CALFED Fish Screen Funding Proposal Sutter Mutual Water Company Tisdale Positive Barrier Fish Screen Pumping Plants (September 29, 2004)

Executive Summary

Sutter Mutual Water Company (SMWC) has completed the design and is nearing completion of the permitting and environmental documentation phase of the Tisdale Positive Barrier Fish Screen Pumping Plants Project. The Tisdale diversion (960 cubic feet per second [cfs]) has been identified as a threat to entrainment and mortality of winter-, spring-, and fall-run chinook salmon, steelhead, and other high-risk species by both state and federal fishery agencies. The diversion is located 45 miles north of Sacramento on the Sacramento River. Project goals and objectives are to eliminate entrainment losses, while maintaining SMWC's diversions. This fish screen project will help achieve recovery of at-risk native species of fish as a step toward establishing large, self-sustaining populations of these species.

SMWC has completed a feasibility Study (September 2001), a preliminary design effort (February 2003), and a final design effort (March 2004) to evaluate the engineering feasibility, costs, and benefits of several potential alternatives in an effort to ultimately protect fish species. SMWC is currently processing environmental documents and permits, which should be completed and approved by December 2004, or sooner if possible.

The project is listed as a high priority in the CALFED Ecosystem Restoration Program Draft Stage 1 Implementation Plan. SMWC is applying to CALFED in this proposal for construction funding of $6,856,500 (2004 dollars). This construction funding request, along with the already committed CALFED and Proposition 204 funding of $1,870,000, will be the 50 percent matching funding to the U.S. Bureau of Reclamation's (Reclamation) 50 percent share of $8,726,500. The total estimated project cost including all of the studies, design, environmental documentation, permitting, construction, and performance testing is $17,453,000.

The fish screen structure will be positioned in front of the two Tisdale pumping plants and will accommodate the diversion flow of 960 cfs. The structure will use vertical flat-plate screens.

The project is expected to go out for bid in January 2005, with construction commencing in spring 2005 and be completed in spring 2007. The project will be on-line for the spring 2007 irrigation season.

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A. Project Description: Project Goals and Scope of Work

1. Problem

Sutter Mutual Water Company (SMWC) provides water to approximately 50,000 acres of agricultural lands on the east side of the Sacramento River, approximately 45 miles north-west of Sacramento, California. SMWC was formed on February 5, 1919, to provide a reliable Sacramento River water supply to the area's farmers through the construction and maintenance of an irrigation system. This system has evolved to include four pumping plants at three locations on the Sacramento River and a network of 56 miles of canals and 144 miles of laterals. Major crops in the area include rice, tomatoes, melons, walnuts, vegetables, winter grains, and other field crops. The three pumping locations, listed in order of upstream to downstream, are Tisdale Pumping Plants Nos. 1 and No. 2 (combined 960-cubic-feet-per-second [cfs] capacity), State Ranch Bend Pumping Plant (128-cfs capacity), and Portuguese Bend Pumping Plant (106-cfs capacity). An overall map of SMWC boundaries and its diversions is presented on Figure 1.

Beginning in fall 2000, SMWC has voluntarily engaged in the Central Valley Project Improvement Act Anadromous Fish Restoration Program (CVPIA/AFRP) to screen the largest of these three diversions, and to investigate actions that may include fish protection at one or both of the much smaller pumping plants. In this effort to screen for the protection of species identified under the California and Federal Endangered Species Acts, SMWC is working with the California Department of Fish and Game (CDFG), National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), U.S. Fish and Wildlife Service (USFWS), and U.S. Bureau of Reclamation (Reclamation) to develop fish protection solutions at SMWC's pumping plants on the Sacramento River. Fish species of concern include the winter- and spring-run chinook salmon, steelhead, and the Sacramento splittail.

