



Request for Proposals Los Padres Dam Fish Passage Feasibility Study Amended March 15, 2016



3.0 CALENDAR OF EVENTS

3.1 Issue RFP

3.2 Pre-Bid Conference Call

Note: RFP and Answers to Questions will be posted on the web at: http://www.mpwmd.net/asd/rfpbids/

3.3Pre-Bid Site VisitMarch 11, 2016 TBD at Pre-Bid Conference Call
(Call or e-mail Larry Hampson to arrange meeting place)
March 15, 2016Deadline for written questionsMarch 15, 20163.4Proposals DueMarch 25 18, 20163.5Proposal Review (tentative date)April March 25, 20163.6MPWMD Board ConsiderationMonday, April 18, 20163.7Estimated Notification of SelectionFriday, April 22, 20163.8Notice to ProceedFriday, April 29, 2016

Tuesday, February 16, 2016 3:00 p.m., March 4, 2016

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Prepared by: California American Water Company Monterey Peninsula Water Management District

In cooperation with: National Marine Fisheries Service California Department of Fish and Wildlife

ACRONYMS AND ABBREVIATIONS

Community and agency representatives invited to provide feedback to the	
Technical Review Committee about the study process and information	
provided	
acre-feet per year	
Biological Opinion	
California Department of Fish and Wildlife	
Code of Federal Regulations	
Division of Safety of Dams	
Distinct Population Segment	
Endangered Species Act	
Los Padres Dam	
Monterey Peninsula Water Management District	
National Marine Fisheries Service	
Los Padres Dam Fish Passage Project	
Reasonable and Prudent Alternative	
River Mile, from the ocean	
South-Central California Coast	
Los Padres Dam Fish Passage Feasibility Study Plan	
Technical Review Committee, composed of technical experts from Cal-	
Am, MPWMD, NMFS, and CDFW	
United State Fish and Wildlife Service	

1.0 INTENT

- 1.1 The Monterey Peninsula Water Management District, hereinafter referred to as "District" or "MPWMD", is soliciting proposals from qualified organizations, hereinafter referred to as "Consultant", to assist in preparing the "Los Padres Dam Fish Passage Feasibility Study," hereinafter referred to as "Project."
- 1.2 This solicitation is intended for a single, exclusive AGREEMENT.

2.0 BACKGROUND

2.1 The Los Padres Dam (LPD) is located at River Mile (RM, measured from the ocean) 24.8 on the Carmel River, which is a coastal stream located five miles south of Monterey along the Central Coast of California. LPD forms a 148-foot high barrier along the river and has been a known fish passage impediment for both upstream and downstream migrating S-CCC [South-Central California Coast] steelhead as well as impacting the downstream habitat by blocking the natural sediment supply. As a first step towards protecting S-CCC steelhead, the National Marine Fisheries Service has strongly encouraged California American Water, the dam owner, to resolve the fish passage and other potential take issues at LPD by completing a thorough feasibility study on the merits of either: 1) entirely removing the dam and restoring the reservoir area to its original environs; or 2) improving the dam with appropriate permanent fish passage modifications that allow for unimpeded, safe and effective, upstream and downstream migration of all life stages of S-CCC steelhead.

In addition to the dam, siltation along the approximately mile-long reservoir may affect throughreservoir migration.

2.2 Other information available:

- Reference documents are available at: <u>http://www.mpwmd.net/asd/rfpbids/</u>
- Carmel River flows are available at: http://www.mpwmd.net/wrd/riverflows/riverflows.htm
- Other links or documents may be provided during the selection process

2.3 <u>Existing funding agreements</u>. MPWMD has entered into an agreement with California American Water (Cal-Am) for reimbursement of expenses associated with this Project. Cal-Am and MPWMD have agreed to co-manage the Project.

2.5 <u>Other projects in the vicinity</u>. A downstream passage facility is planned to be in operation at the dam by the spring of 2016. There are no other planned projects at the dam site at this time.

Figure 1- Location Map



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It is desirable to solicit several proposals for this project; if necessary, MPWMD may extend the proposal due date to allow ample time for the maximum number of firms with interest in performing the described work an opportunity to submit a proposal.

4.0 POINTS OF CONTACT

- 4.1 Questions and correspondence regarding this solicitation shall be directed to:
- Primary Contact: LARRY HAMPSON, DISTRICT ENGINEER 5 Harris Court, Bldg. G Monterey, CA 93940 PHONE: (831) 658-5620 (office) or (831) 238-2543 (cell) FAX: (831) 644-9560 Email: larry@mpwmd.net
- 4.2 All questions regarding this solicitation shall be submitted in writing (E-mail or FAX is acceptable). The questions will be researched and the answers will be communicated to all known interested Consultants after the deadline for receipt of questions.
- 4.3 The deadline for submitting written questions regarding this solicitation is indicated in the **CALENDAR OF EVENTS herein**. Questions submitted after the deadline will not be answered.
- 4.4 Only answers to questions communicated by formal written addenda will be binding.
- 4.5 Prospective Consultant shall not contact MPWMD officers or employees with questions or suggestions regarding this solicitation except through the primary contact person listed above. Any unauthorized contact may be considered undue pressure and cause for disqualification of the Consultant.

5.0 SCOPE OF WORK

5.1. Background

In an April 23, 2013 letter to California American Water (Butler to Svindland), or Cal-Am, the National Marine Fisheries Service (NMFS) stated the following:

"The Los Padres Dam (LPD) has been a known fish passage impediment for both upstream and downstream migrating S-CCC [South-Central California Coast] steelhead as well as impacting the downstream habitat by blocking the natural sediment supply...As a first step towards protecting S-CCC steelhead, NMFS strongly encourages CAW to resolve the fish passage and other potential take issues at LPD [Los Padres Dam] by completing a thorough feasibility study on the merits of either: 1) entirely removing the dam and restoring the reservoir area to its original environs; or 2) improving the dam with appropriate permanent fish passage modifications that allow for unimpeded, safe and effective, upstream and downstream migration of all life stages of S-CCC steelhead."

In its December 2013 "South-Central California [Coast] Steelhead Recovery Plan," NMFS stated:

"Prior to the removal or modification of ...[Los Padres Dam] appropriate investigations and environmental review should be completed to address regional water supply and environmental issues, including, but not limited to any effects on the existing steelhead resources of the Carmel River watershed."

Subsequently, Cal-Am submitted project I15-400101 "Los Padres Dam Long-Term Plan" in its2015-17 General Rate Case Application to the California Public Utilities Commission. The project description stated:

It is anticipated that if the dam were to remain "in place", then the feasibility study would need to answer critical questions such as: 1) improved upstream fish passage; 2) addressing the present sediment in the reservoir (i.e., what to do with what is presently there, and/or a continuing management/maintenance program); 3) installing appropriate screening on the intake/outlet structures; 4) insuring adequate fish passage through any accumulated sediment in the reservoir; 5) addressing water quality and temperature issues in the reservoir; and 6) replenishment of gravel in key downstream areas to facilitate fish

spawning areas.

This study (the Project) is one of several being conducted by Cal-Am and the Monterey Peninsula Water Management District to answer a number of questions about the future of LPD, including the question of "Is the Carmel River and the steelhead fishery better off with or without Los Padres Dam and Reservoir?" In particular, this study is to investigate whether it is feasible to improve juvenile and adult steelhead passage by installing upstream volitional facilities at LPD. Existing downstream passage facilities are intended to provide interim improvements until a permanent solution can be found. This study will evaluate whether upstream passage facilities can also act in the downstream direction to provide enhanced opportunities for downstream migration.

Reservoir sediment accumulation may affect passage between the dam and the upstream influence of the reservoir backwater. A re-survey of the reservoir will be conducted and a determination made of whether accumulated sediment affects passage through the reservoir.

Additional studies not within the scope of this study will evaluate dam removal as an alternative to manage sediment. That study will include evaluation of the effects to habitat, channel form, and flows downstream of LPD both with and without surface storage (i.e., a dam) in place. It is presumed that dam removal and river restoration would address passage issues at LPD.

Los Padres Dam and Reservoir

Los Padres Dam, located at River Mile (RM, from the ocean) 24.8 was built in 1949, is 148 feet high and originally held 3,030 AF. Since that time, approximately 40% of the original capacity has been lost to sedimentation with the current capacity estimated at 1,775 AF at spillway elevation 1,040 (NGVD). The usable capacity is about 1,450 AF, as water at the lower level of the reservoir has either unacceptable quality for release or is not recoverable through the lower pipes through the dam. In addition, head cutting and slumping of silt deposits below this level can contribute material that clogs the outlet.

The concrete spillway is 600 feet long and has a height of 90 feet (see photos in Appendix B). When it was built, the dam had no fish passage facilities, except for a trap located at the base of the dam. Data from the early trapping program, prior to 1982 are spotty, with records available for isolated years. Investigations into the steelhead resource recount that the trap was not functional for several years, resulting in the original trapping station below LPD being replaced

in 1981. The replacement was operated for the next 18 years, until 2000, when a new Denil ladder and trap was constructed along the left bank of the plunge pool below the dam. Between 2000 and 2006, Cal-Am tried operating both traps below the dam. But, with the steady deterioration of pipeline to the old trap, use of the old trap was abandoned and only the new trap remains functional. Daily trapping records are available at MPWMD. Until 2015, downstream passage was over the spillway.

A downstream passage facility for outmigrant juveniles and adults was constructed at the dam and spillway in 2015. Remaining refinement work of the facility was underway in the winter of 2015-16, and agencies were waiting for a fish performance test before allowing operation to commence. The facility includes a behavior guidance system (BGS) coupled with a 900-foot long pipeline that places fish just downstream of the existing trap near the downstream end of the "plunge pool" below the spillway. The BGS provides downstream migration opportunities when river flows are at a low level and reservoir levels are below the spillway level – a capability that has not been available to previous generations of fish since the dam was built. No throughreservoir studies have been conducted to determine if fish migrate during periods of low flow. It is noted that at levels below the spillway elevation, fish in the upper two-thirds of the reservoir area (where most of the sediment deposition has occurred) are in open water with no vegetative cover.

The remaining reservoir storage is small, relative to median annual inflow (estimated at about 28,000 acre-feet per year)¹, and normally fills and spills each winter resulting in the watershed being in an uncontrolled state with river flow responding directly to rainfall and runoff. The reservoir provides virtually no flood storage or reduction. Releases from storage are allocated in dry periods solely to augment flow downstream of the dam. These releases provide the majority of flow downstream of the dam during most years during the dry season (June 1 through November 30) and can be almost the entire surface flow from the watershed during dry and critically dry periods. There is no direct connection to a municipal supply system; however, a portion of the flows released from Los Padres Reservoir are rediverted to municipal use at multiple wells in the alluvial aquifer between about RM 14.5 to RM 3. Cal-Am dry season diversions are restricted to wells downstream of RM 8.

5.2. Study Overview

The feasibility evaluation includes six tasks; four tasks to determine feasibility and identify fish passage alternatives, one for alternative development and a decision point, and one task to

¹ The average flow is much higher at about 50,000 AFY due to high runoff numbers in extremely wet years.

complete a Final Report. These tasks are summarized below, and additional detail is provided in Section 4. A schedule is provided in Section 4.9 that outlines this work plan.

- Task 1: Feasibility Study Preparation (Consultant)
 - Task: Compile and review background information necessary for development of fish passage concepts.
 - Outcome: The deliverables will be base drawings, maps, current operational protocols necessary for fish passage, hydrology, and geology of the site.
- Task 2: Prepare Biological Performance Tool (Consultant)
 - Task: Develop a spreadsheet-based biological performance tool to be used to estimate the biological performance of fish passage alternatives. The Consultant should first determine if such tools are already available and appropriate for LPD before developing one specifically for LPD.
 - Outcome: The deliverables for this task are a draft of the biological performance tool for review by the TRC. The tool may be stratified by age class or scored in parallel and aggregated.
- Task 3: Identify Fish Passage Concepts (Consultant, TRC)
 - Task: Develop an initial list of fish passage concepts and refine the list by eliminating those with fatal flaws.
 - Outcome: The deliverables for this task are an initial list of potential fish passage concepts, a discussion of the fatal flaw analysis, documentation of concepts eliminated from further consideration, and a recommendation of fish passage concepts for further development. A spreadsheet analysis of site-specific criteria, hydraulic functional design, preliminary construction and operating cost estimates, general layout, and identification of uncertainties for further examination will used to screen the initial list of alternatives. Concepts will be reviewed with the Consultant by the TRC and those that meet acceptance criteria will move forward as alternatives.
- Task 4: Alternative Development (Consultant, TRC with Advisory Group input)
 - Task: The TRC and Consultant will meet to review the information from Tasks 1,
 and 3 and develop fish passage alternatives applicable at LPD. Performance of the alternatives will be identified using the biological performance tool (Task 2) and taking into consideration criteria developed in Task 3. Alternatives that are not technically feasible will be dropped from consideration and reasons for them being dropped will be described. The Consultant and TRC will meet with the

Advisory Group to present the alternatives analysis and seek input before completing Task 4.

