

# Project Information

2005 Proposal Number: 0074

Proposal Title: **ASSESSMENT OF WATER MANAGEMENT ACTIONS AND WATER TRANSFERS ON GIANT GARTER SNAKE AND OTHER WETLAND DEPENDENT SPECIES**

Applicant Organization Name: **Agricultural Water Management Council**

Total Amount Requested: **\$267,685**

ERP Region: Sacramento Region

## Short Description

Project proposes to monitor, assess, and report on the efficacy of water management actions on wildlife habitat, including a focus on giant garter snake habitat impacts of water transfers. Project will develop performance measures and protocols that growers and local agencies can use to develop/improve efforts designed to provide habitat.

## Executive Summary

Agricultural water suppliers divert river water and supply it to growers for their use in agronomic production and in some instances to support habitat. In addition runoff, deep percolation and canal spill also provide habitat opportunities for native and exotic species. Altering flow paths through water management changes will affect habitat. Because most water management changes are designed to reduce unaccounted flows the most likely outcome is a reduction in habitat. Water transfers through either crop shifting or idling also impact habitat by removing the primary input for productivity - water. This project will monitor, assess and report the efficacy of water management actions on giant garter snake (GGS) habitat. This project will be conducted by the Agricultural Water Management Council (AWMC), a statewide organization that promotes water management.

The goals of this project are to assess how wildlife friendly

actions that utilize water, water transfers and water management actions affect GGS habitat. This project will monitor, assess and provide guidance on the impacts crop idling or shifting and water management actions on GGS habitat. This project will develop performance measures for monitoring the affects of water management and water transfer actions on habitat. In addition, this project will develop protocols that growers and local agencies can use to develop or improve on existing efforts designed to provide GGS habitat.

This project will begin with an issues paper that lays out the legal, regulatory and institutional issues associated with the affect water management actions, wildlife friendly practices that utilize water and water transfers on habitat. Next a quantitative analysis will be conducted that uses habitat surveys, remote sensing to establish a vegetative index and to quantify the impacts of water management actions, wildlife friendly practices that utilize water and water transfers (collectively referred to as water management actions) on habitat. The information that is gained from the issues paper and the analysis will be utilized to develop a set of performance measures that funding agencies can use to monitor progress for these types of actions. In addition to performance measures for funding agencies, guidance documentation will be developed that local agencies and growers can use to quantify the affects of water management actions, wildlife friendly practices that utilize water and water transfers on habitat. This project will focus on the priority areas outlined for the giant garter snake: Butte, Colusa, Sutter and American Basins.

There is a strong connection between this effort and the CALFED Water Use Efficiency element. The WUE element is an objective based program that pursues the CALFED goals through irrigation water management. Over the past four years there has been an effort to push irrigated agriculture to implement locally cost effective water management actions and to pursue grant funding for non-locally cost effective state benefits. One of the stated objectives is to implement practices that support wildlife friendly agriculture. A major obstacle in

this effort is that there is no quantified information that local agencies such as water and irrigation districts can use to design a program. By quantifying the benefits this proposal will enable greater participation by growers and local agencies.

# **ASSESSMENT OF WATER MANAGEMENT ACTIONS AND WATER TRANSFERS ON GIANT GARTER SNAKE AND OTHER WETLAND DEPENDENT SPECIES**

## **A. Project Description**

### **1. Problem**

Agricultural water suppliers divert river water and supply it to growers for their use in agronomic production and in some instances to support habitat. In addition, runoff, deep percolation and canal spill also provide habitat opportunities for native and exotic species. Altering flow paths through water management changes will affect habitat. Because most water management changes are designed to reduce unaccounted flows the most likely outcome is a reduction in habitat. Water transfers through either crop shifting or idling also impact habitat by removing the primary input for productivity – water. This project will monitor, assess and report the efficacy of water management actions on habitat. This project will be conducted by the Agricultural Water Management Council (AWMC), a statewide organization that promotes water management. The AWMC currently represents 50 water suppliers that manage water for over 5.5 million acres of irrigated land.