A feasibility study for the Tisdale Positive Barrier Fish Screen Project (September 2001) recommended that the existing Tisdale Pumping Plant No. 1 (installed in 1919) and Pumping Plant No. 2 (installed in 1940) be replaced by constructing a new Tisdale pumping plant and fish screen structure near the existing location. State Ranch Bend and Portuguese Bend Pumping Plants were not recommended for screening at that time.

Preliminary design and physical modeling were conducted in 2002 and 2003 to focus on screening the Tisdale Pumping Plants. The result of this study was that the screening of SMWC's Tisdale diversion would best be accomplished by a project that included:

- A new Tisdale pumping plant with a 960-cfs capacity
- A positive barrier fish screen structure with vertical plate screens
- Demolition/salvage of the existing Tisdale Pumping Plants Nos. 1 and 2 once the new facility is operational

This SMWC-preferred project was not carried forward into design because of funding constraints issued by Reclamation and the Anadromous Fish Screen Program Technical Team (AFSPTT). Therefore, it was decided to move forward into design with screening the existing Pumping Plants Nos. 1 and 2. The final design was completed in March 2004.

The project goals and objectives are to eliminate fish entrainment losses while maintaining SMWC's diversions by constructing a new vertical flat-plate screen structure in front of the existing Tisdale Pumping Plant No. 1 and Pumping Plant No. 2.

2. Justification

This is a fish screen construction proposal and is a continuation of existing CALFED funding.

3. Approach

Design of the project facilities is completed and has been approved by AFSPTT. The environmental documents are complete and are being reviewed by the resource agencies with expected approval in early December 2004. The following tasks are required to implement the project. It should be noted that bidding services for retaining a construction contractor are already funded by Reclamation and are not a part of this funding proposal.

Task 1 – Legal/Administration (SMWC Funds)

- Coordinate with CALFED and Reclamation staff on funding and project matters
- Direct consultant's work
- Review consultant's work products
- Attend resource agency meetings
- Review construction contract documents
- Review construction work

Task 2 – Construction

- Build the proposed facilities
- Connect proposed facility to the existing irrigation system

Task 3 – Services During Construction

Provide engineering services during construction

Task 4 – Performance Testing

- Conduct performance testing
- Prepare a report of findings to AFSPTT

The existing Tisdale Pumping Plants will continue to operate during construction activities.

4. Feasibility

The design of the vertical flat-plate fish screen structure for large diversions has proven successful for other large fish screen construction projects on the Sacramento River, including the Reclamation District No. 108 (RD108) Wilkins Slough Positive Barrier Fish Screen (830 cfs) and the Glenn-Colusa Irrigation District (GCID) Interim and Long-term Fish Screens (3,000 cfs), and the City of Sacramento Water Diversion (400 cfs).

This project has been thoroughly reviewed by CALFED, AFSPTT, and resource agencies during the development of the *Tisdale Positive Barrier Fish Screen Feasibility Study* (CH2M HILL, 2001), the preliminary design (CH2M HILL, 2003), and the final design (CH2M HILL, 2003).

Criteria that were considered during the design included:

- Diversion requirements
- Resource agency fish screen criteria
- Fish screen structure criteria, pumping station/intake design criteria
- Internal SMWC facilities required for combined pumping plant alternatives
- Sediment deposition
- Operation issues (e.g., timing and flexibility of water delivery)
- Maintenance issues (e.g., equipment age and performance, and sediment removal)
- Costs

The contract documents for the project include the following main components:

- A pile-founded concrete fish screen structure, 290-feet long, 22-feet wide, and 40-feet high, including 16 screen bays and one blowout panel bay
- Fish screens and blind panels to be installed and removed by a hydraulic boom truck
- 150-horsepower (hp) pump-driven sediment removal system for all 17 fish screen bays
- North and south sheetpile-constructed approach roads
- Forebay and other sheetpiling retaining walls to connect the fish screen structure to the existing intakes of Pumping Plants Nos. 1 and 2.
- New intake and flap gates for the intakes of Pumping Plants Nos. 1 and 2
- Repair of the existing levee tubes for Pumping Plants Nos. 1 and 2
- New 60-inch pump discharge lines for Pumping Plant No. 2
- Computer control system and power supply contained in a small control building