- Outcome: Deliverables include descriptions and drawings, including estimates of biological performance, and a preliminary list of feasible fish passage alternatives.
- Task 5: Fish Passage Alternatives Refinement (Consultant, TRC with Advisory Group input)
 - Task: The TRC and Consultant will meet with the goal of completing a final evaluation of the alternatives. The final evaluation will be presented to the Advisory Group for input.
 - The final evaluation will summarize fish passage alternatives receiving detailed evaluation, including descriptive text and drawings for each, opinions of probable construction and operating costs, an implementation schedule, and listing of pros and cons for each and a summary of evaluation details.
 - A cost effectiveness analysis will be conducted. The preferred alternative will be the one that meets the goal at least cost among all feasible alternatives.
 - Recommendations will be developed as part of this task, with consideration of the relative certainty of the capability of an alternative to provide fish passage around LPD, relative risk, and uncertainties. Recommendations might include identification of fish passage alternative(s) to be pursued, and further studies needed to reduce uncertainties.
 - Outcome: Deliverables include updated descriptions, drawings and the results of the evaluation process.
- Task 6: Reporting and Fish Passage Recommendations (Consultant and TRC)
 - Task: This will consist of four components:
 - The Consultant will document progress and decisions made by the TRC and prepare a final report to document:
 - the process followed to prepare the report,
 - development of technically and biologically feasible fish passage alternatives,
 - evaluation criteria,

- summary of alternatives including those that were eliminated and reasons why they were eliminated, and
- results of the final evaluation and recommendations for fish passage alternatives at LPD.
- A draft Fish Passage Feasibility Report will be issued for review by the TRC.
- Outcome: Deliverables include a Final Fish Passage Feasibility Study report with recommendations for a preferred fish passage alternative, or if no alternatives can be recommended, a conclusion about fish passage at the dam.

5.3.Study Structure

5.3.1. Technical Review Committee (TRC) and Advisory Group

A technical review committee (TRC) is to be formed from staff at California American Water Company, Monterey Peninsula Water Management District, National Marine Fisheries Service, and California Department of Fish and Wildlife. The TRC will guide the development and review of the Study Plan. It is anticipated that the TRC would be involved in reviewing proposals for conducting the study and recommend a consultant after review of proposals. Cal-Am and MPWMD will make a final determination before MPWMD will authorize work by the consultant on the Project.

- Technical Review Committee Composition The TRC is to have experience in the fields of engineering, geology, and steelhead biology and include representatives of regulatory agencies, including NMFS, and CDFW. The consultant will advise the TRC and prepare technical documents for review. Additional agency disciplines may be added to the TRC if considered necessary.²
- TRC to be Independent The TRC will function independently (i.e., not be controlled by stakeholders, regulators, the dam owner or other interested parties in matters of opinion, conduct, so forth) and maintain the responsibility to objectively conduct the feasibility evaluation and prepare the feasibility report based on professional and technical expertise and experience, supported by the best available information. The TRC is expected to incorporate information from NMFS, CDFW, DSOD, Cal-Am, MPWMD, and others in the implementation of the Study Plan. The Study Plan specifies how and at what points in the evaluation community participation will be invited to assure that the public is fully informed as to the progress of the various Study Plan tasks.
- Advisory Group members, organizations or agencies within the community with an interest or particular expertise invited to be part of the study process. MPWMD and Cal-Am will be responsible for selection of this group.

² The division of Safety of Dams is also a regulating agency that would have to approve any passage alternative that could affect the safety of LPD. When contacted about participation in this study, DSOD responded that they would review any proposals that could affect LPD directly.

• **Responsibility** – Cal-Am and MPWMD are ultimately responsible for implementation of the Study Plan and an evaluation report. MPWMD and Cal-Am will act as facilitators and as lead when necessary during workshops with the TRC and the Advisory Group. The Consultant for the project will complete all work that is not explicitly directed to the TRC.

MPWMD is subject to the Public Records Act and intends to implement the Study Plan in an independent, transparent, open, and objective manner. With the exception of information designated as confidential by Cal-Am, consultant work products, TRC meeting notes and associated work products will be available upon request.

Cal-Am shall not be required to provide MPWMD, the TRC, or Advisory Group with any confidential, proprietary, or otherwise sensitive information or records as determined by Cal-Am in its sole discretion (Confidential Information). If Cal-Am provides Confidential Information for the purposes of the Project, the Confidential Information shall be treated in the same manner as "Confidential Information" is treated under the California American Water-MPWMD Non-Disclosure Agreement dated June 22, 2009, with the exception that Cal-Am shall not charge MPWMD for the costs of providing Confidential Information.

MPWMD and Cal-Am will be responsible for jointly managing the Project, including providing a meeting place and setting meetings, circulating materials, and providing other support as necessary.

The TRC's responsibility is to assure that the Study Plan is supported by the best available technical and biological information and will consider input from the Advisory Group. A TRC goal is to develop an objective, useful evaluation and conclusion regarding volitional upstream steelhead fish passage feasibility at LPD. The TRC will be responsible for decision-making involving evaluation criteria, fatal flaw analysis, and prioritizing alternatives.

It should be noted that this Project will provide information about potential alternatives; however, the dam owner, in consultation with the regulatory community will decide what steps to take after the Project is completed.

5.3.2. Study Plan Audience

The intended audience for this document includes:

- a) The TRC, as a guidance document which will be utilized to develop a scope of work, budget, and schedule to implement the Study Plan;
- b) Cal-Am, for scope comment and approval, for consultation needs to communicate the approach to address NMFS' requirements for fish passage;
- c) NMFS and CDFW for effective collaboration with the TRC and to monitor how the study is conducted;
- d) DSOD, for its assessment of compliance with dam safety and maintenance requirements; and
- e) Other decision makers that may become involved; and
- e) Stakeholders interested in the topic.

5.3.3. **Principles of the Study Plan**

- Volitional alternatives will be considered concurrent with the existing operation (i.e., trap and transport and BGS/pipe downstream passage facility). At least one upstream volitional alternative will be carried throughout the study. Evaluation criteria for passage alternatives shall include evaluation of whether an alternative can successfully replace or improve on the existing BGS and downstream passage facility. Although the BGS is intended as an interim solution (for about 10 years), it should be noted that the physical life expectancy of the facility is estimated to be 30 to 40 years.
- Economic feasibility will be addressed in the technical feasibility evaluation focused on relative cost of alternatives. After the feasibility analysis of passage alternatives is completed, a planning level cost estimate will be completed for use in a comprehensive feasibility analysis of passage alternatives.
- Dam removal and river restoration has not been previously studied. Consideration of this option may become part of the overall Long Term Plan for Los Padres Dam, but is not part of the scope of this Project. Removal of Los Padres Dam and restoration of the historic river channel to a pre-dam condition is presumed to address steelhead passage concerns in the vicinity of Los Padres Dam and Reservoir; however, that alternative is being considered in another scope of work related to the long term plan for LPD.

5.3.4. Approach

This process will document development and the resulting conceptual design configurations for the alternatives, the evaluation criteria, the evaluation process and results, and a recommended fish passage alternative.

The decision criteria for determining feasibility include a combination of technical and biological evaluations which will provide information on the applicability of fish passage alternatives. Technical feasibility is governed by engineering aspects and fish passage aspects. The engineering aspects include the physical dam and reservoir characteristics, hydrology, configuration of the river at the entry point, water storage and release operations, and the geology along the alternative passage alignments. The fish passage aspects include steelhead behavioral responses to site conditions, including migration timing, response to flows and temperatures, and migratory pathways. Economic aspects include project construction costs and operation and maintenance costs. These factors will be integrated and the process conducted iteratively such that intermediate results from each analysis will be used to refine and optimize alternatives throughout this process.

Volitional upstream steelhead passage will be considered by the TRC, and following an objective evaluation, the TRC will provide a recommendation regarding fish passage at LPD. If volitional upstream fish passage is considered infeasible or impractical, the justification for this conclusion will be documented.

5.3.5. **Definitions and Applications of Feasibility**

Feasibility in this Study Plan means the technical, biological, and economic feasibility of permanent volitional upstream and downstream passage at LPD. This study is intended to identify the feasibility of upstream and downstream passage over LPD and through the reservoir for all age classes including adult, juvenile, and young-of-the-year.

Technical Feasibility

"Technical feasibility" is both engineering and fish passage feasibility. Engineering feasibility is governed by physical dam and reservoir characteristics, hydrology, water storage and release operations, geology in the vicinity of fish passage improvements, and operating/maintenance and construction cost. Fish passage feasibility is governed by steelhead behavioral responses to site conditions, including migration timing, migratory pathways, and water quality through the passage facility.

Will the fish passage alternative be effective in safely collecting and passing fish? Can the fish passage alternative be constructed and operated while maintaining the original purpose of LPD to store water in the winter and release it through the dry season? Do the fish passage facilities work at water levels below the spillway? Can alternatives work in the downstream direction? Do alternatives encourage/discourage poaching?

Technical feasibility will be judged using criteria that are "yes" or "no" (feasible or not) or scalar (presenting relative feasibility among alternatives). The TRC will use thresholds in the scoring of evaluation criteria, such as constructability and safety to assess feasibility. For example, dam safety might have a threshold such that any alternative must score high to be considered feasible; alternatives that do not score at least the minimum value will be considered fatally flawed. Thresholds, or minimum values and scores are subjective; consistent definitions will be necessary to establish these values.

Biological Feasibility

It is anticipated that the following information will guide an evaluation for biological feasibility:

Life Stage	Jump or Weir Height		
Adults	~1 foot weir		
>1+ yearlings	~1 foot weir with notch		
<1+ yearling	3" jump		

Does the proposed fish passage alternative provide adequate attraction into a facility and meet velocity, depth, and step criteria for the designated life stages? Does the facility operate during all periods of migration and at all flows that fish can migrate at? Is the facility capable of passing fish in the downstream direction? Does the facility encourage/discourage predation by other fish (including brown trout) or natural predators?

Economic Feasibility

The TRC's objective is to recommend a feasible fish passage alternative(s) for LPD. However, the evaluation may result in a series of fish passage alternatives that meet the test of technical feasibility, but have inherent risks or uncertainties, and may also significantly vary in cost. As applied here, economic feasibility has two components:

1. Financial feasibility – Can the proponent afford to implement the recommended fish

passage alternative(s)? This will likely require a cost examination by Cal-Am, including impacts assessment on its operations and customers. The evaluation develops and provides much of the information base for Cal-Am to make their decision.

2. Cost effectiveness analysis – there are two distinct cost comparisons possible for this Project. One is to compare the cost and effectiveness of volitional upstream passage alternatives. This is a fairly straight-forward analysis using some of the parameters discussed for the evaluation matrix. The other is to compare cost and effectiveness of volitional passage facilities with the existing trap and haul operation. This is less straight-forward as there are more uncertainties to deal with, including fall back data, level of steelhead stress, and different life stages are targeted (the existing ladder does not allow juveniles to migrate in). The TRC may want to consider if and how a comparison may be made. An incremental approach may be one method of comparing (e.g., expected number of passage days for each life stage, design flow range, safety of alternatives).

5.3.6. **Study Methods**

This section provides additional study detail pertaining to a work plan that is intended to guide the conduct of the feasibility analysis. A work breakdown structure with major task headings is provided with defined tasks that can be used as the basis of a scope of work. A schedule, showing each task and its relationship to other tasks along with a start date, duration, and planned completion date per the descriptions below is provided in Section 4.7 Schedule.

An important component of the study will be communication among and between TRC members, as well as between TRC members and the Advisory Group. The former will be accomplished through meetings and review of technical information. Communication between the TRC and Advisory Group will be primarily at two workshops to present a preliminary and final set of alternatives. In terms of direct communication, the TRC will have a series of meetings and web calls that will serve to discuss the TRC's progress on activities that will be used to present and discuss the fish passage concepts under consideration. Two meetings are proposed to provide information, receive feedback and discuss the Project. The meetings will be scheduled to take place at specific milestones in the Project, when results are available and input is required.

The following Meeting Protocols are recommended for the Study implementation and have been incorporated into the Study Plan schedule presented in Section 4.9.

- TRC meetings are intended to be facilitated by the Consultant with assistance from Cal-Am and MPWMD. TRC members should physically attend; however, web meetings may be held due to distance and time constraints. Technical experts will be invited from regulatory agencies to assure that the TRC has proper and accurate information so that technical questions can be answered in a timely manner.
- Similar to TRC meetings, the Consultant will facilitate Advisory Group meetings with Cal-Am and MPWMD. All Advisory Group members should attend; however, web meetings may be held due to distance and time constraints.
- Reasonable meeting schedule dates and distribution of information prior to the meetings will be managed by the Consultant with assistance from Cal-Am and MPWMD.
 Meetings will be scheduled at least six weeks in advance, and will be announced with a time, place, expected attendee list, and a preliminary agenda. Preliminary meeting dates are identified in the schedule, which will be updated once an agreement for services is executed.
- Information to be discussed at Advisory Group meetings will be distributed at least two weeks prior to the scheduled meetings. Written input from the Advisory Group should be conveyed to the Consultant, Cal-Am or MPWMD within a reasonable amount of time after an Advisory Group meeting. More specific information about a deadline for submittal of comments will be provided at each meeting.
- Meeting notes will be taken by the Consultant and a draft meeting record will be distributed within two weeks of each meeting for review and approval. All meeting agendas and notes are intended to be part of the record regarding this study. Comments by the TRC and/or Advisory Group should be submitted within a week after receipt.

5.4. Tasks

Task 1 Feasibility Study Preparation (Consultant)

Task 1 is focused on the technical preparation for the concept development described in Section 3 - Approach. The Consultant will compile and review salient background information needed to prepare for a concept development workshop with the TRC, and will prepare workshop materials including passage concepts, evaluation criteria and an evaluation process. The review will allow TRC members to become familiar with the operational, physical, hydrologic, and

biological setting of the LPD, the range of alternatives that could be considered, and draft criteria to evaluate concepts. This information will be important for identifying concepts and alternatives that can reasonably and realistically fit within the construct of existing operations (including downstream passage), are compatible with hydrological and physical constraints, and that meet the stated objective of improving upstream passage for Carmel River steelhead.

This background information will be utilized and added to as necessary throughout all tasks of the Study, and will be documented in the Final Report.

