C1019

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Lower American River Side Channel Habitat Demonstration Project

Applicant Name: Jones & Stokes Associates

Mailing Address: 2600 V Street, Sacramento, CA 95818-1914

Telephone: 916/737-3000

Fax: 916/737-3030

Amount of funding requested: $150,718.29 for 1. years

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

- ☐ Fish Passage Assessment
- ☐ Fish Passage Improvements
- ■ Floodplain and Habitat Restoration
- ☐ Gravel Restoration
- ☐ Fish Harvest
- ☐ Species Life History Studies
- ☐ Watershed Planning/Implementation
- ☐ Education
- ☐ Fish Screen Evaluations - Alternatives and Biological Priorities

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

- ☐ Sacramento River Mainstem
- ■ Sacramento Tributary: American River
- ☐ Delta
- ☐ East Side Delta Tributary: _____
- ☐ Suisun Marsh and Bay
- ☐ San Joaquin Tributary: _____
- ☐ San Joaquin River Mainstem
- ☐ Other: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ North Bay: _____

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

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ☐ Winter-run chinook salmon
- ☐ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ■ Fall-run chinook salmon
- ☐ Delta smelt
- ☐ Longfin smelt
- ☐ Splittail
- ■ Steelhead trout
- ☐ Green sturgeon
- ☐ Striped bass
- ☐ Migratory birds

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

- ☐ State agency
- ☐ Federal agency
- ☐ Public/Non-profit joint venture
- ☐ Non-profit
- ☐ Local government/district
- ■ Private party
- ☐ University
- ☐ Other: _____

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

- ■ Planning
- ☐ Implementation
- ☐ Monitoring
- ☐ Education
- ☐ Research

By signing below, the applicant declares the following:

(1) the truthfulness of all representations in their proposal;

(2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and

(3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Albert I. Herson, President

(Signature of Applicant)

I-009219

LOWER AMERICAN RIVER SIDE-CHANNEL HABITAT DEMONSTRATION PROJECT

Submitted by: Jones & Stokes Associates

II. Executive Summary

b. Project Description and Primary Biological/Ecological Objectives

Planning, design, and permitting of a side-channel habitat demonstration project on the lower American River below Nimbus Dam is proposed by Jones & Stokes Associates (JSA). Specifically, the project would improve low-flow, side-channel spawning and rearing habitat for chinook salmon and steelhead. Three existing high-flow side channels that have become nonfunctional for spawning and rearing because of river incising, gravel scouring, and loss of riparian vegetation would be reconfigured to allow their being watered naturally at lower flows. Spawning gravels would be added and natural riparian vegetation restored. Because the natural gravel recruitment process of the upper portion of the lower American River has been interrupted by dams, the proposed project would demonstrate a means by which to add essential spawning gravels to the river into natural habitats that would provide immediate benefits to salmon and steelhead.

The project would involve excavating three side channels in the upper portion of the lower American River below Nimbus Dam. In each channel, the prevalent large cobble or clay bedrock would be removed, lowering the side channels by 5-10 feet, and replaced with lesser amounts and depths of spawning gravel. Riparian vegetation would be planted or allowed to colonize banks. The side channels would provide a replicated experimental design for testing configurations and options for excavations, gravel introductions, and channel configuration.

The project would also be designed and constructed to provide optimal educational value to the public. The side channels are located in areas of highly accessible park properties ideal for educating the public and enhancing the recreational and aesthetic values of the parkway. Educational and interpretive programs will be developed at each site to promote ecosystem objectives as well as flood control system objectives for the lower American River.

c. Approach/Tasks/Schedule

Jones & Stokes Associates proposes to develop this demonstration project over a 5-year period. Phase 1 (year 1) of the project includes project design, baseline monitoring, environmental documentation, and permit acquisition. Phase 2 (year 2) is construction. Phase 3 (years 3-5) is postconstruction monitoring and assessment. This proposal requests funds for Phase 1.

d. Justification for Project and Funding by CALFED

The lower American River was one of many Central Valley floodplain rivers heavily affected in the January 1997 flood. Releases from Folsom Dam reached postdam record levels and caused a significant amount of damage to floodplain and river habitats. Riparian and aquatic habitats suffered considerably from scour and lack of gravel replenishment from upstream sources. Proposed project activities would not only repair damage and restore lost riparian and aquatic

habitats, but would increase the flood-bearing capacity of the lower American River, particularly in the upper, nonleveed portion. Furthermore, what is learned can be applied to below-dam reaches of other Central Valley rivers. Specifically, the project would address whether restoring steelhead and salmon spawning and rearing habitat can help sustain natural populations below dams. The project would also meet CALFED's public education objectives. CALFED Bay-Delta Program (CALFED) funding is requested because of the multiple ecosystem objectives of the project and the need to obtain matching state funds for Central Valley Project Improvement Act (CVPIA) Section 3406(b13) funding that could be applied to the project.

