill Dam Fish Screen and Ladder Breakdown of Work Area Tasks**

Phase 1	Phase 2
Project Management	Construction of Fish Passage Improvements
Reporting	Construction Management and Resident Engineering
Partnering	Design Services During Construction
Permanent Facilities Funding	Startup Assistance for Gorrill
Final Design Engineering	
Environmental Documentation and Permitting	

The following is a list of specific tasks and deliverables to implement actions for the project phases above.

#### Left Bank Fish Ladder and Screen Improvements

- Obtain funding sources for fish ladders and fish screen project.
- Prepare pre-design of fish ladder and fish screen facilities.
- Approval for screen and ladder has been obtained from CDFG, NMFS, and USFWS.
- Complete funding requirements for fish ladder and fish screen improvements.
- Complete environmental documentation and permitting.
- Complete final design of fish ladder and fish screen facilities.
- Construct fish ladder and fish screen facilities.

#### Right Bank Fish Ladder

- Finalize design details.
- Phase construction of right bank ladder with other construction

DWR completed the feasibility study for the Gorrill project. The feasibility study included a draft initial study and preliminary engineering technical report, the results of which were used to assist in the final engineering work. Since the conclusion of the consultant selection process, discussions between Montgomery Watson, CDFG, DWR, and USFWS have improved the project design. The financial needs to complete the project are included in the Costs and Schedule section.

### **Monitoring and Data Evaluation**

CDFG has existing programs monitoring the river escapement of adult chinook salmon and steelhead trout, primarily spring-run chinook salmon. The focus of these programs is to monitor spring-run chinook salmon, both juvenile emigration and adult migration from Butte Creek and adjacent streams used by spring-run chinook salmon. These programs are recognized as critical components of the *Comprehensive Assessment and Monitoring Program (CAMP) Implementation Plan* developed by the Service in 1997. Gorrill Land Company intends to use standard startup procedures to evaluate mechanical and hydraulic performance of the *Gorrill Dam Fish Screens and Ladder facilities*. NMFS will conduct biological performance evaluation prior to startup. Although annual fisheries monitoring has not been identified at this time, the design of the new facilities will provide adequate space for limited biological monitoring. Gorrill Land Company is eager to work cooperatively with the resource agencies to evaluate the effectiveness of the improved fish passage at Gorrill Dam fish screen and ladder.

### **Implementability**

During construction, use of the diversion will be discontinued and flow downstream flow will remain unchanged. Instream flow will remain within the channel and be routed around the construction area. This will result in localized changes in the course of water movement in the immediate project vicinity. The sensitivity of the completed project to hydrologic conditions is discussed in the Approach section of this proposal.

Coordination with regulatory and resource agencies during environmental documentation is crucial for the successful construction of this project. The same agencies have a mutual interest in the successful completion of this project. Montgomery Watson has initiated and conducted preliminary meetings and phone conversations with these agencies including CDFG, DWR, the Service, the Bureau, and NMFS. Presently, representatives from these agencies have commented on the proposed design, and their comments have been incorporated into the pre-design of the project. Contacts with representatives of other agencies has also been completed. Table 3 details the items needed for environmental compliance of the Gorrill Dam Fish Screen and Ladder Project and the status of each item.

**Table 3. Status of Environmental Permits for the Gorrill Dam Fish Screen and Ladder Breakdown of Work Area Tasks**

Item	Status
Environmental Document - CEQA and NEPA	Negative Declaration drafted, FONSI Federal - USBR, State- CDFG
Army Corps Engineer "404"	Nationwide Permit 33 Nationwide Permit 4 Contact Person: Ginger Fodge
Regional Water Quality Control Board Storm Water Permit "401" Certification	Not Applicable Required with Nationwide Permits Contact Person: Ann Manji
Archaeology - Field Survey	Survey Scheduled
Archaeology - Record Search	Request made to NE Center (CSU Chico)
Endangered Species Act	Preliminary field surveys performed by DWR Additional surveys to take place during appropriate seasons Endangered/Threatened species identified
1603 - Streambed Alteration Department of Fish and Game	Required Permit Contact Person: John Nelson
Butte County Grading Ordinance	No permit required but notify county when work begins
Reclamation Board	Have been contacted. Contact person is David Padilla