Task 1-1 Compile Background Information

Information to be compiled and reviewed will include:

- Project and related operations summary, including operation of existing trap and truck and downstream fish passage facilities, with a brief narrative on operations in a:
 - Average water year
 - Wet water year
 - Single-dry water year, and
 - Multiple-dry water year scenarios
- Biological design criteria and data summary that includes:
 - Migration seasons
 - Upstream and downstream fish passage hydrologic windows in average, wet and dry years including antecedent conditions. See Figure 1 below for background. Conditions of estuary breaching and river flows necessary to allow for upstream migration from the ocean will be taken into consideration in establishing hydrologic windows for migration at Los Padres Dam.]



Figure 1. Timing of immigrating adult steelhead in Waddell Creek, Santa Cruz County (1933-1942; dashed line) and the Carmel River, Monterey County (1992-2005; solid line). Source: Waddell Creek information: Shapovalov and Taft (1954) and Carmel River information: Dave Dettman, Monterey Peninsula Water Management District, unpublished data obtained from NMFS.

- Key fish passage design flows: the Consultant and TRC will establish an appropriate range of flows to target for upstream migration
- Reservoir elevations during migration seasons
- Stage-discharge curves at existing entrance to ladder for trap and haul operation
- Project working drawings suitable for initial analysis including:
 - a site plan with topography/channel bathymetry, and features in the vicinity of the ladder, plunge pool, dam, and spillway
 - sections through the dam at the west end of the dam, middle of the dam, spillway, and east of the spillway, with design water surface elevations
 - section of western slope immediately downstream of the dam from elevation 1060 to the plunge pool

- \circ enlarged plan at the plunge pool and existing ladder
- Cal-Am to define protocol for sensitive information

The deliverables for this task include:

• a compilation of background information related to the project

Task 1-2 Obtain Bathymetric and Topographic Data for Los Padres Reservoir Using a combination of multi-bean sonar soundings and laser scanning, the Consultant will obtain data to characterize the reservoir bottom and sides from the lowest reservoir elevation (the bottom) to approximately elevation 1050 (NGVD 1929) or 1053 (NAVD 1988).

- Obtain topographic/bathymetric data and provide cross-sections at 100-foot intervals from the dam spillway to the extent of backwater at the highest elevation
- Field verify reservoir inundation area for passage constraints at varying levels of the reservoir stage (minimum 5-foot stage intervals) from spillway elevation to elevation 1000 (NGVD 1929)

The deliverables for this task include:

• a report describing methods used, a digital elevation model of Los Padres Reservoir, reservoir cross-sections at 100-foot intervals, inspection reports including photos and descriptions of passage through reservoir sediments

Task 1-3 Prepare Evaluation Criteria

Following the compilation, preparation, and review of background information, the Consultant will prepare the draft evaluation criteria using technical, biological and economic feasibility criteria.

The deliverables for this task include:

• draft feasibility criteria

Task 1-4 Identify Critical Data Gaps

The Consultant will identify missing or additional desired information and appropriate steps to acquire the necessary material. This process to address any information gaps will be identified based on the specifics of the necessary information, and a plan to address this information need will be formulated for TRC and Advisory Group review.

The deliverables for this task include:

• identification of missing data or information

• proposal for acquiring data or information

Task 2 Prepare Biological Performance Tool (Consultant and TRC)

This task involves development of a biological performance tool that will be used to estimate potential steelhead passage survival using fish passage concepts to be identified and refined in the feasibility study. In addition, compiling information on upstream steelhead migratory behavior based on LPD counts, San Clemente Dam counts (through 2015), and DIDSON data near the mouth of the river, will help identify the type, location, size, and timing of potential upstream fish passage facility components and the necessary coordination with existing downstream passage facilities. Additional information needs may be defined during the compilation and studies could be designed and implemented to provide such information. The proportion of the migrant population using each alternative and the estimated survival associated with new upstream pathways will determine the biological performance and contribute to the feasibility evaluation of fish passage concepts identified and developed in the study.

Successful steelhead passage at the Project must consider both upstream and downstream migratory pathways and the potential for both upstream and downstream movement to occur at the same time. Upstream fish passage systems are typically designed around considerations of upstream collection and upstream passage. Upstream collection defines the ability to attract and collect fish from downstream of a barrier. This characteristic includes the ability to behaviorally or hydraulically attract or guide the fish from the river into a fish collection chamber. Typical features of an upstream collection feature include a collection facility entrance (weir, orifice, slot, etc.), attraction flow to draw fish into the entrance, and a collection pool that encourages fish to stay, or traps fish in the facility to prepare for transport past the dam. The existing ladder and trap may be sufficient to meet these requirements for adults, but do not meet these requirements for juveniles.

Upstream passage defines the means to move fish from the collection pool to a release site upstream of the dam. Typical features of a volitional upstream passage component include various styles of fish ladders, fish lifts, and fish locks. The existing ladder, trap and transport program is to be evaluated for improvements separately from this study. Its relation to this study may be as an alternative to be considered if volitional passage cannot be achieved.

Upstream Collection and Passage – The upstream collection component is typically the most challenging passage feature to locate and design. This component must accommodate the behavior of the target life stages and consider flow control operations, river hydrology, site

hydraulics, and water quality. When comparing projects, the entrance component is typically the most variable of any other fishway feature. As a result, fishway entrances are often modified after their initial construction to help improve their attraction performance. Once fish are collected, the means to transport them past the dam is may be more straightforward to address.

With respect to upstream passage, effective attraction requires sufficient flows to attract upstream migrants away from other competing flows from spill or other releases. Thus, the frequency, magnitude, and location of flow releases play an important role in determining appropriate attraction flow designs and the feasibility of effective attraction. Effective attraction to fish passage facilities may be further complicated where flow releases occur at separate locations, such as from the spillway or through the existing ladder or through the downstream passage facilities.

Upstream migrants that are successfully attracted to a passage facility must then be effectively collected in such a way that minimizes migratory delay and injury. Dam height and the degree of water surface elevation fluctuations in the upstream reservoir may dictate the relative feasibility of various transport options. Potential thermal shock must also be considered for upstream passage facilities. Fish entering an upstream fish passage facility will be acclimatized to water temperature in the plunge pool area. If fish are transported upstream around a dam, the transport water and release site must have similar water temperatures or the fish will be exposed to thermal shock and stress. Surface water temperatures at the release location and risk of fallback may affect the location of the exit and length of the passage facility.

Downstream Passage – the existing downstream passage facility was intended to serve as an interim measure to improve passage until a permanent facility could be built. This may compete with the upstream passage facility for flow releases from the reservoir and there is a potential for exit flow from the upstream passage facility to attract downstream migrants.

Depending on size of migrant, time of year, flow condition, and steelhead behavior, the proportion of the outmigrant population using the downstream passage facilities may change in response to project operations, flow conditions and seasonal timing. Once outmigrants successfully approach the dam spillway, they must successfully find and enter the floating collector Behavioral Guidance System installed to pass the dam. Fish that do not pass downstream through fish passage facilities may seek other pathways, including being attracted to the upstream passage facilities. Consideration should be given to the potential for downstream migrants to attempt to enter the upstream facilities at the point of exit to the reservoir.

Understanding the migratory patterns of each life stage will be key to determining the operational protocols for both upstream and downstream migration facilities.

Biological Performance Tool – The biological performance tool will consist of a spreadsheet based fish passage model that tracks steelhead survival through the various alternatives available. The values developed from the fish passage model will be used to compare and evaluate potential fish passage concepts, but will not represent estimates of the size of the steelhead population. Estimates of the proportion of the potential migrant population using each alternative will be integrated with estimates of survival associated with each alternative under representative average, wet and dry hydrologic conditions. An evaluation of the uncertainty associated with each assumption will provide an indication of the robustness of modeling results and the potential influence on recommendations of fish passage feasibility.

Task 2-1 Compile Background Information on Migratory Pathways (Consultant) Information needed to develop and populate the fish passage model includes physical, hydraulic and biological information on conditions in the watershed and in particular at Los Padres Reservoir, flow releases, and operational characteristics of downstream fish passage facilities. Results of studies conducted at other water control projects, conceptual-level drawings of potential fish passage facilities, and where appropriate the professional opinions of the TRC may also be compiled.

Passage conditions will be evaluated using average daily flow data for representative average, wet, and dry years. Project operations data will include daily reservoir water surface elevations, average daily flow releases through the outlet pipes and spillway, and periodic water quality data. Recent data on releases from storage and reservoir pool levels will be reviewed. This is presumed to be representative of current and proposed future conditions. Representative years will be selected in coordination with members of the TRC to evaluate fish passage facilities. Information compiled as part of Task 2-1 will be used to populate the fish passage model and will be presented with a progress report at the end of this task.

Passage Considerations in Los Padres Reservoir

Juvenile and adult steelhead passing the Project must pass through LPD and LP Reservoir. During reservoir passage they may be exposed to predation, poor water quality, thermal gradients, or become disoriented and delay or fail to pass through the reservoir. Specific passage related factors within the reservoir include:

- Average daily reservoir inflow under average, wet, and dry water years
- Periodicity of steelhead migration (peak and shoulder periods)

- Monthly reservoir water temperature profiles
- Daily reservoir water surface elevations under representative average, wet, and dry water years
- Relationship of fish migration rate to average daily flow
- Species, abundance and feeding behavior of potential piscivorous predators, including brown trout

Fish Passage Facility Considerations

Successful fish passage facilities must attract and guide migrating fish into the facility. Fish attraction and guidance may be enhanced by the volume of attraction flow, the use of barrier or guidance structure or nets, and siting of the facility in a location to intercept migrating fish. Fish safety through the facility is ensured by designing components following guidelines in fish passage design manuals (CDFG 2009, NMFS 2012). However, fish passage facilities that satisfy design guidelines may still function under a range of fish guidance efficiency and survival depending on site specific conditions and behavior of the target species. Factors associated with the feasibility of fish passage facilities include:

- Style, size, design and volume of facility
- Effectiveness of fish guidance or barrier structure or nets
- Frequency and effectiveness of screen cleaning
- Behavior of target species in response to facility design
- Fish passage efficiency and physical safety/stress of fish moving though the system Frequency and duration of operation under representative average, wet, and dry water years

The deliverables for this task include:

- technical memo characterizing available Los Padres Reservoir data and recommendation of target flows/reservoir elevations for passage
- review of studies and concepts appropriate to Los Padres Dam fish passage

Task 2-2 Review and Identify Critical Biological Data Gaps (Consultant and TRC) The TRC will discuss the information noted above during planned web calls, and determine its completeness for the fish passage biological evaluation needs. Evaluation of upstream and downstream migratory pathways requires structural and hydrologic information and assumptions regarding steelhead behavior. No site specific data are available to make survival estimates, so these will depend on data collected at similar facilities, literature values, or professional opinions of the researchers.

Of note as background on biological data, the value of spawning and rearing habitat upstream of LPD in the Miller Fork, main stem, and Danish Creek continues to be a subject of debate and uncertainty. Studies of steelhead in the upper watershed (e.g., Snider, 1983 and Kelley, 1986) showed that steelhead had been unable to access the upper watershed for several years due to an inoperative or poorly functioning fishway and a small resident rainbow trout population had become established. Those earlier studies indicated that up to 50% of the spawning and rearing habitat in the watershed occurred above LPD. More recent MPWMD data (including redd surveys, population surveys, and fish rescue data) show that significant spawning and some rearing is occurring downstream of San Clemente Dam, in a reach where investigators from the 1980s had found little or no spawning or rearing and concluded that it was primarily a passage reach. Despite improvements to the ladder and trap facilities at LPD, the numbers of adults passing LPD continues to be about 25% 45% of the number passing San Clemente Dam and may be 12% to 22% of the annual run.

However, the focus of this Project is not whether a volitional passage facility would result in an increase in anadromous steelhead in the upper watershed. The focus of this Project is on the engineering constraints, biological needs of steelhead (i.e., ability of different life stages to use a particular alternative), and the economic costs of volitional passage. Should definitive data on steelhead use and population in the upper watershed become available, it could be factored into the recommendations from this Project.

If additional information is needed, the TRC will work with Consultant to take appropriate steps to acquire the necessary material or develop reasonable assumptions. The process to address information gaps will be identified based on the specifics of the information. If data gaps are identified that prove critical to the feasibility evaluations and TRC recommendations, the TRC will identify the most appropriate means to fill those gaps, including influence on ability to complete an meaningful analysis, timing to acquire and evaluate the information and potential outcomes as they could affect the recommendations by the TRC. The following steps will be utilized in Task 2-2:

- Perform a background review of biological information, and identify information needs.
- Identify any biologically-related critical data gaps.
- The TRC will review information from Task 1 (background) and Task 2 (biological performance tool) with the Consultant to determine suitability for work to evaluate passage facilities. It is expected that review will be completed using web access.

The deliverables for this task include:

• technical memo describing data and data gaps

Task 2-3 Develop and Populate Fish Passage Model with Available Information The Consultant will evaluate potential fish passage facilities at the Project using the biological performance tool that tracks survival at LPD and reservoir. The biological performance tool will be used to conduct a relative comparison of the biological performance of fish passage facilities. An evaluation of the uncertainty and sensitivity of the assumptions used to develop the mathematical functions will provide an indication of the robustness of modeling results. Evaluation of critical parameters, and background information available to define them, will be evaluated to determine the influence of the values in evaluating the potential feasibility of fish passage facilities.

One goal of the fish passage model is to incorporate a mechanism to easily alter the percentage of fish that move through each potential alternative as a function of river flow and reservoir water surface elevation. A flow response factor will be developed for upstream steelhead migrants to identify how migrants respond to flow. An initial response factor may assume that the number of fish entering the project on a given day in the migration period is approximately proportional to the volume of the daily reservoir inflow in relation to the total inflow during the migration period. Using separate calculations for peak and off-peak migration periods, the total volume of inflow will be calculated and the proportion of fish migrating per day will be based on the percent of total flow for each day under average, wet and dry representative water years. An alternate response factor could assume that an equal number of fish passes each day in the migration period, or migration rates are correlated to water temperature. By incorporating an adjustable value, the sensitivity of the response factor to changing conditions will provide an indication of the influence of the response factor in evaluating total Project survival.