e. Budget Costs and Third-Party Impacts

The estimated cost of the watershed restoration plan of Phase 1 is $150,718.29. Long-term restoration activities are expected to be compatible with flood control system integrity, water supply, and water quality objectives, as well as existing park uses.

f. Applicant Qualifications

JSA is particularly suited for conducting the proposed demonstration project because of its involvement in developing the Sacramento Area Flood Control Agency's (SAFCA's) Floodway Management Plan (FMP), and supporting the U.S. Army Corps of Engineers' (ACOE's) Sacramento Flood Control Project and the CVPIA and CALFED programs. JSA's fisheries biologists have extensive experience in fish-habitat science, including evaluating the habitat requirements of salmon and steelhead on the lower American River. Mussetter Engineering, Inc. has considerable experience on the lower American River working on ACOE projects.

g. Monitoring and Data Evaluation

Monitoring is necessary to verify that construction meets design specifications and to evaluate fish use of constructed habitats. Phase 1 will include baseline monitoring of site topography, substrate, riparian vegetation, hydrologic conditions, and fish use. Hydrologic and hydraulic data gathering and analyses are also essential elements of the project because river inundation of habitats and flood control system constraints are critical concerns. Information is also essential for environmental documentation and permitting tasks. Long-term monitoring will be necessary in later phases to evaluate the effectiveness of the project in meeting its objectives.

h. Local Support/Coordination with Other Programs/Compatibility with CALFED Objectives

JSA has worked closely over the past year with agency experts whose programs include the lower American River to design the proposed project and coordinate site visits. The CVPIA programs consulted included the Section 3406(b13) program to restore salmon and steelhead spawning habitat below Central Valley Project (CVP) dams, including Nimbus Dam on the lower American River, and the Anadromous Fish Restoration Program (AFRP). JSA would coordinate with existing projects funded by CVPIA and the U.S. Bureau of Reclamation (BOR), and conducted by the California Department of Fish and Game (DFG) to evaluate the adequacy of existing gravel spawning habitat and potential effects of stranding in the lower American River. JSA is working on the SAFCA FMP and has also worked with the Lower American River Task Force, a local group of stakeholders that includes SAFCA, the Water Forum, county parks, and other local citizen groups, as well as state and federal agency representatives.

III. Title Page

LOWER AMERICAN RIVER SIDE-CHANNEL HABITAT DEMONSTRATION PROJECT

Applicant:

Jones and Stokes Associates
2600 V Street, Suite 100
Sacramento, CA 95818
Contact: Phil Dunn, Principal
Telephone: 916/737-3000
Facsimile: 916/737-3030
E-mail: PhilD@jsanet.com

Type of organization: Private corporation
Tax identification number: 94-1730361
Participants/Collaborators: Mussetter Engineering, Inc.

July 2, 1998

IV. Project Description

a. Project Description and Approach

JSA proposes to conduct a floodplain demonstration project that will improve aquatic and riparian habitats in the lower American River and be applicable to other Central Valley rivers. Specifically, this project would evaluate the potential to restore aquatic and riparian habitat in side channels on river bars within the American River Parkway. The demonstration project would consist of excavating and recontouring side channels in three selected locations below Nimbus Dam.

In each side channel, the prevalent large cobble or clay bedrock would be removed to a depth of 5-10 feet and replaced with lesser amounts and depths of spawning-size gravel. Boulders, root wads, or other forms of large woody debris (LWD) would be strategically placed to provide cover, reduce scour, and retain gravel under floodflows. Riparian vegetation is expected to colonize banks of the lowered side channels and provide additional shaded riverine aquatic (SRA) cover. The three side channels would provide a replicated experimental design for testing various configurations and options for excavations, gravel-boulder-LWD introductions, and channel configurations that would result in the most consistent benefits for the least amount of operations and maintenance costs.

The proposed project would be designed to maintain the flood-bearing capacity of the lower American River. Considerable levee and bank protection upgrades are planned in the coming years to improve flood protection on the lower American River. Restoration of riparian and aquatic habitat must be accomplished within the constraints imposed by flood safety considerations. Specifically, flow resistance created by increased floodplain vegetation and restored channel islands must be offset by increased cross-sectional area of flow, which, for this project, would be achieved by excavation of side channels.