## COSTS AND SCHEDULE

### Cost Sharing and Local Involvement

Due to the cost of the project and the benefits to the Butte Creek aquatic ecosystem, Gorrill Land Company seeks funding from a number of sources, in addition to their financial commitment to the project. All funding sources for the Gorrill Dam Fish Screen and Ladder Project are shown in Table 4. Since the improvements at Gorrill Dam are a priority for the AFRP, we anticipate the Anadromous Fish Screen Program and the CVPIA will provide the maximum funding available.

**Table 4. Gorrill Dam Fish Screen and Ladder Breakdown of Funding**

Funding Type (Source)	Funding Amount
Tracy Pump Money (Federal)	\$66,667 (feasibility study by DWR)
Category III (State)	\$739,282 (requested)
CVPIA (Federal)	\$722,615 (requested)
Gorrill Land Company (Private)	\$50,000
<b>Total Funding Necessary</b>	<b>\$1,511,897</b>

### **Budget Costs**

The cost to complete the engineering, environmental documentation, permitting and funding will be \$117,990. The construction management, field engineering, and startup will cost \$80,372. The installation and procurement of materials will cost \$1,163,135 (Table 5).

Each of these categories is broken down into more definitive costs including hours of effort required (Table 5). The consultant is Montgomery Watson Constructors, the construction subcontractor being Diamond Oaks Construction, and the subcontractor for engineering, environmental permitting, and funding is Montgomery Watson, Americas. Table 5 details Montgomery Watson's costs, including hours and other direct costs. The subcontractors heading details the costs for the construction, surveying and environmental field surveys.

The cost of operation and maintenance is estimated to be \$17,500 annually and will be contributed by Gorrill Land Company. The applicant will also assume a portion of the funding for the project (Table 5).

The application for the CVPIA funds submitted on May 29, 1997 was on the basis that the project cost was \$1,421,497. This request had been discussed with Mr. Ron Bachman and is being revised. This money should be available as needed for the current project schedule. The Gorrill Land Company has a total commitment of \$50,000 to this project and has incurred expenses for management and coordination of the project to date. Other expenses include biological consultant David Vogel, alternative water supply used during construction, and review of various documents associated with the project by attorneys. The management personnel of Gorrill Land Company will maintain oversight of the project through completion.

### **Schedule Milestones**

The Butte Creek diversion will be stopped entirely on June 15, 1998 to facilitate construction of these facilities. Alternative irrigation water will be purchased from Western Canal Company. In addition, all rights of way, borrow material, spoil areas, and construction staging areas will be donated by Gorrill Land Company. The applicant will also make construction easements available as required.

The project schedule will be laid out with the funding as top priority (Table 6). The environmental documentation and permitting work will follow in a timely fashion. The final engineering and acquisition of materials will follow very closely in order to have the construction start during the no impact construction season from June 15 through October 15, 1998. The construction of the fish screens on upstream diversion dams at Adams and Durham Mutual (Figure 1) will increase normal flows in Butte Creek which will be passed through temporary facilities at Gorrill Dam.