The mathematical functions used to calculate survival between alternatives will be developed in an Excel or other spreadsheet format to ensure transparency and ease of stakeholder review. The results of the biological performance tool will be an estimate of system survival for fish passage for each passage alternative. In addition, similar flow response functions and pathway apportionment will be used to estimate fish passage survival under existing conditions without volitional fish passage facilities.³

³ It should be noted that one of the proposals in the application by Cal-Am to the SWRCB to extend CDO 2009-0060 is to evaluate the existing trap and truck operation at Los Padres Dam to determine if there are modifications that could be completed to improve the success of adult steelhead finding the ladder and getting to the trap.

The volume of attraction flow water is an important design feature of facility components. Attraction flow volumes for both upstream and downstream are a balance between site conditions and competing flow releases. Alternate attraction flow volumes can be examined in terms of Project fish survival to assess facility sizing options. The feedback mechanism provided by fish passage model results will assist engineering decisions and allow each concept to be refined so that the optimum design of each fish passage alternative can be used in the feasibility evaluation.

Parameter values will be estimated from site specific data, borrowed from other populations, or professional opinion based on steelhead passage behavior. Each assumption will be identified and documented and major parameters will be accompanied by an evaluation of uncertainty.

The following steps will be utilized in Task 2-3:

- Finalize the biological performance tool, which will be a spreadsheet-based passage evaluation model.
- Populate the model with data and perform sensitivity runs to assess the model's output prior to use on the fish passage concepts and alternatives.

The deliverables for this task include:

- a compilation of background information related to the project biology,
- a draft of the spreadsheet based model and data set, and
- a sample of a model run with output and a preliminary sensitivity analysis

Task 3 Identify Fish Passage Concepts (Consultant, TRC)

The Consultant will develop concepts based on studies, experience, and history of other fish passage facilities and specific criteria and guidelines published by NMFS and CDFW. Concepts might be based on components of fish passage facilities, operational procedures, locations of facilities at the LPD site, or may replicate an entire facility. Concepts will be presented to the TRC for review.

The concepts will be organized for an initial evaluation and a "fatal flaw analysis" will be performed to eliminate any concept that cannon meet the basic criteria. Fatal flaws might include dam or personnel safety issues, constructability concerns, or poor chance of satisfying fish passage or other objectives. For concepts that have fatal flaws, the Consultant will document contacts with appropriate review experts and agencies including, but not limited to DSOD, CDFW, and NMFS. Concepts at this early phase of development that are fatally flawed will be documented and presented to the TRC, but will not be further developed unless there is direction from the TRC to do so. Concepts without fatal flaws will be considered technically feasible for further analysis and development.

Task 3-1 TRC Meeting #1 – Concept Workshop

The TRC and Consultant will meet to discuss passage concepts and criteria for evaluation. Using the information developed in Tasks 1, 2 and 4, the Consultant will identify design flow ranges, select hydrologic design years, develop preliminary working base drawings, and develop a draft evaluation matrix. An information package containing a summary suitable for use at a workshop will be distributed to the TRC in advance of the meeting. An appropriate review period of three to six weeks is recommended for technical representatives to review and discuss this information prior to the workshop.

The deliverables for this task include:

- technical memo describing design parameters, concepts, evaluation criteria, and initial analysis
- base drawings
- workshop agenda

Meeting Protocols and Preparation

The session will be conducted with few limitations. A TRC member will be selected as a facilitator prior to the meeting to assure the workshop is conducted in an efficient manner. Clerical staff should be provided to record and distribute draft meeting notes for review. Workshop facilities will be suitable for a team meeting, with access to web broadcast, presentation screen, and teleconference facilities. Towards the end of the workshop, roles may be assigned for individual TRC members to further develop alternatives for ongoing discussion.

The initial list of concepts will be refined using the background information developed and physical considerations described below. Existing and expected future conditions at LPD will be considered with the concept development, including the potential for reservoir dredging, dam raise, and/or continued reservoir siltation that may reduce flexibility of releases from storage.

Concepts will be developed based on design considerations described below, NMFS and CDFW fish passage guidelines, and the TRC members' professional experience and opinion regarding fish passage facilities. The identification and design of concepts will include both physical) considerations (including biological and environmental), and specific evaluation criteria, as

defined below.

- Physical considerations are the physical background and setting into which fish passage facilities must be built and operated. They describe aspects of the dam, reservoir, stream channel, hydrology, facility operations, and biology that must be considered in the design of fish passage facilities.
- The Consultant will provide evaluation criteria for review in order to estimate each alternative's expected level of success in achieving fish passage and Project purpose. Evaluation criteria are similar to physical considerations though are specific and quantified. An initial list of evaluation criteria is in Appendix C.

In addition to the evaluation criteria (see draft criteria in Appendix C), the following considerations will guide the TRC discussion:

- Additional dam and reservoir considerations include the size, height, structure, layout of the dam, topography around it, access, any potential entrance or exit locations, and any necessary ancillary structures.
- Additional operational considerations include any effects on dam operation both during normal operations and during fish passage facility construction.
- Hydrologic considerations include inflow timing and magnitude, reservoir pool levels
 and rate of change, the flow release schedule, and spill timing, rate, and frequency. The
 outflows from the dam are influenced by the quarterly budget process, which will be
 reviewed by the TRC and used as a guiding but not limiting factor in the identification,
 development and evaluation of fish passage facilities. The TRC should recognize that its
 assessment of alternatives needs to take into account that water releases from storage may
 change in the future as a result of completion of a Long Term Plan for LPD.
 Nevertheless, in assessing the technical feasibility of passage alternatives, the TRC may
 consider whether the alternatives can function within the constraints of the potential
 options for the future of LPD and reservoir.
- Biological considerations include life stages to be passed and species present, migration timing and behavior, swimming abilities and behaviors, and water quality.

Workshop Agenda

- Review, edit and define meeting rules and protocols, and finalize the agenda.
- Briefly review Project and fish passage feasibility background information.
- Review available biological information, discuss desired information, and discuss how results could impact evaluations. For example, the fallback rate or efficiency of attracting

adults into the current trap is unknown and the desire of juveniles to move upstream is also unknown. Assumptions about these unknowns will be made initially but may have to be modified later when additional information is available.

- Review the biological performance tool developed in Task 2, so all participants are aware of its structure, use, sensitivity, and value to the concept development process.
- Review and update evaluation and comparison criteria prior to beginning discussion, so all meeting attendees are familiar with the criteria that must be met or addressed.
- Begin structured brainstorm activity to develop a list of concepts for upstream passage, keeping in mind that they must be compatible with downstream facilities. Concepts will be recorded with limited text and sketches to clearly communicate the concepts.
- Finish brainstorming concepts after a break, to assure all reasonable concepts are identified.
- Assemble concepts into like categories and consolidate similar ideas. Separate concepts that provide upstream-only passage from those that can provide both upstream and downstream passage.
- Identify risks and uncertainties associated with each concept, and develop a list of study and information needs that will be required to finalize selection of concepts. This will include and information needed to confirm poor viability of any concept with fatal flaws.
- Review concepts with respect to obvious fatal flaws. Any alternatives that are not constructible, or that have less than a good chance of satisfying all crucial criteria (i.e. fatally flawed) will be dropped from consideration. If a concept is to be dropped due to high risk or uncertainty, discuss how this uncertainty could be reduced. Descriptions of those alternatives and their fatal flaws will be summarized with a meeting record for the final report.
- Review the biological performance tool with respect to the concept list to assure it can accommodate the list of concepts. Run the spreadsheet model with examples to show the expected output and level of sensitivity.
- Conduct further brainstorming and development or refinement of fish passage concepts relative to the evaluation criteria as time allows.
- Assign a priority to develop conceptual designs for short-listed alternatives.
- Document those that were not selected.
- Adopt a common format for alternative development in Task 4.

Task 3-2 Meeting #1 Summary

The deliverable for Task 3-2 will be a meeting summary with the following:

• Updated criteria document and a draft evaluation spreadsheet.

- List of fish passage concepts identified in the session.
- List of additional information necessary to reduce uncertainty or risks associated with each concept.
- A discussion of the fatal flaw analysis and documentation of concepts eliminated from further consideration at this time.
- Status update on the biological performance tool and any further development recommended by the Panel.
- A short list of fish passage concepts for further development.

It is intended that this summary document will be distributed within two weeks of the meeting date to the TRC and to the Advisory Group.

Task 4 Alternative Development (Consultant, TRC, Advisory Group)

Task 4 is to review the list of concepts and develop the fish passage concepts identified in Task 3. The fish passage alternatives will address site-specific constraints, describe the full hydraulic functional design and general layout of each alternative, and will identify any uncertainties associated with each alternative prior to the evaluation process. With this task, the Advisory Group would be asked for feedback on the initial set of alternatives to be studied.

Potential volitional fish passage alternatives will be identified and evaluated concurrently with the existing trap and transport program. Volitional passage is the concept of giving fish the choice of moving upstream or downstream based on their own motivation. The following is the definition of volitional passage:

"Volitional fish passage is a means of fish passage with appropriate hydraulic conditions such that all individual migrating adult and juvenile fish of the species of interest have the opportunity to move freely and safely upstream and/or downstream past the Project according to their own motivation."

Under volitional passage, a barrier is modified such that fish arrive at the site under their own power, swimming through or around and past the former blockage. A concrete fish ladder is an example of a volitional facility for adult steelhead. Volitional fish passage facilities are generally preferred because they operate constantly, require little human interference, and may be mechanically less likely to break. They may be less costly to maintain and operate but may represent a larger capital expenditure. However, volitional facilities often provide little flexibility to accommodate uncertainties, or to adjust to changes in fish behavior, environmental or operating conditions. It should be noted that the dam owner will be responsible for ongoing maintenance and operation of passage facilities.

Space or engineering constraints may prevent the design of safe and effective, volitional fish passage facilities. Particularly for juveniles, impoundments may present challenges that cannot be overcome with volitional passage if currents confuse fish navigation or if physical constraints preclude construction of upstream passage facilities that can accommodate juvenile migration. In some situations, non-volitional facilities can be a preferred method of providing fish passage.

At least one pure volitional passage alternative for upstream passage will be included in the final set of alternatives throughout the study, regardless of its feasibility. There may also be alternatives that have volitional passage characteristics though are not entirely volitional throughout the hydrologic and reservoir storage and release cycle.

Once alternatives are defined, an initial opinion of probable construction and operating cost will be provided in this task for each alternative. Estimates may be based on comparative analysis to other systems or may be composed of unit estimates for items in an alternative. The level of accuracy of the estimate should be commensurate with a concept-level screening process and – depending on the complexity of an alternative – may have a large expected accuracy range. The estimated performance of the alternatives will be compared using the biological performance tool developed and updated in Tasks 2 and 3. The technical feasibility of constructing facilities will include site-specific constraints including geology, dam safety,

Alternatives that are not feasible will be dropped from consideration and reasons for them being dropped, will be described. It may be the case that an alternative scores low due to a specific uncertainty; in this case, the alternative will be retained and a plan to address this uncertainty developed. Based on the evaluation scores, the Consultant will update the remaining alternatives for additional evaluation by the TRC.

A meeting will be held with the Consultant, TRC, and Advisory Group to present the process alternatives and their relative scores after which the TRC will propose a final list of feasible alternatives for additional development.

Task 4-1 Develop Initial Concepts into Alternatives (Consultant) Based on the concepts identified in Task 3, the Consultant will further develop alternatives. The
primary goals of this task are:

- Define each concept with respect to its hydraulic and operational characteristics.
- Draw and define the concepts so that the design intent is clearly communicated. A common format for drawings will be developed by the Consultant in this task.

For each alternative, the Consultant will provide:

- Plan and sectional drawings to scale, to fully define the concept.
- Hydraulic characteristics and function design features, shown on the sketches, or on separate sheets.
- Brief write-up suitable for review to describe the concept's key characteristics and how the alternative operates.
- List of pros and cons for each alternative relative to operations, biological performance goals, reliability, etc. (Note: it is intended that the biological performance tool be applied to each alternative.)
- Probable opinion of construction and operating cost and complexity (high, medium, or low).
- An evaluation matrix containing alternatives and the evaluation criteria. The evaluation matrix should build on the criteria developed e in Meeting #1 and should be presented in a grid form or Pugh Matrix, which breaks the alternatives down into discrete elements for comparison, evaluation, and optimization.

With the additional investigation, some concepts or alternatives may prove to be infeasible or may be modified. As noted above, at least one upstream volitional alternative will be retained for the duration of the study.

The deliverables for Task 4-1 include:

- compilation of alternatives
- an evaluation matrix
- supporting documentation

Task 4-2 Meeting #2 – Review and Refine Alternatives (Consultant, TRC) The TRC and Consultant will meet to discuss and refine passage alternatives to fit LPD requirements. Protocols are to be similar to Meeting #1.

The evaluation matrix will be utilized during a meeting to prepare the first evaluation of the alternatives that will challenge the existing state of each alternatives conceptual design for better

performance, and will allow a relative comparison of the alternatives. The matrix will result in consolidated scores, which reflect the relative success of achieving criteria, and will thus help rank or prioritize alternatives.

The results of the grid analysis can be used to further refine facility components, identify data gaps, and assess the potential influence of uncertainties. However, the grid analysis is only a decision tool; the results are used to influence but not dictate decisions. The process of developing and using the matrix is explained in Appendix C along with provisional criteria that will be used within it. The characteristics and effectiveness of upstream fish passage facilities will be evaluated, and the results used to refine and optimize the location, size and timing of each type of passage facility.