Capital equipment to be purchased by SMWC under separate contract includes the following:

- Hydraulic boom truck – to remove and inspect the fish screen and blank panels
- Long arm excavator – to remove sediment in the forebay between the fish screen and the pumps

- Portable high-pressure washer – to clean the fish screens
- Floating work platform – to inspect the structure and perform maintenance activities

5. Performance Measures

A performance test will be established in coordination with CDFG and NOAA Fisheries to evaluate the effectiveness of the screen. The fish screen will meet the following CDFG and NOAA Fisheries criteria for the species of concern in this reach of the Sacramento River, which include salmonids and splittail:

- Average approach velocity (water velocity perpendicular to the screen), less than or equal to 0.33 feet per second
- Minimum sweeping velocity (water velocity parallel to the screen) of two times the approach velocity
- Exposure time (the time a fish might be exposed to the screen = length of screen ÷ sweeping velocity), less than 60 seconds – waiver may be required for the expected 153 seconds for this facility
- Screen slot opening size, 1.75 millimeter

After the fish screen is operational, the screen will be tested using water velocity probes at the maximum diversion rate to check for compliance.

6. Data Handling and Storage

A broad range of information management tools and systems will be used for this project. The following are examples of the types of tools available to manage and provide access to project data:

- E-mail with file attachments (Microsoft Exchange server with Microsoft Outlook client)
- Microsoft Office suite of desktop applications (Word, Excel, Access, PowerPoint)
- Additional desktop applications (e.g., Visio, Acrobat Reader, Internet Explorer, Microsoft Project)
- Internet-deployed reference material and project/client-specific web sites

7. Expected Products/Outcomes

The expected products are the construction inspection reports and contractor documents including change orders, "as-built" drawings, and an operations and maintenance manual. The final product will be a new 960-cfs fish screen structure that encompasses the existing unscreened diversions at Tisdale Pumping Plants Nos. 1 and 2.

The outcome of this project will be a dramatic reduction in fish mortality at the site. Installing a positive barrier fish screen at the Tisdale Pumping Plant offers substantial biological benefit in reducing the mortality of both migratory and resident fish species inhabiting the Sacramento River.

8. Work Schedule

The general schedule to implement the recommended project is provided below, with the assumption that obtaining the required level of funding is not a constraint:

- Completed Feasibility Study – September 2001
- Completed Preliminary Design and Physical Modeling – March 2003
- Completed Final Design – March 2004
- Obtain Additional Required Funding – April 2001 to December 2004
- Complete Environmental Documentation and Permitting – December 2004
- Bidding and Award – January to March 2005
- Construction – April 2005 to December 2006
- Performance Testing and Operation – January to June 2007
- Project Online – March 2007

B. Applicability to CALFED and ERP Science Program Goals and Implementation Plan and CVPIA Priorities

1. ERP, Science Program, and CVPIA Priorities

This project is linked directly to the CALFED Ecosystem Restoration Program (ERP) restoration priorities for the Sacramento Region. As listed on page 61 of the *ERP Draft Stage 1 Implementation Plan* and on page 29 of the *2002 ERP Proposal Solicitation*, Screening SMWC diversion from the Sacramento River, this project will result in progress toward Strategic Goal 1, At-risk Species.

Screening the Tisdale Diversion is **specifically listed in the PSP as one of the priority projects** (SR-6) for this phase of funding (CALFED, 2001b). This fish screen project will help achieve recovery of at-risk native fish species as a step toward establishing large, self-sustaining populations of these species. This project will directly contribute to the resolution of the conflict between protecting endangered species and providing reliable supplies of water for agriculture. This project will help achieve the recovery of the following at-risk fish species: all runs of chinook salmon, steelhead trout, and Sacramento splittail. In addition to the above-mentioned, at-risk species, this project will also contribute to the goal of doubling the other anadromous fish named in the CVPIA, specifically, white and green sturgeon, American shad, and striped bass.