Table 6. Gorrill Dam Fish Screen and Ladder Cost Breakdown by Tasks

Item	Principal Professional Estimated Hours	Supervisor Professional Estimated Hours	Senior Professional Estimated Hours	Professional Estimated Hours	Senior Resident Engineer Estimated Hours	Senior Design Estimated Hours	MW Labor Total Hours	MW Labor Fee	MW Other Direct Costs (ODC's)	Subcontractor Cost	Estimated Cost
<b>TASK 1 - Design, Permits, and Funding</b>											
Task 1.1 - Project Management	62		26				88	\$ 11,550	\$ 1,260		\$ 12,810
Task 1.2 - Reporting (included in Task 1.1)							0	\$ -			\$ -
Task 1.3 - Partnering (no charge)							0	\$ -			\$ -
Task 1.4 - Funding	38		26	12		260	78	\$ 9,034	\$ 250	\$ 20,045	\$ 9,284
Task 1.5 - Engineering	20	62					342	\$ 50,318	\$ 6,636	\$ 4,851	\$ 76,999
Task 1.6 - Environmental & Permitting	60	18					78	\$ 10,460	\$ 3,586	\$ 4,851	\$ 18,897
<b>Task 1 Total Hours / Costs</b>	<b>180</b>	<b>80</b>	<b>52</b>	<b>12</b>	<b>0</b>	<b>260</b>	<b>564</b>	<b>\$ 81,362</b>	<b>\$ 11,732</b>	<b>\$ 24,896</b>	<b>\$ 117,990</b>
<b>TASK 2 - Procurement and Construction</b>											
Task 2.1 - Procurement (cost included in 2.2)					4		42	\$ 6,068	\$ 1,050	\$ 1,306,417	\$ 1,313,535
Task 2.2 - Construction of Ladder and Screen	38		50	270	124		462	\$ 43,890	\$ 4,200	\$ 10,757	\$ 58,847
Task 2.3 - Constr. Mgmt./Specialty Inspection	18		72		109		109	\$ 12,285	\$ 2,100		\$ 14,385
Task 2.4 - Design Services During Construction	37		22		31		55	\$ 8,090	\$ 1,050		\$ 7,140
Task 2.5 - Start-up Assistance	2										
<b>Task 2 Total Hours / Costs</b>	<b>95</b>	<b>0</b>	<b>144</b>	<b>270</b>	<b>159</b>	<b>0</b>	<b>668</b>	<b>\$ 68,333</b>	<b>\$ 8,400</b>	<b>\$ 1,317,174</b>	<b>\$ 1,393,907</b>
<b>TOTAL COST</b>											<b>\$ 1,511,897</b>

Gorrill Dam Fish  
Screen and Ladder Project

July, 87

**Table 6. Gorrill Dam Fish Screen and Ladder Schedule by Work Area**

Activity Description	Early Start	Early Finish
<b>Project Management</b>		
Project Management Tasks		
Submit Proposal	June 24, 1997	
Proposal Review, Interview, and Selection	June 24, 1997	July 7, 1997
Award Contract and Issue NTP	July 8, 1997	July 31, 1997
Conduct Partnering Meetings	August 1, 1997	August 28, 1997
Funding Assistance	July 10, 1997	
Assist Gorrill Land Co. Obtain Funding	August 1, 1997	October 31, 1997
<b>Engineering</b>		
Design		
Conduct Final Design	November 3, 1997	February 2, 1998
<b>Construction</b>		
Equipment & Material Procurement		
Procure Equipment and Material	January 2, 1998	September 24, 1998
Left Bank Fish Ladder and Screen		
Mobilize Construction Activities	June 1, 1998	
Install 24" & 48" RCP Pipe	June 1, 1998	July 12, 1998
Build Left Bank Cofferdams	July 1, 1998	July 14, 1998
Install Dewatering Pumps	July 15, 1998	July 21, 1998
Demolish Left Bank Structures	July 15, 1998	July 28, 1998
Place Left Bank Concrete and Backfill	July 29, 1998	October 6, 1998
Dispose Excess Material	July 29, 1998	August 27, 1998
Install Left Bank Rip Rap	August 28, 1998	September 10, 1998
Install Fish Screen & Airburst System	October 7, 1998	November 5, 1998
Remove Left Bank Cofferdams	October 7, 1998	October 13, 1998
Install Electrical and Instrumentation	October 7, 1998	November 5, 1998
System Checkout and Startup	November 6, 1998	November 19, 1998
Deliver Completed Project		November 19, 1998
Right Bank Ladder		
Build Right Bank Cofferdams	July 1, 1998	July 14, 1998
Demolish Right Bank Structures	July 15, 1998	July 28, 1998
Place Right Bank Concrete and Backfill	July 29, 1998	September 11, 1998
Install Right Bank Rip Rap and Gunite	September 14, 1998	September 25, 1998
Remove Right Bank Cofferdams	September 28, 1998	October 2, 1998
<b>Environmental and Permitting</b>		
CEQA/NEPA		
Conduct Field Survey	October 15, 1997	November 13, 1997
Obtain CEQA/NEPA 404 & Other Permits	October 15, 1997	December 16, 1997
Provide Water Quality Monitoring	July 1, 1998	October 15, 1998
Start Work in Butte Creek	July 1, 1998	
Finish Work in Butte Creek		October 15, 1998