An important element of the first phase of this project will be topographic surveying and hydraulic simulation of side channels. This analysis will be necessary to demonstrate that flood risk will not be increased and to obtain permits from ACOE, DFG, and the State Reclamation Board. Floodplain hydrology and hydraulics will be evaluated using a hydraulic model or models of the lower American River already developed or being developed by ACOE.

The project will also include a detailed engineering evaluation of the potential effects of channel manipulations on channel stability. Altering the river channel may redirect river scour and erode banks or bluffs.

A major focus of the project will be expanding public awareness of the importance of habitat restoration and floodplain management. Each of the three proposed sites has excellent public access. The project will include provisions for interpretive walks and viewing at the sites that not only depict important attributes of the project, but point out actual salmon and steelhead spawning and rearing, natural floodplain processes, the importance of riparian and aquatic habitats, threatened and endangered species, and nonecosystem objectives, including water supply, water quality, and flood control system integrity.

b. Proposed Scope of Work

The project is proposed in three phases: (1) planning, design, baseline monitoring, and permitting; (2) construction; and (3) postconstruction monitoring and evaluation. Only Phase 1 is proposed for funding at this time.

Phase 1 – Design and Permitting

Task 1.1. Baseline Monitoring and Habitat Inventory. Existing aquatic and riparian habitat features will be mapped at the three side-channel sites. Baseline surveys of fish habitat use and stranding will be conducted. Test holes will be augered and sediment texture analyzed at potential excavation areas. **Schedule:** Year 1. **Budget:** $33,703.33 **Deliverable:** Baseline habitat inventory.

Task 1.2. Obtain Topographic Data. Existing aerial topographic coverage of the project sites from ACOE surveys will be reviewed. ACOE ground-survey data will be obtained. Supplementary ground surveys will be conducted as needed. **Schedule:** first quarter. **Budget:** $31,663.91 **Deliverable:** Topographic maps of project sites and longitudinal and cross-sectional profiles.

Task 1.3. Simulate Inundation Area, Frequency, and Duration. Stage-discharge relationships will be developed for each site. Inundation maps will be created for a range of river flows and stages corresponding to selected combinations of season, frequency, and duration. **Schedule:** Second and third quarters. **Budget:** $11,173.43 **Deliverable:** Inundation frequency charts of project sites.

Task 1.4. Develop Experimental Design and Proposed Side-Channel Configuration Options. Side-channel thalweg elevations will be targeted to achieve desired inundation frequency and duration. Designs will be developed for appropriate depths, velocities, substrates, channel width, sinuosity, and boulder and root-wad placement. A with-project contour map will be prepared for cut-fill calculations and hydraulics simulations. With-project longitudinal and cross-sectional profiles will be developed. The amount of gravel and fill needed for side channels will be calculated. Plantings for riparian vegetation will be defined. The amount of new habitat created by the selected design will be calculated. Potential side-channel excavations and expansions will be mapped. **Schedule:** Third and fourth quarters. **Budget:** $25,240.80 **Deliverables:** Project design report with configuration options and plans and specifications.

Task 1.5. Development of an Ecological and Biological Monitoring Plan. A plan will be developed for monitoring the effectiveness of the project. The plan would include: objectives of monitoring, questions/hypotheses to be addressed, personnel and experience required, schedule, factors to be monitored, sampling methods, locations, sampling frequency, data and report formats, quality assurance, and annual monitoring reports. **Schedule:** Third quarter. **Budget:** $9,961.80 **Deliverables:** Monitoring plan.

Task 1.6. Site Education and Recreation Management Plan. To maximize the educational, recreational, and aesthetic values of the three sites, a management plan will be developed with

SAFCA, the State Reclamation Board, State Lands and Parks, and Sacramento County Parks and Recreation. The plan would identify facilities, access, viewing areas, interpretive features, walkways, and small bridges over side channels providing access to sites, bars, and the river. Interpretive features would focus on purpose and benefits of project, including the role of the project in retaining floodway system integrity. **Schedule:** Third quarter. **Budget:** $10,064.31 **Deliverable:** Site plan with facilities depicted and maps of area and facilities.