The successful downstream migration season for juvenile chinook salmon depends on weather and water temperatures among other factors. Some of the migration periods coincide with the normal season for irrigation water diversion at SMWC. Construction of the new Tisdale pumping facility and fish screen meeting federal and state agencies' design criteria will protect fish species by eliminating the entrainment of juvenile fish into the pump intakes during their migration and protecting the fish from predators in the area of the diversion and screen facilities.

Construction of a new screened pumping facility is consistent with the identified stressors and priorities for project funding by CALFED. The prevention of entrainment of at-risk fish species will result in a significant improvement in the aquatic habitat of the Sacramento

River and Bay-Delta system. In addition, the project will ensure a reliable supply of water to agriculture, which also provides significant migratory waterfowl wetland habitat.

2. Relationship to Other Ecosystem Restoration Projects

This project has been discussed and coordinated with USFWS and Reclamation under the CVPIA Anadromous Fish Screen Program (AFSP). Discussions and consultation have also been held with NOAA Fisheries and CDFG in terms of their respective fish screen project development and regulatory programs. The project permitting, design, and construction will be performed in consultation and coordination with the technical team and regulatory agencies designated in the CVPIA/AFSP.

3. Requests for Next-phase Funding

This is not an application for next-phase funding.

4. Previous Recipients of CALFED Program or CVPIA Funding

SMWC has received the following funding from CALFED and CVPIA (Reclamation) for this project.

- CVPIA - $186,000 in 2001 from CVPIA for the Feasibility Study
- CALFED - $600,000 from Proposition 204 in 2002 for the Preliminary Design
- CVPIA – $2,500,000 in 2003 ($1,270,000 for the Final Design, Environmental Permitting, Legal and Administrative costs, and $1,230,000 for Pre-purchase of Sheetpile and H-Pile)
- CALFED – $1,270,000 in 2003 for Final Design and Environmental Permitting
- CVPIA – $1,153,000 in 2004 for Construction

The total received to date by SMWC for the project is $3,839,000 in federal funds through Reclamation and $1,870,000 in State Funds through Proposition 204 and CALFED, for a grand total of $5,709,000.

5. Systemwide Ecosystem Benefits

This project will enhance the protected fish passage area on the Sacramento River. This project will help achieve CALFED and CVPIA objectives by helping to improve the aquatic environment of several fish species, while concurrently providing needed water supply for the applicant. This project provides synergistic Sacramento River system benefits by allowing more fish to reach the upstream restoration projects now implemented or planned for the future. The project will not conflict with CALFED non-ecosystem objectives, such as water quality for in-stream and delta flows, but may benefit water supply reliability for the applicant as it will reduce the entrainment of fish at the diversion facility. No impacts to third parties are anticipated.

6. Additional Information for Proposals Containing Land Acquisition

The proposed project, as presented here and identified in the Construction Documents (CH2M HILL, 2003), will require approximately 0.5 acres of land from an adjacent landowner. The majority of the project area is already owned by SMWC.

C. Qualifications

SMWC has an extensive history of successfully implementing large, complex capital improvements with the cooperation and funding support of state and federal agencies. SMWC is currently working with CDFG, NOAA Fisheries, USFWS, and Reclamation to develop solutions to prevent the entrainment of fish at their pumping locations on the Sacramento River.

SMWC General Manager, Max Sakato, will be the project manager. He will be assisted by Rich Jenness/Laugenour & Meikle Civil Engineers, SMWC's Engineer and Chuck Hanson/ Hanson Environmental, the senior fishery biologist and environmental permit coordinator. In addition, they will be assisted by pumping plant/fish screen engineers Peter Rude/ CH2M HILL, Howard Wilson/CH2M HILL, and Robert Gatton/CH2M HILL. Kevin O'Brien/Downey, Brand, Seymour & Rohwer is SMWC's legal counsel. Following are brief biographical sketches of the principal participants.