### Third Party Impacts

Immediately downstream of Gorrill Dam is the Western Canal Siphon Project. Diversion improvements at Gorrill Dam will mitigate this project and provide Western Canal Water District the opportunity to divert their 100 cfs of Butte Creek water rights the District is entitled to divert. Conveyance of this water right will be through facilities operated by Gorrill Land Company that connect to Western Canal Water District facilities. Construction improvements at Gorrill Dam will also include a stream gage providing the water master an accurate stream flow measurement downstream of the Gorrill Dam.

An additional 40 cfs of flow from the Parrot-Phelan diversion will provide increased flow in Butte Creek. Other ongoing activities will facilitate the partial achievement of the Service's AFRP Action Items 1 and 9 for Butte Creek. This includes adjudicated water rights and provides water master service for the entire creek. Diverters located further downstream would also be affected through increased monitoring of flows downstream of Gorrill Dam.

### APPLICANT QUALIFICATIONS

The applicant, contractors and subcontractors are well qualified to successfully complete the Gorrill Dam Fish Screen and Ladder Project (Table 7). Gorrill Land Company is a for-profit farming organization with a strong interest in the environmental well-being of the Butte Creek watershed. Montgomery Watson, Americas is one of the nation's leading consulting engineering firms offering specialized services in water and wastewater-related fields, aquaculture, and the bioengineering of fish passage facilities. Montgomery Watson has successfully completed positive-barrier fish screens including Los Vaqueros and M&T - Chico Ranch, and the feasibility study for Banta Carbona Irrigation District. Diamond Oaks Construction is an experienced subcontractor for construction and Taber Consultants is the subcontractor offering specialized services in geotechnical engineering.

**Table 7 Management Structure**

Entity	Role / Responsibilities
Gorrill Land Company	Applicant
Montgomery Watson Constructors	Contractor
Montgomery Watson, Americas	Subcontractor, Engineering, Environmental Permitting, Funding
Diamond Oaks Construction	Subcontractor, Construction
Taber Consultants	Subcontractor, Geotechnical Engineering
DWR	Feasibility study, predesign, environmental documentation, technical advising
CDFG	Feasibility study, predesign, environmental documentation, technical advising
USFWS	Funding
USBR	Funding

The federal and state departments mentioned above have collaborated with the contractor and subcontractors to provide services for environmental permitting and technical advice.

## **COMPLIANCE WITH STANDARD TERMS AND CONDITIONS**

**Standard Clauses-Contracts with Public Entities:** Gorrill Land Company accepts the Standard Clauses-Contracts with Public Entities, Attachment D, Item 1.

**Service and Consultant with Non Public:** Gorrill Land Company accepts the Standard Clauses-Service and Consultant with Non Public, Attachment D, Item 2.

**Public Works:** Gorrill Land Company accepts the Standard Clauses- Public Works, Attachment D, Item 4.

**Insurance Requirements:** Gorrill Land Company accepts the Standard Clauses-Insurance Requirements, Attachment D, Item 5. This information, Form 25S, has been submitted to Metropolitan Water District, July 24, 1997.