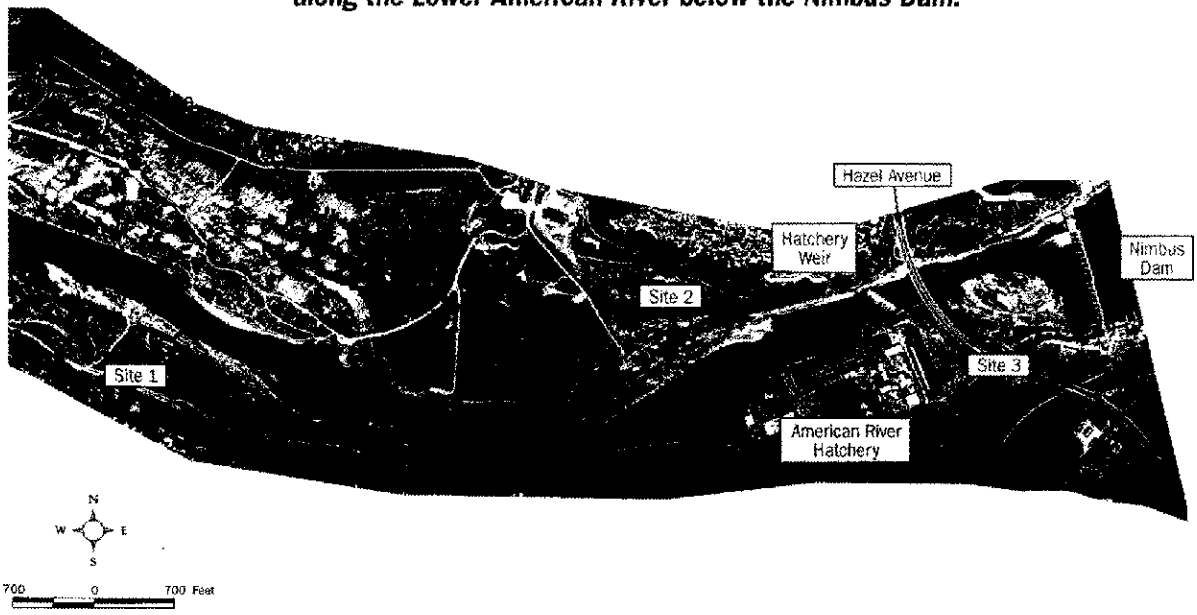
Task 1.7. Permitting. Because the proposed experiments may involve discharging limited amounts of fill (gravel), an ACOE Nationwide Permit 27 (NWP27) will probably be required. The project must also comply with various components of the federal Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Section 401 of the Clean Water Act, Section 1600 of the Fish and Game Code, the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA). Also, an encroachment permit must be obtained from the State Reclamation Board. A Streambed Alteration Permit would be obtained from DFG. Permit activities will include liaison between federal and state agencies, preparing permit and agreement applications and forms, providing supporting project documentation, managing follow-up written and verbal communications to respond to questions and provide clarification, attending meetings, tracking and documenting the progress of applications, and resolving processing problems. Environmental (NEPA/CEQA) and biological assessments (ESA) will be prepared as necessary. Monitoring will also require incidental take permits from ESA agencies. **Schedule:** All 4 quarters. **Budget:** $28,910.71 **Deliverables:** Permit applications (as needed).

Phases 2 and 3 - Construction, Monitoring, and Evaluation
The principal tasks for Phases 2 and 3 are site construction and postconstruction monitoring. These activities may occur over more than 1 year and will be coordinated to meet the requirements of the permitting agencies. Data obtained during monitoring will be used to evaluate the effectiveness of the demonstration project and the validity of initial hypotheses. Annual reports will be prepared outlining accomplishments. Funding for these phases will be sought from the CVPIA-b13 program and later CALFED grant cycles.

c. Location and/or Geographic Boundaries of the Project
The project area is located in the lower American River active floodplain below Nimbus Dam in Sacramento County. This portion of the American River is a federally designated Wild and Scenic River. The three project sites are located on three bars: site 1, adjacent to upper Sunrise Park on the south side of the river; site 2, on the north side of the river on upper Sailor Bar; and site 3, in Nimbus basin on the south side of the river between Nimbus Dam and Hazel Avenue Bridge (Figure 1).

d. Expected Benefits
The proposed project would have several benefits: (1) provide additional low-flow stream habitat in the floodplain for chinook salmon and steelhead spawning and rearing, (2) reduce fish stranding, and (3) provide additional riparian habitat. Results would be applicable to many Central Valley streams.

Figure 1. Location of three proposed side channel demonstration sites along the Lower American River below the Nimbus Dam.