Max Sakato, General Manager

Mr. Sakato is the General Manager for SMWC. He has served in this position for more than 14 years. In this capacity, he is responsible for irrigation operations and administration for a 50,000-acre private water purveyor along the Sacramento River in Sutter County. He has extensive knowledge and experience in addressing water-related issues concerning the Sacramento Valley and the State. He is also General Manager for Reclamation District No. 1500, responsible for the flood control and drainage operations and activities of this 70,000-acre special district located along the Sacramento River. Additionally, Mr. Sakato has extensive corporate managerial and executive experience. He was in private business ownership and was a lead manager for 12 years in agricultural and natural resource-related businesses while employed by a Fortune 500 company based in San Francisco. Prior to that, he was an area agricultural manager for a large food product and processing firm.

Richard Jenness, P.E., District Engineer

Mr. Jenness is a Registered Civil Engineer in the State of California, a consulting engineer for SMWC, and President of Laugenour & Meikle, Civil Engineers. Mr. Jenness has more than 33 years of experience in the planning, designing, and constructing water resource projects. Mr. Jenness has been involved in planning and designing fish guidance facilities on the Sacramento River, and he has been responsible for preparing fish screen appraisal studies. He assists in project management of fish screen projects, including the 830-cfs Wilkins Slough Positive Barrier Fish Screen Project at RD108.

Mr. Jenness will work on behalf of SMWC in reviewing the design, engineering drawings, and specifications for construction.

Charles Hanson, Ph.D., Senior Fishery Biologist

Dr. Hanson has more than 28 years of experience in freshwater and marine biology studies and is the Senior Biologist, Principal for Hanson Environmental, Inc. Dr. Hanson has been the senior fishery biologist and environmental permit coordinator for the SMWC 960-cfs Tisdale Positive Barrier Fish Screen and Pump Station Feasibility Study, the RD108 830-cfs Wilkins Slough Positive Barrier Fish Screen, and RD108's Fish Screen Reconnaissance Investigation.

Dr. Hanson has contributed to the study design, analysis, and interpretation of fisheries, stream habitat, and stream flow (hydraulic) data collected in the evaluation of in-stream flow requirements and potential fishery impacts on salmonid spawning, production, survival, and migration success associated with water project development and operations. He has conducted site-specific evaluations of the effectiveness of various water diversion screening systems, passage facilities, and operational modifications in reducing organism losses while maintaining operational reliability of the system. Dr. Hanson has been extensively involved in incidental take monitoring and investigations of endangered species, development of recovery plans, consultations, and preparation of aquatic habitat conservation plans. He also participated in the development of adaptive management programs including the San Joaquin River Vernalis Adaptive Management Plan; he also has experience in real-time monitoring and management of power plant cooling water and other diversion operations.

Peter Rude, P.E., Project Manager

Mr. Rude has more than 18 years of experience as an agricultural/civil engineer. He is responsible for managing multidiscipline teams for a variety of fish screen, irrigation, agricultural water supply, water reclamation, and watershed management projects.

For SMWC, Mr. Rude has been the project manager for the 960-cfs Tisdale Positive Barrier Fish Screen and Pump Station Feasibility Study, preliminary design, and final design efforts. Mr. Rude was the design manager for a 10-month, fast-track effort from preliminary design through award of construction contract for RD108's 830-cfs Wilkins Slough Positive Barrier Fish Screen Project. He managed the construction effort and subsequent hydraulic monitoring and sediment removal facility design. He was the project manager for the RD108 Fish Screen Reconnaissance Investigation. At Tulare Irrigation District, Mr. Rude was the project manager for design, environmental documentation and permitting support, contract

documents, bid services, and construction management for lining 9.7 miles of the Main Intake Canal. Final design drawings, technical specifications, engineering cost estimates, and bidding documents were submitted on time and within budget.