**NonDiscrimination:** Gorrill Land Company and all subcontractors will implement the Standard Clauses-Standard California NonDiscrimination Construction Contract Specifications, Attachment D, Items 6 .

**Bidders Bond or other Security:** Subcontracts have not been completed at this date. Upon completion of contract awards, bid / payment bonds, Attachment D, Items 7 will be provided to CALFED. Gorrill Land Company acknowledges that CALFED funding is contingent upon receipt of bid / payment bonds.

**Non-Discrimination Compliance:** Gorrill Land Company and all subcontractors will implement the Standard Clauses-Standard California Nondiscrimination Construction Contract Specifications, Attachment D, Items 8.

**Certification of Insurance:** Gorrill Land Company will provide the Certificate of Insurance for the Gorrill Dam Fish Screen and Ladder Project, Attachment D, Item 9.

**Payment Bond:** Subcontracts have not been completed at this date. Upon completion of contract awards, bid / payment bonds, Attachment D, Items 9, and 10 will be provided to CALFED. Gorrill Land Company acknowledges that CALFED funding is contingent upon receipt of bid / payment bonds.

**NonCollusion:** Gorrill Land Company and all subcontractors accept and will implement the Standard Clauses-NonCollusion Affidavit, Attachment D, Items 11, see attached.

**Small Business Preference:** Gorrill Land Company does not qualify for the Small Business Preference. Upon award of subcontracts, Gorrill Land Company will provide CALFED with certification approval letters for those subcontractors meeting these criteria.

**Proof of Contractor's License:** Upon award of all subcontracts, Gorrill Land Company will provide proof of contractors license for those participating in the Gorrill Dam Fish Screen and Ladder Project.

**REFERENCES:**

California Department of Fish and Game, Restoring Central Valley Streams: A Plan for Action, November 1993.

California Department of Water Resources, Preliminary Engineering Technical Report: Gorrill Dam Fish Ladder and Screen Project, May, 1997.

California Department of Fish and Game, Draft Initial Study: Gorrill Ranch Fish Passage Improvement Project, April, 1997.

US Fish and Wildlife Service (Service), Revised Draft Restoration Plan for the Anadromous Fish Restoration Program, May 1997.

CALFED Bay-Delta Program, Visions For Ecosystem Elements, June 1997.

Montgomery Watson, Americas, Proposal For Fish Screen and Ladder at Gorrill Dam, June 1997.

## NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

Gorrill Land Company, A California Corporation

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California*

Nancy E. Piret

OFFICIAL'S NAME

7-25-97

DATE EXECUTED

Nancy E. Piret

PROSPECTIVE CONTRACTOR'S SIGNATURE

Secretary

PROSPECTIVE CONTRACTOR'S TITLE

EXECUTED IN THE COUNTY OF

Butte

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Gorrill Land Company

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

STATE OF CALIFORNIA )  
COUNTY OF BUTTE )

)ss

Nancy E. Piret, being first duly sworn, deposes and  
(name)

says that he or she is Secretary of  
(position title)

Gorvill Land Company, A Calif Corporation  
(the bidder)

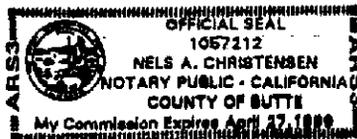
the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited 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.

Gorvill Land Company

DATED: 7-25-97 By Nancy E. Piret  
ITS SECRETARY (person signing for bidder)

Subscribed and sworn to before me on

7-25-97  
[Signature]  
(Notary Public)



(Notarial Seal)

1-004060

State of California

# Contractors State License Board

Pursuant to Chapter 9 of Division 3 of the Business and Professions Code and the Rules and Regulations of the Contractors State License Board, the Registrar of Contractors does hereby issue this license to:

**MONTGOMERY WATSON CONSTRUCTORS INC**



to engage in the business or act in the capacity of a contractor in the following classification(s):

A - GENERAL ENGINEERING CONTRACTOR



Witness my hand and seal this day,  
April 12, 1994

Issued April 12, 1994

Signature of Licensee

*Robert E. Burnett*

Signature of License Qualifier

This license is the property of the Registrar of Contractors, is not transferable, and shall be returned to the Registrar upon demand when suspended, revoked, or invalidated for any reason. It becomes void if not renewed.