Based on the results of this initial evaluation, the Consultant will work to update descriptions and drawings for the fish passage alternatives. The results will be presented to the TRC at a meeting, with the goals of receiving input and the TRC reaching consensus on a list of alternatives for final refinement in Task 5.

The deliverable for Task 4-2 is a workshop agenda.

The meeting will be organized as follows:

- The Consultant will present an overview of the work completed to date, and will address any questions from the previously distributed meeting notes.
- Discuss and refine evaluation criteria based on the current state of the alternatives.
- Identify any criteria that, if not satisfied to some degree, would constitute a fatal flaw.
- Identify any uncertainties and/or risks associated with each alternative, and a means to address these issues.
- Review results of the application of the biological performance tool to gain an understanding of the fish passage performance for each alternative.
- Review the alternative evaluation matrix and update the matrix based on input at the meeting.
- Perform a fatal flaw analysis on each alternative; eliminate alternatives with fatal flaws; and record eliminated alternatives for reporting in the meeting notes.
- Combine and consolidate alternatives into distinct, stand-alone fish passage alternatives appropriate for the LPD site. This exercise will be the first iteration of defining passage alternatives for further development and additional review (if necessary).

Task 4-3 Meeting #2 Summary

The deliverable for Task 4-3 will be a meeting summary with the following:

- Status update on the biological performance tool and any further development recommended by the TRC and/or Group.
- Final evaluation spreadsheet.
- List of fish passage alternatives identified in the session.
- List of additional information necessary to reduce uncertainty or risks associated with each alternative.
- A discussion of the fatal flaw analysis and documentation of alternatives eliminated from further consideration at this time.
- A recommendation of alternatives for further development.

Task 4-4 Present Initial Set of Passage Alternatives (Consultant, TRC, Advisory Group)

The Consultant, TRC, and Advisory Group will meet to discuss the initial set of passage alternatives to fit LPD requirements. Protocols are to be similar to Meeting #1.

The deliverable for this task is a meeting summary that includes comments from the Advisory Group, a copy of any written materials submitted by the Advisory Group, and any follow-up response from the Consultant or TRC.

Task 5 Fish Passage Alternatives Refinement and Determination of Feasibility

Task 5 will focus on the refinement of the remaining fish passage alternatives and a determination of whether upstream volitional passage is feasible at LPD. In addition to further development of the alternative design drawings, the Consultant will prepare an opinion of probable construction and operating cost for each alternative, describe operational protocols and issues, address comments and/or issues brought up at previous meetings, perform final runs of the biological performance tool, prepare a final quantitative evaluation of the alternatives using the final Pugh matrix and evaluation criteria, and address constructability issues and any remaining data needs or significant risks. At least one volitional fish passage alternative will be included in the final list of alternatives. A draft outline for the final report will be developed for review by the TRC.

The TRC will review the technical feasibility of the alternative(s), the expected biological performance, and the cost to construct and operate each alternative. Evaluation of alternatives

will include strong consideration of the risk and uncertainties associated with the implementation and performance of the alternatives and whether alternatives would include continuation of the existing trap and transport facilities. The Consultant, TRC, and Advisory Group will meet to review the final set of alternatives before the TRC makes a final recommendation.

If there is a consensus on evaluation of alternatives by the TRC, the Study terminates, and Cal-Am and others may formulate an implementation plan to carry the recommendations forward. If there is no consensus, it is presumed that the status quo would not change (i.e., the trap and transport facilities and program would continue); however, if there is no consensus, Cal-Am, MPWMD and the TRC should consider what, if any, steps should be taken to address upstream passage. This is not included as a Task in this Project.

Task 5-1 Fish Passage Alternatives Refinement (Consultant)

The Consultant will prepare Engineer's Opinions of Probable Construction Costs (OPCC) for the remaining alternatives to a Class 5 level as defined by the American Association of Cost Engineers International (AACE). The cost estimates will be suitable for comparison of the alternatives, but may not reflect an accurate number for capital budgeting as they will be developed based on very limited information.

According to the AACE International Recommended Practices and Standards:

"AACE International Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. Typically, engineering is 0% to 10% complete. They are typically used for any number of business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs and budgeting, or long-range capital planning. Virtually all Class 5 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from -20% to -50% on the low side and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 1 hour or less to perhaps more than 200 hours may have been spent preparing the estimate depending on the project and estimating methodology." Any data gaps or significant risks will be identified for discussion prior to the final Meeting.

The deliverables for Task 5-1 include:

- draft final evaluation matrix, including OPCC
- draft final report outline

Task 5-2 Meeting #3 – Determination of Feasibility and Selection of Alternative(s) (Consultant and TRC)

A meeting of the TRC and Consultant will be conducted to review and critique the alternatives, re-run the biological performance tool based on updated information (if necessary), do a final scoring of alternatives and determine: 1) if upstream volitional passage is feasible; 2) which alternative(s) should be pursued further; and 3) prioritize alternatives (if possible).

Meeting Topics

- Review and discuss the updated alternatives. Note any remaining information needs or significant risks associated with the alternative conceptual designs or recommended operation.
- If necessary, re-run the biological performance tool based on the updated designs.
- Review the OPCC, constructability issues, and the technical feasibility of each alternative.
- Finalize the criteria, and perform a final evaluation of the alternatives relative to evaluation criteria, using the Pugh evaluation matrix.
- Eliminate any alternatives that have fatal flaws based on their latest design, or that score low relative to others, and record eliminated concepts for reporting in the meeting notes.
- Develop recommendations for future actions regarding each remaining alternative, including opportunities to improve performance or optimize alternatives based on the comparisons in the evaluation matrix.
- List of final pros and cons for each alternative. If possible, prioritize alternatives.
- Finalize the Fish Passage Feasibility Study report outline.

Up to this point, at least one upstream fish passage alternative should have been carried forward for inclusion in the final report. If, at the conclusion of the Final Meeting, the consensus is that upstream volitional passage is not feasible, state the reasoning for coming to this conclusion.

Task 5-3 Meeting Summary

The deliverable for Task 5-3 will be a meeting summary with the following:

- Final status of the biological performance tool and any further development recommended by the TRC.
- Final evaluation spreadsheet.
- List of fish passage alternatives evaluated at the session.
- List of additional information necessary to reduce uncertainty or risks associated with each alternative.
- A discussion of the fatal flaw analysis and documentation of alternatives eliminated from further consideration at this time.
- A recommendation of alternatives for further development.

Task 5-4 Present Final Set of Passage Alternatives (Consultant, TRC, Advisory Group)

The Consultant, TRC, and Advisory Group will meet to discuss the final set of passage alternatives to fit LPD requirements. Protocols are to be similar to Meeting #1.

• The deliverable for this task is a meeting summary that includes comments from the Advisory Group, a copy of any written materials submitted by the Advisory Group, and any follow-up response from the Consultant or TRC.

Task 6 Reporting and Fish Passage Recommendation

Task 6 is structured to organize and report on the full development of the final fish passage alternatives. A draft and final feasibility report will be developed that will document the process followed, development of fish passage alternatives, evaluation criteria, summary of alternatives eliminated with justification for the eliminations, a final evaluation and the final recommended alternative(s). Each alternative selected will be described with text and conceptual level design drawings, an OPCC, estimate of operating costs, an implementation schedule and description of construction issues, listing of pros and cons, and a summary and details of the final evaluation. At least one volitional alternative for upstream passage will be described, regardless of its feasibility; however, if all volitional alternatives are determined to have one or more fatal flaws, the additional work described in this task may not be carried out.

The final feasibility report will include the TRC recommendation regarding the technical and

biological feasibility of providing volitional steelhead passage at LPD. If a volitional passage facility cannot be recommended due to site constraints, uncertainties, or other factors the final report will document the rationale. Recommendations for next steps will be developed, which might include: fish passage alternatives to be pursued; further studies, if needed to address uncertainties or risk; or additional analysis to determine economic feasibility. The draft report will be presented to the TRC and Advisory Group for input. Depending on the nature of comments, the draft report may be finalized or, if additional issues are raised, the report may be amended and recirculated for final review.

Task 6-1 Prepare Draft Fish Passage Feasibility Report (Consultant, TRC)

The Consultant and TRC will review the final set of alternatives and recommendations made by the Advisory Group and the TRC will make a final recommendation. A Draft Fish Passage Feasibility Report will be developed in this task to document the scope of the study, background information used, design criteria, the process utilized to conduct the feasibility analyses, the results of the analyses and the TRC recommendation. A draft table of contents for the report is listed below as a guide.

The draft (and final) report will contain at least the following:

- Introduction
 - Problem statement
 - Purpose, objective
 - Fish passage goal statement
 - Relevance to Steelhead Recovery Plan
 - Overview of Fish Passage Panel Process
 - Summary of meetings, coordination, and progress reports
 - Overview of the biological performance tool
 - Overview of the spreadsheet based fish passage model
- Descriptions of alternatives
 - Short descriptions of all initial brainstorm concepts
 - Documentation of concepts that were dropped for fatal flaws or low Ranking
 - Preferred Concepts
 - Detailed physical, functional, and operational descriptions
 - Pros and cons
 - Expected performance for upstream and downstream fish passage (based on the biological performance tool)
 - Implementation challenges and uncertainties

- Constructability considerations
- Opinions of probable construction and operating costs
- Two to five scale drawings will be provided for each alternative, with applicable site overviews, site plans, sections, elevations, and hydraulic design parameters clearly defined.
- Evaluation of Alternatives
 - Description of evaluation process
 - Description of evaluation matrix and criteria
 - Weighting and scoring
 - Criteria that could lead to fatal flaws
 - Graphics and summaries of evaluation
 - Ranking of alternatives based on evaluation matrix
 - Ranking of alternatives based just on fish passage criteria
 - Relative fish passage ranking compared to cost and operations criteria
- Conclusions and Recommendations
- References cited

The Consultant will provide a draft report to the TRC for review. At least thirty (30) calendar days should be provided to prepare written comments. If no substantive issues are raised during the review, the Consultant will move on to production of the Final Report; however, if substantive issues are raised, the Consultant, Cal-Am, and MPWMD may elect to work directly with the commenter(s) to address any issues, or hold a meeting to address issues.

Task 7 Project Management

This task consists of standard project management tasks, including scheduling, budget tracking, invoicing, and general project communications. Also included in this task are regular communications with agency staff, conference calls as required, and progress reports no less frequently than quarterly and no more frequently than monthly. Progress reports shall include at a minimum: description of tasks performed and accomplishments; a comparison of budgeted vs. actual expenses; and a discussion of the progress of the schedule. Note that MPWMD will pay Consultant invoices monthly, if necessary. Progress reports and reimbursement requests for expenses will be provided to Cal-Am on a quarterly basis, at a minimum.

The Consultant shall facilitate meetings with MPWMD, Cal-Am, and other interested parties including, but not limited to: 1) kick-off meeting with MPWMD and Cal-Am; 2) review of

existing and proposed operations in the field w/MPWMD and Cal-Am; 3) review of preliminary and final alternatives with TRC and Advisory Group; 4) meetings with regulatory agencies as required to determine constraints. Meetings will generally be held at the MPWMD Ryan Ranch office or at the Cal-Am Pacific Grove office, unless other arrangements are made.

• Deliverables: Invoices; progress reports; copies of communications among agencies and consultants (if appropriate); meeting minutes.

Schedule

Los Padre	Los Padres Dam Fish Passage Feasibility Assessment Study Plan																						
	Schedule	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18
Task	Notice to Proceed																						
Task 1 - Fe	Task 1 - Feasibility Study Preparation																						
1-1	Compile Background Information																						
1-2	Obtain Bathymetric and Topographic Data for Los Padres Reservoir																						
1-3	Prepare Evaluation Criteria																						
1-4	Identify Critical Data Gaps																						
Task 2 - P	epare Biological Performance Tool																						
2-1	Compile Background Information on																						
	Migratory Pathways																						
2-2	Review and Identify Critical Biological																						
	Data Gaps																						
2-3	Develop and Populate Fish Passage																						
	Model with Available Information																						
Task 3 – Io	lentify Fish Passage Concepts			I	1	1					1												
3-1	TRC Meeting #1–Concept Workshop																						
3-2	Meeting #1 Summary																						
Task 4 - A	ternatives Development																						
4-1	Develop Initial Concepts																						
4-2	TRC Meeting #2 – Review Alternatives																						
4-3	Meeting #2 Summary																						
4-4	Present Initial Set of Alternatives																						
Task 5 – F	sh Passage Alternatives Refinement and De	etermina	tion of Fe	easibility	1	1		1			1												
5-1	Fish Passage Alternatives Refinement																						
5-2	TRC Meeting #3– Determination of																						
	Feasibility and Selection of Alternative																						
5-3	Meeting Summary																						
5-4	Present Final Set of Alternatives																						
Task 6 - Reporting and Fish Passage Recommendation																							
6-1	6-1 Prepare Draft Fish Passage Feasibility																						
	Report																						

References

Feasibility of Fish Passage at Alameda Creek Diversion Dam, Technical Memorandum, Prepared for San Francisco Public Utilities Commission, URS HDR, June 2009.

Los Padres Dam: Fish Passage Assessment, Prepared for California American Water, Prepared by HDR Engineering, Inc. September 9, 2009, *Administrative Draft*

San Clemente Dam Fish Passage Assessment, Prepared for California State Coastal Conservancy, Prepared by HDR Engineering, Inc., May 2007

Santa Felicia Dam Fish Passage Feasibility Assessment Study Plan, February 2013, Prepared for: The United Water Conservation District, in association with the National Marine Fisheries Service, and the California Department of Fish and Game Prepared by: The Santa Felicia Dam Fish Passage Panel, February 2013.