Howard Wilson, P.E., Senior Consultant

Mr. Wilson possesses more than 37 years of engineering experience, including project management and lead design experience on large fish screens and agricultural water conveyance systems.

Mr. Wilson is the senior consultant for the SMWC Tisdale Positive Barrier Fish Screen Feasibility Study. He managed the design of GCID's 450-foot-long flat-plate interim fish screen and served as GCID's project manager for elements of the 3,000-cfs "final solution" screen extension project for which GCID was responsible. He is also a senior consultant for the RD108 Fish Screen Reconnaissance Investigation. Mr. Wilson was senior consultant for the feasibility study, alternatives analysis, agency and stakeholder coordination, and design of the 830-cfs flat-plate, wedge-wire Wilkins Slough Positive Barrier Fish Screen for RD108. Mr. Wilson managed preliminary design of the M&T Ranch pump station relocation and fish screens. He recommended submerged cylindrical screens with an automated cleaning system because this design best met the applicable standards and site-specific conditions. He also managed design of the 200-cfs Crooked River pumping facility and fish screens for the North Unit Irrigation District on the Deschutes River. Other fish screen designs managed by Mr. Wilson include the Westpac Utilities Orr Ditch diversion of the Truckee River, Nevada; Clear Lake intake for the Geysers Water Supply Project, Lake County; and the Yakima-Tieton Irrigation Company intake screens, Yakima, Washington.

Bob Gatton, P.E., Senior Consultant

Mr. Gatton has 32 years of engineering experience, specializing in fish screening, passage, and hatchery facilities. He managed or provided senior consultant services for some of the largest fish passage projects in the Sacramento Valley and Pacific Northwest.

Mr. Gatton was a senior consultant for the SMWC Tisdale Positive Barrier Fish Screen Feasibility Study. He also was the project manager for the design of RD108's 830-cfs Wilkins Slough Positive Barrier Fish Screen, which was constructed with no water delivery interruptions and minimal fish impacts. He was senior consultant for the feasibility study, environmental documentation and permitting, design, and construction of the Anderson-Cottonwood Irrigation District (ACID) Sacramento River Fish Passage Improvement Project in Redding. The project involved a 450-cfs fish screen and two fish ladders at the ACID Diversion Dam. Mr. Gatton was senior reviewer for GCID's fish screen extension and is currently helping to develop the Fish Passage Improvement Project at the Red Bluff Diversion Dam for Tehama-Colusa Canal Authority. His major Pacific Northwest fish screen projects include 2,000- and 5,000-cfs screens at the Rocky Reach Dam on the Columbia River, 800-cfs screens at Yelm Hydropower plant and North Shore Dalles Hydro plant, and the 210-cfs Dryden Canal fish screens.

D. Cost

1. Budget

The total program cost for the SMWC Tisdale Positive Barrier Fish Screen Pumping Plant Project is estimated to be $17,453,000. This includes $5,709,000 that has been obligated to the project since 2001 as described previously in Section B.4. The remaining balance required to construct the project is $11,744,000 (2004 dollars) and a breakdown is provided below.

This CALFED grant request is for construction funding of $6,856,500. The overall anticipated construction costs and funding sources are provided as information. The budget numbers below do not include approximately $150,000 contributed by SMWC for administrative and legal tasks and the acquisition of property.

SMWC estimates a total requirement of $4,000,000 for fiscal year (FY) 2005 (October 1, 2004, through September 30, 2005) as follows:

- Construction $3,500,000
- Services During Construction $500,000

Total **$4,000,000**

($2,984,500 CALFED, $1,015,500 Reclamation)

SMWC estimates a total requirement of $5,500,000 for FY 2006 (October 1, 2005 through September 30, 2006) as follows:

- Construction $5,000,000
- Services During Construction $500,000

Total **$5,500,000**

($2,750,000 CALFED, $2,750,000 Reclamation)

SMWC estimates a total requirement of $2,244,000 for FY 2007 (October 1, 2006 through September 30, 2007) as follows:

- Construction $1,829,000
- Services During Construction $340,000
- Performance Testing $75,000

Total **$2,244,000**

($1,122,000 CALFED, $1,122,000 Reclamation)

The total 3-year grant request is $6,856,500 from CALFED and $4,887,500 from Reclamation for a total of $11,744,000.