*John Metcalf*  
Acting Registrar of Contractors

687374

License Number

400120 0000

1-004060

# ERATA SHEETS

## GORRILL DAM FISH SCREEN AND LADDER GORRILL LAND COMPANY

P.O. Box 427  
Durham, CA 95938  
(916)342-5867  
FAX (916)342-1195

Type of Organization and Tax Status: Farming Company

Tax Identification Number: 94-6086514

Technical and Financial Contact Persons: Don Heffren, Nancy Piret

### Participants/Collaborators in Implementation:

California Department of Water Resources  
California Department of Fish and Game  
United States Fish and Wildlife Service  
United States Bureau of Reclamation  
National Marine Fisheries Service  
Montgomery Watson

Taber Consultants, Geotechnical Engineering  
Diamond Oaks Construction

RFP Project Group Type: Group I: Public Works/Construction Projects

## GORRILL DAM FISH SCREEN AND LADDER PROJECT

### EXECUTIVE SUMMARY

**Project:** Gorrill Dam Fish Screen and Ladder Project

**Applicant:** Gorrill Land Company

The Gorrill diversion dam on Butte Creek was built in the 1920's with the right bank fish ladder constructed in 1959 when modifications were made to the diversion dam. The dam provides irrigation water to the Durham area farm. Adult spring-run chinook salmon and other salmonids are impeded in their upstream migration by the diversion dam structure. In addition, the unscreened diversion can divert juvenile salmon and steelhead trout during downstream emigrations. Declining spring-run salmon populations have caused an increase in efforts to preserve and enhance the salmon populations with restoration actions that are compatible with the needs of various stakeholders. The primary biological and ecological objectives include correcting fish passage problems at the diversion by installing a positive-barrier fish screen and two fish ladders to preserve and enhance spring-run chinook salmon and steelhead trout populations.

The project approach involves engineering, planning, and design of two separate fish ladders to function under a wide range of conditions and facilitate maintenance. The scope of work involves tasks divided between two phases of the project. The first phase includes design, permits, and funding followed by the second phase which includes procurement and construction of the fish ladders and screen. The tasks are broken into the major work areas of; project management; funding; environmental and permitting; engineering; and construction for the project. The project schedule has been laid out with the funding as top priority. Environmental and permitting documentation is to follow in a timely fashion. The final engineering and acquisition of materials will follow very closely in order for the construction to begin during the no impact construction season between June 15 through October 15, 1998.

CDFG's "Restoring Central Valley Streams: A Plan for Action" identifies correcting fish passage problems at diversions and installation of fish screens on diversion facilities as top priority to anadromous fish habitat restoration actions. The installation of positive-barrier fish screens to reduce losses of juvenile chinook salmon and steelhead trout has also been identified by CALFED's "Vision for Ecosystem Elements" in the "Ecosystem Restoration Program Plan". Similarly, the Anadromous Fish Restoration Program (AFRP) listed the improvements to Gorrill Dam diversion facilities as a priority among the 24 action items listed.

The cost to complete the engineering, environmental permitting and funding will be \$117,990. The construction management, field engineering, and startup will cost \$80,372. The installation and procurement of materials will cost \$1,313,535. Gorrill Land Company will contribute an annual cost of \$17,500 as well as \$50,000 to fund the Gorrill Dam Fish Screen and Ladder Project.