Susitna-Watana Hydroelectric Project, (FERC No. 14241), Study of Fish Passage Feasibility at Watana Dam, Study Plan Section 9.11, Final Study Plan, Alaska Energy Authority, July 2013.

Anadromous Salmonid Passage Facility Design, National Marine Fisheries Service, Northwest Region, July 2011.

APPENDIX A

Evaluation Process and Draft Evaluation Criteria

This is a description of the process the TRC will use to evaluate alternatives developed in this Project. These alternatives will be evaluated for potential feasibility and effectiveness. A grid analysis technique (Pugh Matrix) will be used, which breaks the alternatives down into discrete elements for comparison, evaluation, and optimization.

A-1. EVALUATION PROCESS

A weighted grid analysis can be used to help develop consensus of design solutions that could be pursued. It is essential to developing a mutual understanding of each alternative, understanding each other's values and points of view, and optimizing alternatives. This basic process is commonly used to assist engineering decisions. The following chart is a schematic example of the grid analysis. This is greatly simplified for the sake of explanation. The LPD evaluation will likely consist of three categories of factors – engineering, biological, and economic.

Schematic Example of Weighted Grid Analysis

	Weight	Default	Alternate #1	Alternate #2	Alternate #3
		Choice			
Criteria #1	1	0			
Criteria #2	1	0			
Criteria #3	1	0			
Totals					

Benefits of using this method are:

- □ Quantitative technique to rank multi-dimensional options
- □ Increases objectivity of evaluation
- □ Develops a clear common understanding of options being considered
- □ Helps diverse stakeholders understand each other's values and issues
- □ Can test sensitivity of objectives and project features
- \Box Rational and consistent.
- \Box Can be a framework for consensus-building.

The process of the analysis is as follows. Each component of the grid is explained further below.

- \Box Define evaluation criteria
- □ Weight criteria
- □ Describe alternatives

- \Box Score alternatives for each criterion
- □ Multiply each score by the criteria weight
- □ Sum the score-weight products for each alternative

A-1.1 DEFINE EVALUATION CRITERIA

Each criterion is a positive attribute and can be considered an objective of the project by which the alternatives will be evaluated. Some of the criteria may be pass/fail (e.g., meet a threshold score), while most are likely to be satisfied to different degrees by various alternatives. Criteria may have different levels of importance and will be weighed appropriately as part of the alternatives comparison. Initial provisional criteria are described below and will be refined through the Project process. The evaluation criteria will be entered as a column in spreadsheets with the alternatives listed in a row across the top of the spreadsheet.

A-1.2 WEIGHT CRITERIA

The weighting uses a scale of zero to ten. If a criterion scores "zero" it has no influence on the design but it can be left on the list because it might be important to other parties. To challenge users to differentiate among the criteria by not allowing all criteria to be weighed "ten," it will be stipulated that the average weight has to be five. So, for example, if there are 20 criteria, the sum of the weights has to be 100. In the schematic example above, the weights vary from 1 to 10 and averaged 5.

It is helpful for different stakeholders to do their own weighting at some point in the process to reflect their perception of values for this project. The differences in weights among the TRC highlight differences in values and subsequent differences in final scores highlights where discussion is needed to achieve consensus.

A-1.3 SCORE ALTERNATIVES

The next step is to score how well each alternative satisfies each criterion. A ten-point (zero to ten) scoring system is recommended to allow an alternative to be incrementally improved by modifying it. The TRC should come to a consensus about specific criteria that are considered essential and must be satisfied to a high degree, or the alternative might be fatally flawed. For example, alternatives that do not score a value of ten for dam safety would likely be fatally flawed. flawed.

Large differences among the products of individual scores and weights highlight differences that most affect the final results and that therefore merit discussion. Large differences may be due to

various factors, each of which should be addressed. Each alternative and criterion should be thoroughly understood by each person ranking the alternative. The point is to achieve a true common understanding of each score, not just to agree on a number.

A-1.4 OPTIMIZATION OF ALTERNATIVES

Using simple math to score alternatives offers an opportunity to focus on strengths and weaknesses of alternatives and can be a starting point for a discussion of how to improve an alternative or how to exclude an alternative. The matrices showing the ranking of the alternatives will be included in the text of the report. Relative ranking of alternatives can be considered using all categories or can also be considered using specific categories such as fish passage, operations and maintenance, cost, or other categories of interest.

A-2. DRAFT EVALUATION CRITERIA FOR PREFERRED FISH PASSAGE ALTERNATIVES

The following criteria are proposed for consideration in evaluating the alternatives for upstream passage. As the process proceeds there may be other evaluation criteria that maybe included. These criteria are to be refined and changed as information on alternatives and conditions specific to the Los Padres Dam Project is gathered. Given the site constraints at Los Padres Dam (significant lift over a short distance, canyon walls, steep slopes), some consideration should be given to specific quantitative threshold design criteria (e.g.; maximum flow velocity, minimum water depth, maximum hydraulic jump, pool spacing, etc.). These may not apply at the concept review, but should be considered during alternative development.

A-2.1 CRITERIA OF UPSTREAM FISH PASSAGE FACILITIES

• Attraction of juvenile and adult fish to passage facility

Attraction is the guidance of fish to find the migration pathway into the passage facility. It includes attraction to the vicinity of and passage into the passage facility entrance. Attraction into the facility is to be evaluated based on entrance flow orientation relative to stream flow, location of the entrance relative to the upstream end of the plunge pool, velocity of flow coming out of the passage facility relative to stream velocity and the ratio of facility flow to total flow in the stream. Specific flow ranges will be identified in the assessment. It is desirable for a facility to pass as much of the natural flow as possible in order to provide the greatest chance for fish to pass into the facility. However, threshold velocities at low and high flow will likely determine lower and upper bounds for flow through the facility. If direct measurement of streamflow velocity is not available for the flows being evaluated, estimates should be made using an equation such as the Manning formula.

• Passage of target species through facility

Passage of target species through the passage facility pertains to the expected success and efficiency of fish passage (energy, stress, and time expended to pass). The physical safety of adult and juvenile fish passing through the facility is included in this characteristic. Safety is possibly diminished when fish are expected to leap over weirs or are unintentionally induced to leap at other locations. Safety is diminished if fish might become stranded in the facility when it is dewatered.

• Volitional upstream fish passage

Volitional passage is the concept of giving fish the choice of moving upstream into the facility based on their own motivation. There may be alternatives that have volitional passage characteristics though are not volitional for both juvenile and adult fish over the entire range of flows that fish are expected to migrate at. Scoring for volitional passage will reflect the degree of volitional passage; pure volitional alternatives for both juveniles and adults will be scored the highest possible score.

• Fish access out of passage facility to Los Padres Reservoir

This characteristic describes physical access for fish from the facility through any flow control section and any device for accommodating a range of reservoir elevations. Head differential, depth of flow at the exit, certainty of adequate flow passing into the facility, and safety of exit conditions (such as discharge to a low reservoir level and fallback considerations) are the primary considerations.

• Attraction and passage of Non-target Species

The target species for fish passage is adult and juvenile steelhead. There might be added ecological value or risk in providing for or blocking passage of other species and life stages. Risks could include the passage of non-native species, including resident brown trout.

• Potential for fish passage evaluation or biological monitoring

This characteristic is the ability to add facilities for trapping and counting fish passage through the facility to either assess performance of the facility or to monitor populations. The primary objective of the feasibility assessment is to provide fish passage alternatives; there is no stated intent of doing population monitoring at this time. Other technologies (cameras, radio tracking) are available for facility evaluation. If continuing monitoring of fish passage is considered a priority, the best means of achieving that goal can be determined in the design process.

• Certainty of Collection and Passage

This is a measure of how certain the TRC is regarding success of collection and passage. It is based on the combined knowledge of characteristics of the site, hydrology, the Carmel River steelhead population, and precedents of other similar projects. The aspect of certainty would normally be a heavily weighted criterion but, since other criteria are being applied in the evaluation of alternatives that inform the certainty of each alternative, a lesser weighting can be applied. Low certainty should not diminish the evaluation score of any alternative unless the uncertainty cannot be mitigated.

• *Relationship to reservoir release operations and downstream passage facilities* After the rainy season ends and the reservoir is drawn down below spillway level, storage is metered out to augment downstream flow – often at levels below 10 cfs. The TRC should evaluate whether volitional passage is desired or necessary for either or both directions of migration at low flows and establish guidelines for this condition.

There may also be periods during different life stages when it is desirable to operate downstream and upstream passage facilities at the same time (e.g., when juveniles or smolts may migrate downstream in early winter while adults are moving upstream). Passage facilities may compete for enough flow to operate at an optimum level. Flow availability during periods associated with operating in both directions should be evaluated. If flow is a constraining factor in operations, the TRC should provide guidelines for prioritizing flow splits and the timing of operational changes. Upstream alternatives can then be evaluated for their effectiveness during such periods.

• Adaptability of collection and passage

Certainty is increased with adaptability in design and/or operation. For example, an upstream passage alternative might score higher if the attraction flow can be modified in the future.

A-2.2 OPERATION AND MAINTENANCE CRITERIA

• Simplicity of fish passage operations

More complex and frequent operational demands result in greater uncertainty and risk due to improper operations or possible failure of equipment. Additional entrance gates, auxiliary water systems, and mechanical flow control weirs add to complexity because there is no electrical power to the site.

• Debris management

Debris is trapped near the spillway by a log boom; however, large loads of debris cannot be fully contained. Fish ladders and fish protection screens are vulnerable to debris. Debris can impair operations and performance if allowed to accumulate, thus compromising its passage effectiveness. Facility water must be screened to exclude debris. This characteristic describes the likelihood and the consequence of debris accumulation at the exit of or within the facility and at the entry to the facility and the ease of dealing with it.

• Durability of structure

This is risk of damage of the fish passage structure due to high flows, debris and changes in the channel. Sediment is not likely to be an issue, although some suspended sediment could be entrained into the facility at high flows.

6.0 CONTRACT TERM

- 6.1 The term of the AGREEMENT will be for a period of 18 months. Any modifications to the term can only be by written authorization from MPWMD based on potential future extenuating circumstances that may require an extension.
- 6.2 The AGREEMENT shall contain a clause that provides that the District reserves the right to cancel this AGREEMENT, or any extension of this AGREEMENT, without cause, with a thirty day (30) written notice, or immediately with cause. See Sample Agreement, Section IX for additional details on typical final payment terms, which includes payment for services up to the issuance of a written Notice of Cancellation.

7.0 PROPOSAL/QUALIFICATIONS PACKAGE REQUIREMENTS

7.1 CONTENT AND LAYOUT:

7.1.1 Consultant should provide the information as requested and as applicable to the proposed goods and services. The proposal or qualifications package shall be organized as per the table below; headings and section numbering utilized in the proposal or qualification package shall be the same as those identified in the table. Proposals or qualifications packages shall include at a minimum, but not limited to, the following information in the format indicated:

	Proposal or Qualifications Package Layout;
	Organize and Number Sections as Follows:
	COVER LETTER (INCLUDING CONTACT INFO)
Santian 1	SIGNATURE PAGE
Section 1	RECEIPT OF SIGNED ADDENDA (IF ANY)
	TABLE OF CONTENTS
Section 2	PRE-QUALIFICATIONS
Section 3	PROJECT EXPERIENCE AND REFERENCES
Section 4	KEY STAFF PERSONS
Section 5	LITIGATION HISTORY (if any)
Section 6	TECHNICAL ASPECTS OF PROPOSAL
Section 7	PRICING
Section 8	EXCEPTIONS
Section 9	APPENDIX

Section 1 Requirements:

Cover Letter: All proposals must be accompanied by a cover letter not exceeding two pages and should provide organization information and Contact information as follows:

Contact Info: The name, address, telephone number, e-mail and fax number of Consultant's primary contact person during the solicitation process through to potential contract award.

Organization Info: Description of the type of organization (e.g. corporation, partnership, including joint venture teams and subconsultants) and how many years it's been in existence.

Signed Signature Page and Signed Addenda (if any addenda were released for this solicitation) Proposal packages submitted without this page will be deemed non-responsive. Original wet signatures are encouraged; however, copies of original signed documents or proposals signed with electronic signatures will be deemed the same as a wet signed original.

Table of Contents – include a table of contents in the Proposal.

Section 2, Pre-Qualifications/Licensing Requirements:

Consultant must acknowledge in writing that it meets all of the prequalifications and licensing requirements to perform the Scope of Work as outlined within this RFP. Consultant shall possess and maintain all permits, licenses, and professional credentials necessary to provide services as specified under this RFP which may include but is not limited to:

- The Project team shall have at least one member with experience in coordinating with the California Division of Safety of Dams (DSOD). The Proposal shall list the team member, project(s), and DSOD reference. Failure to meet this requirement will result in the Proposal not being considered.
- Licensed Professional Land Surveyor (or Civil Engineer licensed to perform surveying in California)
- Licensed Professional Civil Engineer
- Certified fisheries biologist with steelhead experience (preferred)

Section 3, Project Experience & References:

Experience & References: The Consultant shall provide concise, 1-3 page descriptions of comparable project experience, either in progress now or completed within the last five (5) years, for which your organization provided similar services. Include the following information for each project listed:

- Project name, location, size and date completed
- Project owner's name and contact information (name, phone number and email address if possible) as the District may conduct reference checks using this information.
- Description of services performed by your organization
- List members of the proposed project who worked on the projects described and their roles.

The descriptions should describe and demonstrate your organization's experience in the following areas:

History & Data Compilation: Collecting and summarizing technical reports.