When habitat is created and allocated a quantity of water, the objectives, cost and benefits can be established. When habitat is created from errant flow of water it can lead to disagreements regarding the benefits and costs. Understanding the impacts of district and on-farm water management decisions at the local level is important for monitoring ecosystem restoration, program implementation and adaptive management. This project will develop quantitative information on the impacts of water management actions, including transfers that address the terrestrial aspect of ecosystem restoration.

One of the priorities of the Ecosystem Restoration Program (ERP) is to assess the impacts of cropping patterns and crop idling/shifting on giant garter snake (GGS) and other wetland dependent species. This proposal addresses the priority through data collection, analysis and reporting. Also, this proposal will lead to protocols and performance measures that local and statewide implementing agencies can use to monitor progress of efforts to create and improve wetland habitat.

Over the next three years the CALFED ERP will commit Proposition 50 grant funds to projects that assist farmers in integrating agricultural activities with ecosystem restoration. To evaluate the effectiveness of these projects, CALFED must clearly identify its data and information needs and objectives and communicate appropriate performance measures to growers and managers implementing water management actions designed to provide habitat. Growers must

have appropriate and consistent measuring tools and procedures to prove the contribution of water management actions to CALFED objectives.

Monitoring and assessing the success of water management actions designed to improve habitat depends on the availability of pre-project data as a basis for comparison. In many cases, this information is not available. Different local, state and federal agencies use different monitoring, assessment and reporting methods that may not be the most accurate or thorough and they may not be comparable to methods chosen by other agencies. These inconsistencies can prevent regional and statewide assessment of the success of the water management, including water transfers actions.

Currently agencies find it difficult to accurately and consistently measure ecosystem restoration benefits; therefore, CALFED cannot readily assess how well agricultural actions are meeting ERP goals. The proposed project will collect additional data to further understanding of the relationship between water management and water transfer actions and habitat.

The Science Program provides a framework for establishing performance measures to determine progress in achieving CALFED goals. This project will utilize the Science Program's framework to assist agricultural water suppliers and growers on how to monitor water management actions in a comprehensive and consistent manner for the specific data needs of performance measures crucial to the Science Program analysis and annual report.

The Project will initiate future conservation based farming activities by showing growers that their actions can contribute to regional environmental benefits that are recognized by the State.

## **2. Project Objectives**

Project objectives are to clearly identify legal, regulatory, and institutional issues associated with water management and water transfers on conservation habitat; and quantify the impact of water management and water transfers actions on the GGS habitat. Other objectives include the development of performance measures and guidance documentation that growers and local and statewide agencies can use to quantify the impacts of water management actions or water transfers on habitat.

The goals of this project are to assess how wildlife friendly actions that utilize water, water transfers and water management actions affect GGS habitat. This project will monitor, assess and provide guidance on the impacts crop idling or shifting and water management actions on giant garter snake (GGS) habitat. This project will develop performance measures for monitoring the affects of water management and water transfer actions on habitat. In addition,

this project will develop protocols that growers and local agencies can use to develop or improve on existing efforts designed to provide GGS habitat.

The Project is an opportunity for AWMC to help promote water management actions practices among growers and to assist project applicants in the development, analysis, and implementation of wildlife friendly practices.

### **3. Conceptual Model**

The fundamental aspect of this project is to determine the affect of water management actions, including transfers, on habitat. The hypothesis is that altering water use will affect productivity for planned and unplanned actions that utilize water to sustain wildlife habitat. This project will quantify the affect of water management actions, wildlife friendly practices that utilize water and water transfers on habitat.