Stressors identified by CALFED as having adversely affected habitat conditions in the lower American River floodplain that would be addressed by this project include hydrograph alterations, alteration of channel form, isolation of side channels and loss of channel islands, and lack of riparian zone regeneration potential. Recovery of riparian vegetation along side channels will provide additional habitat for migratory birds that depend on riparian corridors of Central Valley rivers. The process of gravel recruitment to the river will benefit from the project. The addition of gravels to side channels will provide an additional limited source of gravel to the river and the project will maintain or increase flood-conveyance capacity in the lower American River.

e. Background and Ecological/Biological/Technical Justification

Need for project - existing conditions:
The project will address whether major eastside Sacramento-San Joaquin tributaries with foothill dams, like the lower American River, can support wild steelhead and salmon populations. The following questions will be addressed: can adequate spawning and rearing habitat be provided below dams to support self-sustaining natural populations of native steelhead? Has the habitat below dams such as Folsom and Nimbus become so degraded by changes in hydrograph and sediment supplies that the lower rivers cannot support wild steelhead populations? Can spawning gravels be introduced and provide functional spawning habitat for salmon and steelhead in a cost-effective way? Can low-flow side channels be restored to provide spawning and rearing habitat for salmon and steelhead, as well as riparian habitat for migratory birds? Is there value in increasing spawning and rearing habitat in the lower American River, or is the existing habitat adequate?

Despite provisions for gravel introductions in CVPIA Section 3406(b13) to replace lost spawning habitat resulting from construction of Nimbus and Folsom Dams, there remains uncertainty as to the need for new spawning areas for salmon and steelhead. Recent DFG studies have concluded that adequate spawning gravels are available for existing spawning runs at AFRP-prescribed wet-year flows (about 2,000 cubic feet per second); however, studies indicate that, at lower flows or higher escapement, spawning habitat may be limited. There are also questions as to how gravel should be added to the river, whether artificially constructed spawning and rearing channels are cost-effective, and whether they increase risks of flood scour in the floodplain.

Comparison with other possible approaches to meet objectives: DFG is studying another approach to adding spawning gravels to the river, which involves ripping armored bars in the active low-flow channels to expose stored gravel. Although this approach may provide much-needed gravel to the river, it is dependent on a finite supply of in-river stored gravel. The approach also encourages further channel incising. Additional sources of gravel also occur on higher terraces and could be made more accessible to the river. These two methods and that proposed in this proposal are viable and perhaps complementary means of restoring gravel supplies to the lower American River.

Basis for expected benefits: Expected benefits are based on observations of similar habitats in the lower American River floodplain. Observations over the past winter indicated that waves of juvenile chinook salmon and steelhead moved from the river to high-flow channels and submerged

bar habitats during high water to take advantage of the low-velocity habitat with abundant cover. Observations indicated that fish stranding is potentially widespread on terraces, bars, and in side channels. With limited spawning and rearing habitat for salmon and steelhead in the floodplain immediately below Nimbus Dam and relatively large concentrations of spawners below the dam, the sites are expected to be heavily used by spawning adults and rearing juveniles.

The expected educational benefits of the project are high because the three project sites are in a metropolitan area and are very accessible to the public, which would maximize the demonstration value. Park facilities are well developed at the sites and should accommodate a large number of potential visitors to the project sites.

CALFED Ecosystem Restoration Project Plan (ERPP) objectives addressed: The proposed project will address a number of ecological processes, habitats, stressors, and species identified in the ERPP.

- **Natural sediment supply** (ERPP Vol. 1, page 33) - the project will provide quantities of gravel.
- **Natural floodplain processes** (ERPP Vol. 1, page 45) - the project will increase the frequency of inundating side channels and increase the acreage and connectivity of natural habitat areas.
- **Restore riparian habitat** (ERPP Vol 1, page 110) - the project would restore riparian habitats.
- **Support in the recovery of chinook salmon** (ERPP Vol 1, page 153) by improving spawning and rearing habitat and reduce stranding.
- **Support in the recovery of steelhead** (ERPP Vol 1, page 160) - the project would improve spawning and rearing habitat and reduce stranding for the wild steelhead population of the lower American River.

AFRP/CVPIA Objectives addressed by project: General objectives of the AFRP of the CVPIA that apply to the lower American River include replenishing spawning gravel and restoring existing spawning grounds, and improving and protecting riparian habitat and instream cover.

Nature and basis for durability of benefits: Excavations of side channels should function effectively for decades because bedrock outcrops at the upstream ends of the bars maintain bar stability, even during floods. Side-channel restoration will require some long-term maintenance because side channels receive some debris and sediment during floods and some gravels are expected to be scoured.

Current status: Efforts have focused on critical limiting factors such as flow and water temperature. With much progress on these factors, focusing new efforts on physical habitat is warranted to take advantage of the potential productive capacity of the lower American River.

f. Monitoring and Data Evaluation

An essential element of the proposed long-term habitat restoration program will be monitoring of the effectiveness of restoration projects and background changes in the physical and biological system.