Surveying Services: Collecting and analyzing survey data. Include specifics regarding site and type of assessments used, as well as, any innovative problem resolution. Consultant should provide at least two examples of projects that address the basic surveying and engineering skills required for the project (note that several points of control have been established in the vicinity of the project). A valid California State Surveyor's license is required.

Civil Engineering Design and Cost Estimating: Assessing existing conditions and implementing engineering solutions. Describe experience with developing construction cost estimates, planning, design, and implementation of previous projects. Consultant should provide

examples of similar projects involving screening and selection of fish passage alternatives. Experience with designing passage alternatives for steelhead is preferred. A valid California State Civil Engineering license is required.

Fisheries Biology. The Consultant team should demonstrate experience with salmonids, and in particular, steelhead. It should be noted that behavior of Central Coast steelhead may be different from steelhead in other parts of the west coast and the world.

Section 4 Key Staff Persons:

Consultant shall identify key staff, their role in the project, and their qualifications and experience for the proposed role in the project. Please reference applicable California licenses/registrations for proposed civil engineering staff, licensed professional land surveyor staff, and licensed professional mechanical engineering staff.

Consultant Organization and Subconsultants: A factor in selecting a Consultant will be the level of experience demonstrated by the Consultant's team in key areas such as fish passage design, steelhead biology, estimating, and meeting facilitation.

Section 5, Litigation History (if any):

Provide specific information on your organization's (and that of all organizations included in the project team) litigation history in the last five (5) years, termination for default, litigation by or against your organization, and judgments entered for or against your organization. If there is no litigation history in the past five (5) years, please so state.

Section 6, Technical Aspects:

Consultant shall provide a written and signed statement in this section which confirms that their proposal is inclusive of all elements necessary to complete the described work within 18 months of the execution of the Agreement.

RFP Scope: The information contained within this RFP is a general outline of the scope of work to be provided by the selected Consultant. It is intended as a guide only, and the specific scope of work to be provided by the Consultant must be included within their proposals. All potential respondents to this RFP are advised to include any information and/or procedures, which they deem pertinent and critical for the success of this project. Items that are added to the Tasks described above should be clearly identified within the proposal and should be supported with appropriate reasoning for addition. The cost of such items to be added should be separately noted as "Optional Tasks" within the proposal. Similarly, any additional costs that in the opinion of the proposer must be expended to make the project operational shall be identified as such within the cost estimate section of their proposal. It should be understood, however, that the District requires a single comprehensive system and that the main tasks identified within this RFP are not optional and must be included in all prospective proposals.

Section 7, Pricing:

The proposal shall include a budget, work schedule, and timeline to complete the tasks and project deliverables to meet the District's needs as indicated in this RFP. Consultant shall price the cost of work based on the project deliverables outlined in this RFP. Consultant shall provide a written and signed statement confirming their proposal is inclusive of all elements necessary to complete all goals, tasks, and project deliverables within 18 months of the execution of the Agreement.

Section 8, Exceptions:

Submit any and all exceptions to this solicitation on separate pages, and clearly identify the top of each page with "EXCEPTION TO MONTEREY PENINSULA WATER MANAGEMENT DISTRICT SOLICITATION FOR Los Padres Dam Fish Passage Assessment." Each Exception shall reference the page number and section number, as appropriate. Consultant should note that the submittal of an Exception does not obligate the District to revise the terms of the RFP or AGREEMENT.

Section 9, Appendix (optional)

This section may include any supporting documentation.

8.0 SUBMITTAL INSTRUCTIONS

8.1 REQUIREMENTS:

To be considered "responsive," submitted proposals or qualifications packages shall adhere to the following:

8.1.1 Five (5) sets of the proposal package (one original proposal marked "Original" plus four (4) copies) shall be submitted in response to this solicitation. Each copy shall include a cover indicating the company name submitting, and reference to "RFP for Los Padres Dam Fish Passage Assessment". In addition, submit one (1) electronic version of the entire proposal package on a read-only CD or DVD or by e-mail (file size up to 50 Mb). USB memory sticks are **NOT acceptable**. PDF file format is preferred; however, Word, and Excel may also be acceptable. Additional copies may be requested by the District at its discretion.

8.1.2 Proposals packages shall be prepared on 8-1/2" x 11" paper, preferably duplex printed. The minimum font size in the main text shall be 12 point or larger with a minimum of 10 point for figures and tables. Fold out charts, tables, spreadsheets, brochures, pamphlets, and other pertinent information or work product examples may be included as Appendices.

8.1.3 Reproductions of the seals for the Monterey Peninsula Water Management District, or California American Water shall not be used in any documents submitted in response to this solicitation.

8.1.4 Consultant shall not use white-out or a similar correction product to make late changes to their proposal or qualifications package but may instead line out and initial in BLUE ink any item which no longer is applicable or accurate.

8.1.5 To validate your proposal package, **submit the SIGNATURE PAGE** (contained herein) **with your proposal**. Proposal packages submitted without that page will be deemed non-responsive. Errors may be crossed out and corrections printed in BLUE ink or typed adjacent, and must be initialed in BLUE ink by the person signing the proposal.

8.2 CONFIDENTIAL OR PROPRIETARY CONTENT: Any page of the proposal package that is deemed by Consultant to be a trade secret by the Consultant shall be clearly marked "CONFIDENTIAL INFORMATION" or "PROPRIETARY INFORMATION" at the top of the page.

8.3 ADDITIONAL REQUIREMENTS

8.3.1 Submittal Identification Requirements: ALL SUBMITTALS MAILED OR DELIVERED CONTAINING PROPOSAL PACKAGES MUST BE SEALED AND BEAR ON THE OUTSIDE, PROMINENTLY DISPLAYED IN THE LOWER LEFT CORNER: THE SOLICITATION TITLE and CONSULTANT'S COMPANY NAME.

8.3.2 Mailing Address: Proposal packages shall be mailed or delivered to the District at the mailing address indicated on the **Signature Page** of this solicitation.

8.3.3 Due Date: Proposal packages must be received by the District ON OR BEFORE the time and date specified, at the location and to the person specified on the **Signature Page** of this solicitation. It is the sole responsibility of the Consultant to ensure that the proposal package is received at or before the specified time. Postmarks and facsimiles are not acceptable. Proposals received after the deadline shall be rejected and returned unopened.

8.3.4 Shipping Costs: Unless stated otherwise, the F.O.B. for receivables shall be destination. Charges for transportation, containers, packaging and other related shipping costs shall be borne by the shipper.

8.3.5 Acceptance: Proposals are subject to acceptance at any time within 90 days after opening. The District reserves the right to reject any and all proposal packages, or part of any proposal package, to postpone the scheduled deadline date(s), to make an award in its own best interest, and to waive any informalities or technicalities that do not significantly affect or alter the substance of an otherwise responsible proposal package and that would not affect a Consultant's ability to perform the work adequately as specified.

8.3.6 Ownership: All submittals in response to this solicitation become the property of the District. If a Consultant does not wish to submit a Proposal package but wishes to acknowledge the receipt of the request, the reply envelope shall be marked "No Bid".

8.3.7 Compliance: Proposal packages that do not follow the format, content and submittal requirements as described herein, or fail to provide the required documentation, may receive lower evaluation scores or be deemed non-responsive.

8.3.8 CAL-OSHA: The items proposed shall conform to all applicable requirements of the California Occupational Safety and Health Administration Act of 1973 (CAL-OSHA).

9.0 SELECTION CRITERIA

9.1 The selection of Consultant and subsequent contract award will be based on the criteria contained in this Solicitation, as demonstrated in the submitted proposal. Consultant should submit information sufficient for the District to easily evaluate proposals with respect to the selection criteria. The absence of required information may cause the Proposal to be deemed non-responsive and may be cause for rejection.

9.2 The selection criteria include, but are not limited to, the following:

- Qualifications and experience;
- Understanding of project goals;
- Proposed methodology to fulfill the intent of this RFP;
- Ability and capacity to fulfill the intent of this RFP;
- Reasonable budget, work schedule, and timeline.

9.3 AGREEMENT award may not be based on cost alone.

10.0 CONTRACT AWARDS

10.1 Multiple Award(s): It is the intent of the District to award a single contract for this work.

10.2 Board of Directors: The award made from this solicitation is subject to approval by the Monterey Peninsula Water Management District Board of Directors and concurrence by the Executive Office of the State Coastal Conservancy.

10.3 Interview: The District reserves the right to interview selected Consultant before a contract is awarded. The costs of attending any interview are the Consultant's responsibility.

10.4 Incurred Costs: District is not liable for any cost incurred by Consultant in response to this solicitation.

10.5 Notification: Unsuccessful Consultants who have submitted a Proposal or Qualifications Package will be notified of the final decision as soon as it has been determined.

10.6 In District's Best Interest: The award resulting from this solicitation will be made to the Consultant that submits a response that, in the opinion of the District and the State Coastal Conservancy, best serves to complete the intake upgrade design work.

10.7 No Guaranteed Value: District does not guarantee a minimum or maximum dollar value for any AGREEMENT or AGREEMENTS resulting from this solicitation.

10.8 Contract retentions: 10% of the contract price will be retained until completion of all work associated with this RFP. See Section II. B in the Sample Agreement.

11.0 SEQUENTIAL CONTRACT NEGOTIATION

The District will pursue contract negotiations with the Consultant who submits the best Proposal or is deemed the most qualified in the opinion of the District and Cal-Am, and which is in accordance with the criteria as described within this solicitation. If the contract negotiations are unsuccessful, in the opinion of either District or Consultant, District may pursue contract negotiations with the entity that submitted a Proposal which District and Cal-Am deems to be the next best qualified to provide the services, or District may issue a new solicitation or take any other action which it deems to be in its best interest.

12.0 AGREEMENT TO TERMS AND CONDITIONS

Consultant selected through the solicitation process will be expected to execute a formal AGREEMENT with District for the provision of the requested service. The AGREEMENT shall be written by District in a standard format approved by District Counsel, similar to the "SAMPLE AGREEMENT SECTION" herein. Submission of a signed bid/proposal and the SIGNATURE PAGE will be interpreted to mean Consultant HAS AGREED TO ALL THE TERMS AND CONDITIONS set forth in the pages of this solicitation and SAMPLE AGREEMENT herein, except as noted in the EXCEPTIONS section of Consultant's proposal. District may, but is not required to, consider including language proposed by the Consultant as revisions to the AGREEMENT, and any such proposed revisions to the AGREEMENT shall be included in the EXCEPTIONS section of Consultant's proposal.

13.0 RIGHTS TO PERTINENT MATERIALS

All responses, inquiries, and correspondence related to this solicitation and all reports, charts, displays, schedules, exhibits, and other documentation produced by the Consultant that are submitted as part of the submittal will become the property of the District when received by the District and may be considered public information under applicable law. Any proprietary information in the submittal must be identified as such and marked "CONFIDENTIAL INFORMATION" or "PROPRIETARY INFORMATION". The District will not disclose proprietary information to the public, unless required by law; however, the District cannot guarantee that such information will be held confidential.

SIGNATURE PAGE

ISSUE DATE: February 2016 RFP EXTENSION DATE:_____

RFP: Los Padres Dam Fish Passage Feasibility Study

PROPOSALS ARE DUE IN THE DISTRICT OFFICE BY 3:00 P.M., LOCAL TIME, ON: MARCH 18, 2015

MAILING ADDRESS: Monterey Peninsula Water Management District 5 Harris Court, Building G Monterey, CA 93940

QUESTIONS ABOUT THIS RFP #10340 SHOULD BE DIRECTED TO Larry Hampson, <u>larry@mpwmd.net</u>, (831) 658-5620 or (831) 238-2543

Consultant MUST INCLUDE THE FOLLOWING IN EACH PROPOSAL: 1 original plus 3 copies = total of 4 copies plus one CD or DVD (no USB sticks)



ALL REQUIRED CONTENT AS DEFINED PER SECTION 7.1 HEREIN

This Signature Page must be included with your submittal in order to validate your proposal. **Proposals submitted without this page will be deemed non-responsive.**

CHECK HERE IF YOU HAVE ANY EXCEPTIONS TO THIS SOLICITATION.

Consultant MUST COMPLETE THE FOLLOWING TO VALIDATE PROPOSAL

I hereby agree to furnish the articles and/or services stipulated in my proposal at the price quoted, subject to the instructions and conditions in the Request for Proposal package and the identified exceptions. I further attest that I am an official officer representing my organization and authorized with signatory authority to present this proposal package.

Company Name:				_ Date	
Signature:		_ Printed Name	:		
Street Address:					
City:	State:	_ Zip:			
Phone: ()	Fax: ()		_Email:		

Registered California Civil Engineer Name and License No.

Registered California Land Surveyor Name and License No.

SAMPLE AGREEMENT

AGREEMENT BETWEEN THE

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT AND

FOR PROFESSIONAL SERVICES TO PROVIDE ASSISTANCE WITH THE LOS PADRES DAM FISH PASSAGE FEASIBILITY ASSESSMENT

THIS AGREEMENT is entered into this ____ day of _____ 2016, by and between _____, hereinafter called "Consultant," and the Monterey Peninsula Water Management District, hereinafter called "MPWMD".

SECTION I SCOPE OF SERVICES

MPWMD hereby engages Consultant for services as set forth in **Exhibit A**, Scope of Work.

SECTION II COMPENSATION

A. FEE SCHEDULE

Fees payable to Consultant for services specified herein shall be in accordance with the Fee Schedule in **Exhibit B**.

B. METHOD OF PAYMENT

Payment of fees shall be based on work completed, as documented in monthly billings submitted by Consultant. Work reports shall be rendered in accordance with the schedule shown in **Exhibit C**, Work Schedule. Payments are due and payable within thirty (30) days after receipt of each invoice subject to a finding by MPWMD that work performed has been satisfactory and that payment is for the work specified in **Exhibit A**, Scope of Work. Where MPWMD finds the work to be unsatisfactory, MPWMD shall describe deficiencies in writing to Consultant within ten (10) days.