Three types of drivers will be examined for this analysis; passive, planned and full management. Passive actions include habitat created based on unintended flows in the water delivery and drainage system. This habitat can be the result of district or on-farm operations and its presence is not highly reliable. Planned actions that generate habitat can be associated with production agriculture or with managed wetlands. These actions, such as flood up of fall rice fields are in essence getting multiple benefits from a farmed field. The bulk of this analysis will focus on planned and unplanned actions that are associated with production agriculture.

Figure 1 shows the interaction between drivers and outcomes. To determine the efficacy of the actions, data on habitat, land and water use and infrastructure will be collected and analyzed. The spatial extent of the data will be the priority basins for GGS habitat. Temporal scale will be to follow the GGS through an agricultural production season (April – October). Using remote sensing for determining water consumption and a vegetative index will enable the development of indicators. Knowing key indicators ensures that the appropriate metrics are reported. By identifying and articulating metrics, local and statewide agencies can begin to establish habitat targets.

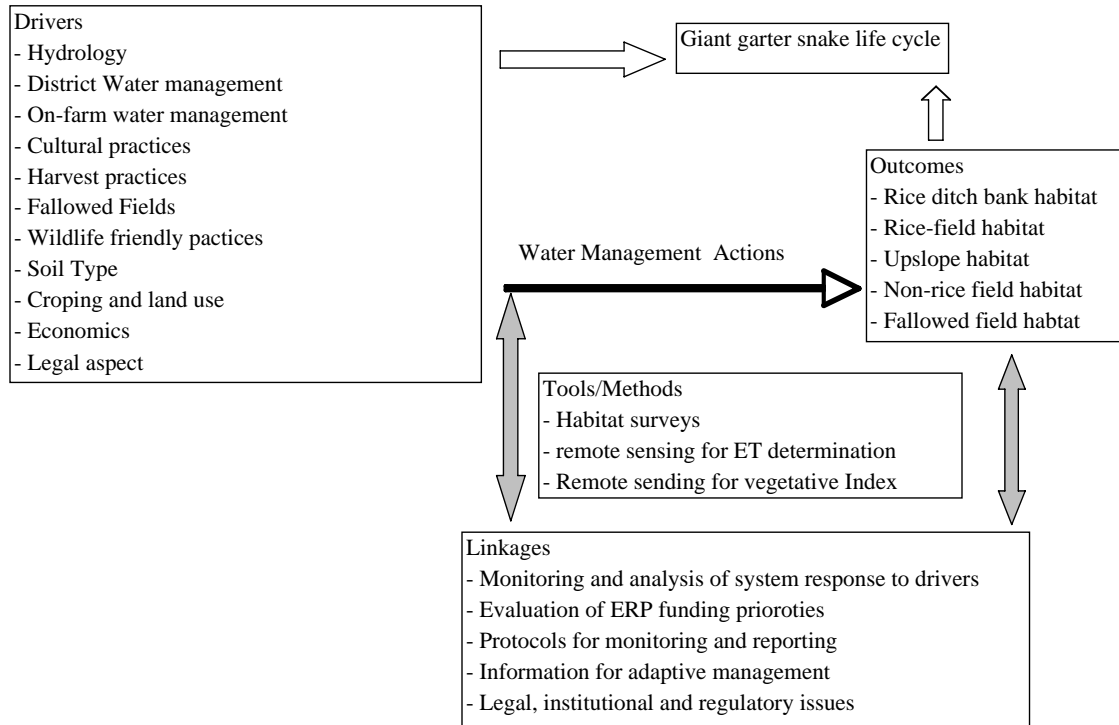


Figure 1. Conceptual model of drivers, linkages and outcomes for GGS habitat and water management agriculture.

#### 4. Approach and Scope of Work

This project will begin with an issues paper that lays out the legal, regulatory and institutional issues associated with the affected water management actions, wildlife friendly practices that utilize water and water transfers on habitat. Next a quantitative analysis will be conducted that uses habitat surveys, remote sensing to establish a vegetative index and to quantify the impacts of water management actions, wildlife friendly practices that utilize water and water transfers (collectively referred to as water management actions) on habitat. The information that is gained from the issues paper and the analysis will be utilized to develop a set of performance measures that funding agencies can use to monitor progress for these types of actions. In addition to performance measures for funding agencies, guidance documentation will be developed that local agencies and growers can use to quantify the affects of water management actions, wildlife friendly practices that utilize water and water transfers on habitat. The following details the tasks and deliverables.