2. Cost-Sharing

The funding for the program, excluding SMWC funding, is expected to have a federal cost share through Reclamation of 50 percent of the total cost and a non-federal cost share through CALFED of 50 percent. As explained in Section B.4, the $5,709,000 already committed to this project has been $3,839,000 from Reclamation and $1,870,000 from the

State via Proposition 204 and CALFED. To date, Reclamation has contributed $1,969,000 more to the project then the State.

To balance out the 50-50 cost share between State and Federal dollars for the overall SMWC project, the construction funding request as provided in Section D.1 has CALFED contributing $1,969,000 more then Reclamation in this phase of the project.

E. Local Involvement

SMWC's approach involves working with SMWC landowners, the public, and affected agencies, thereby maximizing project success and minimizing any surprises to decision makers. Development of the project is proceeding with regular participation and input from Reclamation, USFWS, CDFG, NOAA Fisheries, and the California Department of Water Resources. Public meetings have been held and the project has public support from the local community and Sutter County.

F. Compliance with Standard Terms and Conditions

SMWC will comply with the standard terms and conditions specified in the proposal solicitation package.

G. Literature Cited

CALFED. 2001a. Ecosystem Restoration Program *Draft Stage 1 Implementation Plan.* August.

CALFED. 2001b. Ecosystem Restoration Program, Proposal Solicitation Package, August.

CH2M HILL. 2001. *Sutter Mutual Water Company Tisdale Positive Barrier Fish Screen Feasibility Study,* September.

CH2M HILL. 2003. *Sutter Mutual Water Company Tisdale Positive Barrier Fish Screen Project Design Development Report,* March.

CH2M HILL. 2003. *Final Design Report Tisdale Positive Barrier Fish Screen Pumping Plants Project,* December.

Construction Cost Estimate Based on the Final Design Drawings

Item	Description	December-03 Construction Cost Estimate	June-04 Construction Cost Estimate
1	Fish Screen Structure	$5,040,000	$5,405,000
2	Sediment Removal System	$790,000	$815,000
3	Forebay Retaining Walls	$1,145,000	$1,190,000
4	Approach Roads	$755,000	$785,000
5	Civil and Sitework	$185,000	$190,000
6	Log Boom	$175,000	$185,000
7	Pumping Plant No.1 Gates & Headworks	$565,000	$585,000
8	Pumping Plant No.2 Gates, Pipes, Bridge	$530,000	$550,000
9	Levee Piping Repair	$125,000	$105,000
10	Demolition	$55,000	$60,000
11	Prepurchase Sheet Pile	$1,670,000	$1,835,000
12	Prepurchase H-Pile	$220,000	$410,000
13	Hydraulic Boom Truck	$200,000	$200,000
14	Long Arm Excavator	$270,000	$270,000
15	High Pressure Washer	$15,000	$15,000
16	Floating Work Platform	$60,000	$60,000
	Subtotal	**$11,800,000**	**$12,660,000**

Note: The June 2004 construction cost estimate was escalated from December 2003 using the Engineering News Record (ENR) Construction Cost Index (CCI) and revised vendor quotes for Sheet Pile and H-Pile due to dramatic increases in steel prices.
The ENR CCI for the 20-city average for December 2003 was 6782 and for May 2004 was 7065 resulting in a 4% inflation.
The $12.7 million was escalated to the mid point of construction(Fall 2005) by 6% to be $13,420,000