Five percent (5%) of the maximum payment shall be retained until all work described in **Exhibit A, Scope of Work** is completed to the satisfaction of MPWMD. The final invoice for work performed shall be submitted not later than sixty (60) days following notification by MPWMD of completion of such work. The final invoice shall be paid not later than 30 days after receipt of the final invoice.

C. MAXIMUM PAYMENT

Payments to Consultant for services rendered and expenses incurred under this Agreement shall not exceed \$ _____.

D. LATE PERFORMANCE PENALTY

Time is of the essence to this Agreement. In the event Consultant is unable to perform satisfactory work within thirty (30) days of the date such work is due pursuant to <u>Exhibit C</u>, Work Schedule, MPWMD may, in its discretion, withhold an additional ten percent (10%) of the fees which would otherwise be payable pursuant to the fee schedule set forth in <u>Exhibit</u> <u>B</u>.

In the event Consultant is unable to perform satisfactory work within sixty (60) days of the date such work is due pursuant to <u>Exhibit C</u>, Work Schedule, MPWMD <u>SHALL</u> withhold twenty percent (20%) of the fees which would otherwise be payable pursuant to the Fee Schedule set forth in <u>Exhibit B</u>, and <u>SHALL</u> reduce the maximum payment stated in Section II, Paragraph C of this Agreement by twenty percent (20%). Said reductions shall be deemed liquidated damages for the untimely performance of work required by this Agreement, and the Consultant shall be deemed to have waived any claim for such fees by reason of his/her failure to perform in a timely fashion.

SECTION III INSPECTION OF WORK

The books, papers, records and accounts of Consultant or any subconsultants retained by Consultant insofar as they relate to charges for services, or are in any way connected with the work herein contemplated, shall be open at all reasonable times to inspection and audit by the agents and authorized representatives of MPWMD. Said records shall be retained for a minimum of five (5) years after completion of services.

SECTION IV OWNERSHIP OF PROJECT REPORT AND EQUIPMENT PURCHASED

All original documents, explanations of methods, maps, tables, computer programs, reports and other documents prepared under this Agreement and equipment purchased specifically for the project shall become the exclusive property of MPWMD. Digital data used to generate tables, figures, diagrams, images, Geographical Information System (GIS) or Computer Aided Design (CAD) layers shall be considered separate deliverables and shall be provided to MPWMD after acceptance by MPWMD of the final work product(s).

Global Positioning System (GPS) data deliverables shall include the following:

- Original rover files, unless otherwise specified by MPWMD
- Base station correction files, unless otherwise specified by MPWMD
- Differentially corrected GPS files, if requested by MPWMD

- Copies of field data collection notes
- Completed documentation sheet for each collection event
- Almanac files are optional

GIS deliverables shall include the following:

- Geospatial dataset [generated from GPS data] in Environmental Systems Research Institute, Inc.'s (ESRI) shapefile format, including a projection file. In this regard, point features shall be generated as point shapefiles, linear features shall be generated as line shapefiles, and area features shall be generated as polygon shapefiles.
- Each geospatial dataset shall be accompanied by documentation sufficient to meet the Content Standard for Digital Geospatial Metadata (CSDGM), Vers. 2 (FGDC-STD-001-1998), dated June 1998.
- Any geospatial dataset derived from new or existing geospatial data in shapefile format, along with an explanation of the methodology used to generate the derived geospatial data.

Consultant may retain copies for his/her own use.

SECTION V TIME OF PERFORMANCE

Consultant shall begin work upon the effective date of this Agreement and shall complete all tasks described herein according to the schedule shown in <u>Exhibit C</u>, Work Schedule. Time is of the essence to this Agreement, and late performance shall result in a waiver of a part of the fees payable pursuant to the terms of this Agreement.

SECTION VI RESPONSIBILITIES

- A. Consultant represents that he/she has or will secure at his/her own expense all personnel, materials, and related services required to perform the services under this Agreement. Consultant shall act as an independent consultant and not as an agent or employee of MPWMD. Consultant shall have exclusive and complete control over his/her employees and subconsultants, and shall determine the method of performing the services hereunder.
- B. MPWMD shall provide Consultant with all relevant data and studies in its possession without charge. Consultant represents that he/she is familiar with such materials in the possession of MPWMD and that they are sufficient to discharge MPWMD's obligation hereunder.
- C. MPWMD shall coordinate and arrange for all meetings required to be held with other agencies or persons hereunder, unless otherwise specified in <u>Exhibit A</u>, Scope of Services.

- D. Consultant shall be responsible for the reproduction of work produced by Consultant hereunder.
- E. The officers, agents, and employees of MPWMD shall cooperate with Consultant in the performance of services under this agreement without charge to Consultant. Consultant agrees to use such services insofar as feasible in order to effectively discharge his/her obligations hereunder and further agrees to cooperate with MPWMD's officers, agents and employees.
- F. The Consultant agrees to indemnify, defend and save harmless MPWMD, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all consultants, subconsultants, material men, laborers and any other person, firm or corporation who may be injured or damaged by the negligent acts, errors, and/or omissions of the Consultant, Consultant's employees, or Consultant's subconsultants or subconsultants in the performance of this Agreement.

NOTE: Consultant may also be required to indemnify California American Water and its consultants.

SECTION VII INSURANCE

A. Consultant shall obtain and keep insurance policies in full force and effect for the following forms of coverage as shown in **Exhibit D**, Insurance Requirements.

SECTION VIII CHANGES AND CHANGED CONDITIONS

- A. If, during the course of the work herein contemplated, the need to change the Scope of Work or the Work Schedule should arise, for whatever reasons, whichever party first identifies such need to change shall notify the other party in writing. The representatives of the parties shall meet within seven (7) working days of the date of such notice to discuss the need for change so identified and to set the proposed action to be taken by the parties. A change in the Scope of Work may also result in a change in the compensation amount. Compensation changes shall be based upon the Consultant Fee Schedule (Exhibit B) attached hereto. Any changes agreed to shall be documented by duly executed amendments to this Agreement.
- B. MPWMD reserves the right to specify individual employees, subconsultants or agents of Consultant who shall be assigned to perform the tasks specified in <u>Exhibit A</u>, Scope of Services. If, during the course of the work herein contemplated, there is a change such that the specified individual employees, subconsultants or agents are no longer assigned to the work described in this contract and/or are no longer affiliated with Consultant,

Consultant shall immediately notify MPWMD in writing. Consultant shall assign the rights to this contract to another entity, if requested by MPWMD, as part of termination proceedings pursuant to Section IX, Termination.

SECTION IX TERMINATION

- A. MPWMD may terminate Consultant's services at any time by written notice to Consultant at least thirty (30) days prior to such termination. Upon receipt of written notice from MPWMD that this Agreement is terminated, Consultant shall submit an invoice for an amount that represents the value of services actually performed to the date of said notice for which he/she has not previously been compensated. Upon approval of this invoice by MPWMD, Consultant shall be paid from the sum found due after having applied the provisions of Section II, Paragraph (D) of this Agreement, "Late Performance Penalty," where applicable, and MPWMD shall have no further obligation to Consultant, monetarily or otherwise.
- B. Upon receipt of written notice of termination, the Consultant shall (1) promptly discontinue all services affected (unless the notice directs otherwise), and (2) deliver or otherwise make available to MPWMD, copies, including magnetic media, of data, design calculations, drawings, specifications, reports, estimates, summaries and other such information and materials as may have been accumulated by the Consultant in performing the services under this Agreement.

SECTION X

SUB-CONTRACTING AND ASSIGNABILITY

Consultant shall not sub-contract any portion of the work required by this Agreement nor otherwise assign or transfer any interest in it without prior written approval of MPWMD. Any work or services subcontracted hereunder shall be specified by written contract or agreement and shall be subject to each provision of this Agreement.

SECTION XI DISCRIMINATION AND FAIR EMPLOYMENT

Attention is directed to Section 1735 of the California Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the government code and every Consultant for public works violating this section is subject to all penalties imposed by a violation of this chapter."

During the performance of this Agreement, Consultant and its Consultants shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. Consultant and its Consultants shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Consultant and its Consultants shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full.

SECTION XII INTEREST OF CONSULTANT

Consultant covenants that he/she presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement.

SECTION XIII CONTINGENT FEES

Consultant warrants that he/she has not employed or retained any company or person, other than a bona fide employee working solely for the Consultant to solicit or secure this Agreement, and that he/she has not paid or agreed to pay any company, or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gifts, or other consideration, contingent upon or resulting from the award or making of this Agreement. For breach of violation of this warranty, MPWMD shall have the right to annul this Agreement without liability or at its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage, gift or contingent fee.

SECTION XIV DISPUTES

In the event of a dispute arising out of the performance of this Agreement either party shall, as soon as a conflict is identified, submit a written statement of the conflict to the other party. Within five (5) working days of receipt of such a statement of conflict, the second party will respond and a meeting will be arranged not more than five (5) working days thereafter to arrive at a negotiated settlement or procedure for settlement. If, within twenty (20) working days from the initial filing of a statement of conflict an agreement cannot be reached, it is agreed that the dispute may be resolved in a court of law competent to hear this matter. This Agreement shall be

construed in accord with California law and it is agreed that venue shall be in the County of Monterey. The prevailing party shall be awarded costs of suit, and attorneys' fees.

SECTION XV NOTICES

All communications to either party by the other shall be deemed given when made in writing and delivered or mailed to such party at its respective address, as follows:

MPWMD:	Larry Hampson, District Engineer
	Monterey Peninsula Water Management District
	5 Harris Court, Building G
	Monterey CA 93940
	or
	P. O. Box 85
	Monterey, CA 93942-0085

CONSULTANT:

SECTION XVI AMENDMENTS

This Agreement together with **Exhibits A, B, C,** and **D** sets forth the entire understanding of the parties with respect to the subject matter herein. There are no other agreements expressed or implied, oral or written, except as set forth herein. This Agreement may not be amended except upon written amendment, executed by both parties hereto.

SECTION XVII ATTACHMENTS

The following exhibits attached hereto and referred to in the preceding sections are, by reference, incorporated herein and made an integral part of this Agreement:

Exhibit A. Scope of WorkExhibit B. Fee ScheduleExhibit C. Work ScheduleExhibit D. Insurance Requirements
IN WITNESS WHEREOF, the parties hereto have entered into this Agreement effective as of the day and year first above written.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

BY: David J. Stoldt, General Manager

CONSULTANT

BY:

FEDERAL TAX IDENTIFICATION NUMBER:

EXHIBIT D

INSURANCE REQUIREMENTS

- I. Consultant shall provide evidence of valid and collectible insurance carried for those exposures indicated by an "X".
 - A. <u>X</u> Professional Liability Errors & Omissions
 - B. X Workers Compensation and Employers Liability
 - C. X Automobile Liability "Any Auto Symbol 1"
 - D. X Comprehensive General Liability, including Bodily Injury,
 - Property Damage and Personal Injury
 - E. X Owners & Consultants Protective
 - F. ____ Protection & Indemnity (Marine/Aviation)
- II. The minimum limit of protection provided by insurance policies for each of the coverages listed above shall be not less than \$1,000,000, except for coverage "D", which shall not be less than \$2,000,000. The procurement and maintenance by the Consultant of the policies required to be obtained and maintained by Consultant under this Agreement shall not relieve or satisfy Consultant's obligation to indemnify, defend and save harmless the District.
- III. Evidence of insurance carried shall be Certificates of Insurance for the current policies. The District shall be listed as a certificate holder on the Consultant's Comprehensive General Liability insurance policy and the policy must be endorsed to provide a 60-day prior written notice of cancellation.
- IV. The District requires that the Consultant carry a commercial liability policy written on a broad comprehensive general liability form.
 - A. Such protection is to include coverage for the following hazards, indicated by an "X":
 - 1. <u>X</u> Premises and Operations
 - 2. <u>X</u> Products and Completed Operations
 - 3. ____ Explosion Collapse and Underground
 - 4. <u>X</u> Broad Form Blanket Contractual
 - 5. <u>X</u> Broad Form Property Damage
 - 6. <u>X</u> Personal Injury, A, B & C
 - 7. X Employees named as Persons Insured
 - 8. <u>X</u> Protective and/or Contingent Liability (O&CP)

- B. The "Persons Insured" provision on each comprehensive general liability policy shall include as <u>an insured</u> the "Monterey Peninsula Water Management District, its officers, directors, agents and employees."
- C. This policy shall contain a severability of interest clause or similar language to the following:

"The insurance afforded applies separately to each insured against whom claim is made or suit is brought including claims made or suits brought by any persons included within the persons insured provision of the insurance against any other such person or organization."

- D. All policies shall contain a provision that the insurance company shall give the District at least thirty (30) days prior written notice mailed to the address shown below prior to any cancellation, lapse or non-renewal. The 30-day written notice must be shown on all certificates of insurance.
- E. Certificates of Insurance for the current policies shall be delivered by the Consultant to the Risk Manager for the District as verification that terms A, B, C and D have been met.
- V. All insurance correspondence, certificates, binders, etc., shall be mailed to:

Monterey Peninsula Water Management District Attn: Administrative Services Manager 5 Harris Court, Building G P.O. Box 85 Monterey, CA 93942-0085

- VI. All policies carried by the Consultant shall be primary coverage to any and all other policies that may be in force. The District shall not be responsible for payment of premiums due as a result of compliance with the terms and conditions of the insurance requirements.
- VII. All such policies of insurance shall be issued by domestic United States insurance companies with general policy holders' rating of not less than "B" and admitted to do business in the State of California. The policies of insurance so carried shall be carried and maintained throughout the term of this Agreement.

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