**Task 1. Administration**

This task is specified in the budget for correspondence on grant administration, correspondence with funding agency and invoicing. Administration for each subsequent task is included through AWMC personnel.

Budget: \$5,185

**Task 2. Develop an issues white paper.**

The initial task of this project is to develop a white paper on the intersection between water management actions and habitat. The white paper will address legal, regulatory and institutional issues associated with water transfers and water management. Legal, institutional and regulatory requirements constrain the ability of local agencies and end users to participate in activities that provide water for habitat productivity or protection. Legal issues include water and property rights, regulatory requirements that involve various state and federal decisions for habitat enhancement and protection and institutional constraints that involve the ability of local, state and federal agencies to operate in a flexible manner for the habitat benefit.

Deliverable: A white paper that presents the institutional, legal and regulatory issues associated with water management actions, wildlife friendly practices that utilize water and water transfers on habitat.

Budget: \$15,100

**Task 3. Habitat identification.**

At least three levels of habitat and fallowed lands will be identified for analysis. Habitat levels will include passive, existing practices that support wildlife friendly agriculture and areas that are fully dedicated to supporting wildlife habitat. This will be done in all priority areas for GGS. Areas that are designated for wildlife habitat and traditionally farmed fields will serve as bookends where as the various agricultural friendly areas will serve as the variables. Habitat will be determined using a scientist that specializes in GGS habitat and in coordination with CALFED implementing agencies. In addition lands under a fallowing or crop shifting agreement will be identified and monitored for GGS. This effort will be accomplished by contacting local agencies to identify fallowed areas. Any lands that are identified as fallowed will be field verified. All information will be developed in a GIS format. The Natural Resources Conservation Service (NRCS) EQIP funding efforts will be used to guide habitat selection. Habitat identification will be done in two phases - one to support an initial analysis of water management actions and one to verify the affects of water transfers.



Deliverable: Technical memorandum that describes all data, procedures and results of analysis. GIS based maps that identify habitat that is suitable for GGS. Coverage will also include land use information such as crop type or native vegetation, irrigation method and water supplier service areas.

Budget \$66,100

#### **Task 4: Consumptive water use and vegetation information**

Using the GIS coverages developed in task 3, an analysis of evapotranspiration and the normalized difference vegetative index (NDVI) will be conducted using remote sensing. Images will be taken from LANDSAT 7 for row 44 path 33 – which roughly covers the Sacramento Valley from the north Delta up to Lake Oroville and from the coast range to the Sierra foothills.

The NDVI provides a means of monitoring vegetative density and vegetation growth using the spectral reflectivity of solar radiation. Green leaves commonly have larger reflectance in the near infrared than in the visible range. As the leaves come under water stress, become diseased or die back, they become more yellow and reflect significantly less in the near infrared range. Clouds, water, and snow have a larger reflectance in the visible than in the near infrared while the difference is almost zero for rock and bare ground. The differential index for water bodies such as rivers and dams have the opposite trend to vegetation and is negative.

Evapotranspiration from habitat will be determined using the surface energy balance algorithm for land (SEBAL). SEBAL uses spectral radiances recorded by satellite-based sensors, plus locally obtained meteorological, to solve the energy balance (Eq. 1) at the earth's surface. Local meteorological data will be collected through the California Irrigation Management Information System (CIMIS). The primary outputs are water consumption, or the actual (not reference or potential) evapotranspiration ( $ET_{act}$ ), and biomass production of agricultural crops and native vegetation on a  $90m^2$  pixel basis.