Nature and extent of monitoring and data evaluation: Monitoring is proposed to provide complete baselines of the riparian and aquatic habitat conditions at the project sites. Existing fish population and riparian habitat inventories data available from SAFCA's FMP and U.S. Fish and Wildlife (FWS) efforts will be verified and supplemented with ground surveys.

Potential for planned coordination and integration with monitoring/data evaluations of other programs: Because factors being measured by this program could be influenced by other nonproject factors, such as river flows and park activities and maintenance, coordination will be required.

Use of peer review: Because the demonstration project is being conducted as an experiment that tests specific hypotheses, a long-term goal is to publish findings in a peer-review scientific journal. We also intend to receive peer review throughout the project phases by soliciting input from IEP's salmon and steelhead project working team (PWT), DFG, the National Marine Fisheries Service (NMFS), and the FWS AFRP team.

Development of an ecological and biological monitoring plan: A plan will be prepared that would include: objectives of monitoring, questions/hypotheses to be addressed, factors being monitored, sampling methodology, locations, frequency of sampling, data and report formats, quality assurance measures, and reporting requirements.

g. Implementability

Because the side channels are located within conservation lands owned and managed by the state and Sacramento County, and the proposed project is consistent with land use objectives of these lands, there will most likely be strong support and long-term agency commitment for the project. The project also involves streambed alterations and excavation and fill; therefore, both NEPA and CEQA requirements must be addressed and permits acquired. Because monitoring would potential involve steelhead, ESA take permits may be required. Cultural resources may exist in the area of the project and a cultural resources management plan for the sites will be developed. Local support for the project is anticipated from state parks, county parks, DFG, and BOR because the project will provide highly visible environmental enhancements. We will continue to work closely with the Lower American River Task Force, which includes the above and other stakeholders, in implementing the project.

The proposed project would be coordinated with other programs on the lower American River including studies of gravel supplies and fish stranding being conducted by DFG, planning studies by SAFCA and the Water Forum, ACOE Comprehensive Studies, and FWS migratory bird surveys. Project implementation (Phase 2) will be dependent on hydrologic/climatic conditions. For example, excavation of side channels can only occur under low-flow conditions that normally occur in summer and fall.

V. Cost and Schedule to Implement Proposed Project

a. Budget Costs: Costs are presented by task in Table 1.

Basis and need for CALFED funding: CALFED funding is requested because of the multiple ecosystem objectives of the project and the need to obtain matching funds for CVPIA Section 3406(b13) funding that could be applied to future phases of the project. Specifically, funds are requested because of CALFED's willingness to fund demonstration projects, as well as design, permitting, and monitoring phases of restoration projects. Phase 2 funding will be requested from the CVPIA-b13 program. Long-term operations and maintenance, particularly periodic input of spawning gravels into the side channels and maintaining side channel configurations, may be required if the demonstration project determines such maintenance is cost-effective. Long-term funding would potentially come from one or more of the following programs: CVPIA-b13, BOR, DFG, Water Forum, or SAFCA.

b. Schedule Milestones
Phase 1 is scheduled to be completed during the first year.

Key milestones during the first year will include each task deliverable as well as all activities involving stakeholders relating to the deliverables. Key milestones will include each of the project permits received toward project implementation (Phase 2 construction), as well as associated environmental documentation. A critical path item will be permits for monitoring and sampling salmon and steelhead from NMFS. Although permits are not yet required to sample steelhead in the American River, they will be required by next year. In anticipation of this requirement, JSA has begun preparing applications for incidental take permits for this and other potential monitoring programs on the lower American River.

Because each of the tasks described have clearly defined deliverable products, invoices and payments can be readily scheduled following completion of task deliverables.

c. Third-Party Impacts
Some Phase 2 activities, including site construction, will potentially interfere with recreation and parkway maintenance activities at the three proposed sites.

Table 1. Cost Breakdown

Task Description	Direct Labor Hours	Direct Salary Totals	Overhead G & A Expense, Fee	Subconsultant Contracts	Other Direct Costs	Total Cost
1. Baseline monitoring/inventory	362	$8,980.57	$19,722.76	$5,000.00		$33,703.33
2. Obtain topographic data	148	$3,649.35	$8,014.56	$15,000.00	$5,000.00	$31,663.91
3. Simulate inundation	60	$1,868.94	$4,104.49	$5,000.00	$200.00	$11,173.43
4. Develop experimental design	236	$6,176.41	$13,564.39	$5,000.00	$500.00	$25,240.80
5. Develop monitoring plan	110	$2,647.49	$5,814.31		$1,500.00	$9,961.80
6. Develop education/recreation plan	146	$2,992.44	$6,571.87		$500.00	$10,064.31
7. Permitting	288	$8,982.88	$19,727.83		$200.00	$28,910.71
Totals	1,350	$35,298.07	$77,520.22	$30,000.00	$7,900.00	$150,718.29