Representative Billing Charges	$165	$185	$125	$90	$160	$90	$70	

TASK	Project Manager	Senior Engineer	Assoc. Engineer	Junior Engineer	Survey Crew	Computer Drafting	Clerical	Outside Services	TOTAL COST BY TASK	TOTAL BY TASK #
Task 3: Services During Construction										
Office Services During Construction	80 $13,200	40 $7,400	120 $15,000	120 $10,800	0 $0	 $0	80 $5,600		440 $52,000	
Onsite Services During Construction	40 $6,600	80 $14,800	1,150 $143,750	80 $7,200	40 $6,400	0 $0	240 $16,800	 $3,000	1,630 $198,550	
Prepare Record Drawings	16 $2,640	72 $13,270	0 $0	110 $9,900	0 $0	220 $19,800	40 $2,800		458 $48,410	
Prepare Operation & Maintenance Manual	16 $2,640	80 $14,800	0 $0	160 $14,400	 $0	40 $3,600	80 $5,600		376 $41,040	
Total Hours	152	272	1,270	470	40	260	440	0	2,904	
Total Cost	$25,080	$50,270	$158,750	$42,300	$6,400	$23,400	$30,800	$3,000	$340,000	

Notes: (a) Hours appear over the dollar amount in the table.
(b) Includes Overhead and Expenses, Actual billing rates will vary
(c) For Fiscal Year 3 - Assumes Task 3 work from October 1, 2006 to March 31, 2007
(d) Lab analysis

CALFED Fish Screen Funding Proposal Sutter Mutual Water Company Tisdale Positive Barrier Fish Screen/Pumping Plants Project 2002 Proposal Solicitation Package (revised September 29, 2004) Form VII - Budget Justification

1. **Direct Labor Hours.** Provide estimated hours proposed for each individual.
    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.
2. **Salary.** Provide estimated rate of compensation proposed for each individual.
    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.
3. **Benefits.** Provide the overall benefit rate application to each category of employee proposed in the project.
    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.
4. **Travel.** Provide purpose and estimate costs for all non-local travel.
    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.
5. **Supplies & Expendables.** Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.
    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.
6. **Services or Consultants.** Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.
    a. There are four tasks associated with the budget request as follows:
        - Task 1 - Legal and Administration (Conducted by SMWC at not cost to CALFED)
        - Task 2 – Construction (Conducted by Construction Contractor)
        - Task 3 – Services During Construction (Conducted by SMWC Consultant)

- Task 4 – Performance Testing (Conducted by SMWC Consultant)

b. Only Tasks 2 and 3 are being requested for CALFED Funding. Task 1 is being funded by SMWC and Task 4 will be funded by USBR. The Task 2 construction cost estimate breakdown has been provided in a separate document with this proposal. The Task 3 budget estimate is provided in Attachment A.

7. **Equipment.** Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than $5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

   a. None anticipated for purposes of Sutter Mutual Water Company project administration. All project equipment is covered in Task 2 – Construction.

8. **Project Management.** Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentations, response to specific questions and necessary costs directly associated with specific project oversight.

   a. Project management will be done by Max Sakato, Sutter Mutual Water Company Manager and his staff, at no cost to the CALFED Grant.

9. **Other Direct Costs.** Provide any other direct costs not already covered.

   a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no direct costs.

10. **Indirect Costs.** Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phone, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs. *[CORRECTION: If overhead costs are different for State and Federal funds, note the different overhead rates and corresponding total requested funds on Form I – Project Information, Question 17a. On Form VI – Budget Summary, fill out one detailed budget for each year of requested funds, indicating on the form whether you are presenting the indirect costs based on the Federal overhead rate or State overhead rate. Our assumption is that line items other than indirect costs will remain the same whether funds come from State or Federal sources. If this assumption is not true for your budget, provide an explanation on the Budget Justification form.]* Agencies should include any internal costs associated with the management of project funds.

    a. Sutter Mutual Water Company will administer the contract at no cost to CALFED. Therefore, there are no indirect costs.