Facility improvements at Gorrill Dam will enable Western Canal Water District to obtain the 100 cfs of Butte Creek water rights they previously diverted prior to construction of the

**Table 3. Status of Environmental Permits for the Gorrill Dam Fish Screen and Ladder Breakdown of Work Area Tasks**

Item	Status
Environmental Document - CEQA and NEPA	Negative Declaration drafted, FONSI Federal - USBR, State- CDFG
Army Corps Engineer "404"	Nationwide Permit 33 Nationwide Permit 4 Contact Person: Ginger Fodge
Regional Water Quality Control Board Storm Water Permit "401" Certification	Not Applicable Required with Nationwide Permits Contact Person: Ann Manji
Archaeology - Field Survey	Survey Scheduled
Archaeology - Record Search	Request made to NE Center (CSU Chico)
Endangered Species Act	Preliminary field surveys performed by DWR Additional surveys to take place during appropriate seasons Endangered/Threatened species identified
1603 - Streambed Alteration Department of Fish and Game	Required Permit Contact Person: John Nelson
Butte County Grading Ordinance	No permit required but notify county when work begins
Reclamation Board	Have been contacted. Contact person is David Padilla

## **COSTS AND SCHEDULE**

### **Cost Sharing and Local Involvement**

Due to the cost of the project and the benefits to the Butte Creek aquatic ecosystem, Gorrill Land Company seeks funding from a number of sources, in addition to their financial commitment to the project. All funding sources for the Gorrill Dam Fish Screen and Ladder Project are shown in Table 4. Since the improvements at Gorrill Dam are a priority for the AFRP, we anticipate the Anadromous Fish Screen Program and the CVPIA will provide the maximum funding available.

**Table 4. Gorrill Dam Fish Screen and Ladder Breakdown of Funding**

Funding Type (Source)	Funding Amount
Tracy Pump Money (Federal) "spent"	\$66,667 (feasibility study by DWR)
Category III (State)	\$705,949 (requested)
CVPIA (Federal)	\$755,948 (requested)
Gorrill Land Company (Private)	\$50,000
Total Funding (excluding Feasibility Study)	\$1,511,897 (w/o feasibility)

### **Budget Costs**

The cost to complete the engineering, environmental documentation, permitting and funding will be \$117,990. The construction management, field engineering, and startup will cost \$80,372. The installation and procurement of materials will cost \$1,313,535 (Table 5).

Each of these categories is broken down into more definitive costs including hours of effort required (Table 5). The consultant is Montgomery Watson Constructors, the construction subcontractor being Diamond Oaks Construction, and the subcontractor for engineering, environmental permitting, and funding is Montgomery Watson, Americas. Table 5 details Montgomery Watson's costs, including hours and other direct costs. The subcontractors heading details the costs for the construction, surveying and environmental field surveys.

The cost of operation and maintenance is estimated to be \$17,500 annually and will be contributed by Gorrill Land Company. The applicant will also assume a portion of the funding for the project (Table 5).

The application for the CVPIA funds submitted on May 29, 1997 was on the basis that the project cost was \$1,421,497. This request had been discussed with Mr. Ron Bachman and is being revised. This money should be available as needed for the current project schedule. The Gorrill Land Company has a total commitment of \$50,000 to this project and has incurred expenses for management and coordination of the project to date. Other expenses include biological consultant David Vogel, alternative water supply used during construction, and review of various documents associated with the project by attorneys. The management personnel of Gorrill Land Company will maintain oversight of the project through completion.

### **Schedule Milestones**

The Butte Creek diversion will be stopped entirely on June 15, 1998 to facilitate construction of these facilities. Alternative irrigation water will be purchased from Western Canal Company. In addition, all rights of way, borrow material, spoil areas, and construction staging areas will be donated by Gorrill Land Company. The applicant will also make construction easements available as required.

The project schedule will be laid out with the funding as top priority (Table 6). The environmental documentation and permitting work will follow in a timely fashion. The final engineering and acquisition of materials will follow very closely in order to have the construction start during the no impact construction season from June 15 through October 15, 1998. The construction of the fish screens on upstream diversion dams at Adams and Durham Mutual (Figure 1) will increase normal flows in Butte Creek which will be passed through temporary facilities at Gorrill Dam.