VI. Applicant Qualifications

Staff organization: Members of JSA's aquatic ecological and floodplain management groups are proposed as the team to conduct the first phase of the project. JSA staff has considerable experience on the lower American River in supporting SAFCA, CVPIA, and CALFED efforts in recent years. Team members have also worked extensively on Butte Creek, the Feather River, and the Yuba River salmon and steelhead habitat-related projects. The team has completed multiple ground surveys of lower American River habitat features over the past 3 years in preparation for developing SAFCA's FMP for floodplain habitats. The team is very experienced in agency consultation, NEPA/CEQA documentation, and permitting. Team members participated in developing support information for the CVPIA Environmental Impact Report/Environmental Impact Statement (EIR/EIS), the CALFED EIS/EIR, and an EIR/EIS for East Bay Municipal Utility District's (EBMUD's) proposed American River water project. Supporting the team will be (1) JSA's permitting group, which includes staff members experienced in obtaining all the necessary permits and other documentation; (2) JSA's editorial and document production group; and (3) JSA's administrative and finance group.

Other resources: Our team includes Mussetter Engineering, Inc., which has been conducting hydraulic and hydrologic studies for ACOE on the lower American River over the past several years. Its expertise will be used to support our evaluations as to the potential effects on channel stability and the flood-bearing capacity of the river from proposed side-channel excavations and riparian habitat restoration.

Nature and extent of other collaborating participants: The JSA team will work closely with DFG scientists studying gravel spawning areas in the lower American River. The JSA team will report project progress to the Lower American River Task Force organized by SAFCA to oversee activities of the flood control agencies that affect the environment of the river and its floodplain. The JSA team will also coordinate with IEP's salmon and steelhead PWT's, as well as CVPIA program efforts, including those of the section 3406(b13) program and the AFRP. The AFRP Habitat Restoration Coordinating teams established for various Central Valley river systems will be approached and solicited for collaboration on the project. One of the activities of the first phase of this demonstration project is to establish all of these relationships. Preliminary agency support for the first phase of the project has been confirmed by the major participants in these organizations. We will work closely with the Sacramento County Parks Department in developing the project, particularly the site recreation and education plan.

Individual responsibilities: Tom Cannon is proposed as project manager and team leader. He will be supported by William Mitchell and Beth Campbell (fish and fish habitat), Ken Casaday and Gus Yates (physical habitat), Russ Brown (water resources) and Mike Harvey (geomorphology). The JSA team will be supported by JSA corporate services including contracts and administration, graphics and report production, and technical editors.

Jones and Stokes Associates: JSA has the depth and breadth of expertise and long-term stability needed to fulfill project objectives. Staff biologists are qualified in terrestrial and aquatic ecology,

fisheries, wildlife management, wetland biology, habitat evaluation, and vegetation management. Staff engineers are experienced in the areas of environmental and water resources engineering.

JSA is a multidisciplinary environmental planning and natural resources management firm headquartered in Sacramento, California. Formed in 1970, JSA maintains a full-time staff of over 170 professionals that includes environmental specialists, biologists, planners, economists, attorneys, and engineers. As an employee-owned company, each professional is personally committed to the highest quality client service. Our staff adheres to a problem-solving philosophy and believes that the keys to high-quality client service are scientific accuracy and decision-oriented work products. JSA's diverse experience includes over 3,000 environmental and natural resource reports and studies throughout the western United States. Clients include federal, state, and local governments; special districts; private organizations, such as land developers, corporations, and nonprofit organizations; and engineering and law firms.

Staff Organization: Tom Cannon will coordinate project activities both within JSA and between appropriate resource agencies. He is a Senior Environmental Scientist and project manager and has extensive experience working with agency and stakeholder interests on fisheries restoration issues. Mr. Cannon will ensure appropriate coordination with resource agencies on data needs and acquisition and, through his biostatistical background, provide experimental design, quality control for field research, and data analysis.

Since 1994, Mr. Cannon has extensively observed floodplain habitat use by juvenile chinook salmon and splittail, increasing his understanding of the importance of floodplain habitat. Mr. Cannon serves as lead aquatic and estuarine ecologist for Sacramento-San Joaquin River Delta ecosystem analyses, primarily for large federal and state water resources and ecosystem restoration projects. Has more than 25 years of experience modeling and managing complex estuarine and river systems, designing broad-based and integrated environmental monitoring programs for aquatic species, implementing large-scale sampling designs for large rivers and estuaries, and directing large-scale database design, development, and analysis programs. He provided a major role in developing CALFED ecosystem objectives and the ERPP. Mr. Cannon received an M.P.H. in biostatistics from the University of Michigan, an M.A. in biology from Northern Michigan University, and a B.S. in fisheries from the University of Michigan.

William Mitchell will be the fish studies principal investigator and will apply his extensive experience evaluating fisheries issues for Central Valley species to provide clear direction in meeting project objectives. He is a Senior Environmental Scientist and project manager with JSA, where he has worked for more than 8 years. He will ensure integration of physical and biological project elements, including focusing field activities on necessary data needs, and will be responsible for project schedule and product deadlines.

Mr. Mitchell has formal training in stream-habitat mapping, collecting hydraulic data, and developing fish habitat suitability criteria from field survey data. He has conducted monitoring and assessment projects in the lower Yuba and American Rivers. He has received formal training in the FWS Instream Flow Incremental Methodology (IFIM).

Mr. Mitchell received an M.S. in fisheries from Humboldt State University, Arcata, California and a B.S. in Biology from San Diego State University.

Russ T. Brown, Ph.D., will lead development of the stage and flow database and integration of data into the topographic database for evaluation of fish-passage issues. Dr. Brown is a Senior Environmental Scientist specializing in the application and interpretation of hydrologic and water quality models. He uses reservoir, riverflow, and temperature models to support fisheries and other water resources investigations. He applies watershed hydrology and runoff models to describe erosion, sediment movement, and adsorbed pollutant transport. His creative ability to integrate and interpret available field data will provide an increased understanding of floodplain inundation and linkage to biological attributes. Dr. Brown's familiarity with available hydrologic data for Central Valley rivers and appropriate agency contacts will be an asset to the project. Dr. Brown received a Ph.D. in civil engineering from the Massachusetts Institute of Technology (MIT), an M.S. in ocean engineering from MIT, and a B.S. in civil and environmental engineering from the University of California, Irvine.

Beth Campbell will lead the fish field studies. She is a fishery biologist with more than 10 years of experience in fisheries research. She has led or participated in studies of northern California stream fishes in the Coast Range, Central Valley (i.e., spring-run chinook salmon), and Sierra Nevada. She has also participated in a population study of fishes in the Sacramento-San Joaquin Delta estuary and is especially familiar with floodplain habitat use by juvenile chinook salmon. Ms. Campbell received a B.S. in fisheries management from Ohio State University and an M.S. in Zoology from the University of Wisconsin. She has completed her dissertation and will soon receive her Ph.D. from the University of California, Davis.

Ken Casaday will lead project tasks related to evaluating effects on flood capacity and floodplain channel modifications. Mr. Casaday has participated in numerous ACOE floodplain projects, including those for the American River. He developed strategies for restoring wildlife habitats along the Sacramento River within ACOE flood control project reach. Mr. Casaday received A.B. and M.A. in Geography and Geophysics from the University of California, Berkeley.

Gus Yates will lead efforts to integrate technical information related to hydrology, geomorphology, and vegetation and fish habitat enhancement. He conducted a similar project for Putah Creek in the Sacramento Valley. Mr. Yates has also conducted an assessment of the probable effects of a proposed wastewater recharge project on a coastal lagoon in San Luis Obispo County, California; evaluation of water table and soil salinity conditions for restoration of riparian and wetland habitats along the Lake Elsinore outlet channel in Riverside County; and simulation of the interaction between groundwater pumping, lake levels, and lacustrine habitat around Lake Merced in San Francisco. He managed the development of the Willow Slough Watershed Integrated Resources Management Plan in Yolo County and a groundwater management plan for northern San Benito County. Mr. Yates was certified as a professional hydrogeologist by the American Institute of Hydrology in 1992. Before joining JSA, he worked for 8 years as a groundwater hydrologist with the U.S. Geologic Survey (USGS). Mr. Yates received an M.S. in water science from the University of California, Davis, in 1985; and a B.A. in geology from Harvard University, Cambridge, Massachusetts, in 1979.

VII. Compliance with standard terms and conditions

U.S. Department of the Interior

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

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

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

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

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

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

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

CHECK__ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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

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

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
June 1988
(This form replaces DI-1953, DI-1954, DI-1956, DI-1958 and DI-1963)

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

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

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

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

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

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

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

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

Albert I. Herson, President

TYPED NAME AND TITLE

DATE June 30, 1998

DI-2010
June 1998
(This form replaces DI-1953, DI-1954, DI-1955, DI-1956 and DI-1963)