#### **Equation 1**

$$ET = Rn - G - H$$

Where ET = Evapotranspiration

Rn = Net Radiation

G = Soil Heat Flux

H = Sensible Heat Flux

SEBAL applies radiative, aerodynamic, and energy balance physics in a series of 25 computational steps. Evapotranspiration is computed as the closure term of the surface energy balance. Knowledge of land use and crop types is not needed, since all information, with exception of ground-based weather data, is obtained from the satellite image. The calculation of the  $ET_{act}$  is largely driven by the thermal channels of the satellite sensor. Instantaneous and daily  $ET_{act}$  and biomass production outputs are computed directly by SEBAL, and can be extrapolated to longer time periods of weeks or months using ratios of  $ET_{act}$  from SEBAL to reference ET computed from ground-based weather stations. Integration over time provides accurate seasonal and annual estimates of  $ET_{act}$  and biomass production with the same spatial resolution of the source image. Identified habitat will be followed through a production season with the remote sensing analysis being performed every 32 days, a total of six images will be processed.

Deliverable: Technical memorandum that describes all data, procedures and results of analysis. ArcInfo GRID files and EXCEL spreadsheet files containing actual ET and NDVI for each pixel in an image at a 90m<sup>2</sup> resolution. In addition SEBAL determined ET will be compared with the reference ET from the CIMIS database. The fraction of  $ET_a/ET_{ref}$  or  $K_c$  for every land use category will be compared with the generic  $K_c$  values from standard tables.

Each analyzed SEBAL image costs approximately \$3,500. Although money can be saved by eliminating up to 50% of the images, however the resolution of the analysis will also deteriorate. In addition the analysis effort is not scaled to the number of images but rather to the establishment of the relationship between the habitat area, the vegetative index and the consumptive use of water. Each additional image provides greater resolution and accuracy of ET and NDVI.

Budget: \$66,440

**Task 5. Analysis of water management actions, wildlife friendly practices that utilize water and water transfers on habitat.**

Known water management and water transfer actions will be analyzed for their impact on habitat identified in Task 3 and quantified in Task 4. An initial list of practices is given in Table 1. In this task on-farm and district water management actions and wildlife friendly practices that utilize water will be analyzed to determine their impact on water use. District actions that will be analyzed include spill reduction and canal lining. In general, these actions reduce the amount of water that that is utilized for unplanned habitat. On-farm actions that utilize water to improve habitat or attract wildlife taken from the Wildlife Friendly Agriculture document include the general categories of cover crops and other vegetation management practices, flooding of stubble and creation water based habitat. In addition to wildlife friendly

practices an analysis of the impacts of traditional water conservation techniques of conversion to sprinkler and microirrigation from surface irrigation will be conducted.

In addition to the practices listed in Table 1, the impact of water transfers will also be analyzed. For this analysis a data set that includes lands with habitat value that can be fallowed or undergo crop shifting will be developed. Lands under a fallowing or crop shifted routine identified in task 3 will be used to benchmark the ET and NDVI. As with the water management section of this task water transfers will be analyzed for their impact on habitat identified in Task 3 and quantified in Task 4.

For each of the actions listed in Table 1 there needs to be additional information such as the crop and irrigation method that is used and the depth of applied water. For example if the action that is being analyzed is delayed fall tillage what needs to be known is the habitat quality associated with this practice (Task 3), the crop that was in the field and the applied water. Coupling this information with the ET will quantify how efficient the practice is at providing a certain type of habitat. This information can then be compared with other practices to select the practice that is most beneficial to both the grower and the state. The NDVI information can be used to extrapolate the type of habitat so that regional information can be developed.

The same logic applies when one water management action is coupled to another water management action. For example, if a water suppliers goal is to reduce canal spill to provide a higher level of on-farm water management then the variables that would be considered are the reduction in habitat resulting from reduced canal spill and the affect that the action has on farm level practices such as tailwater runoff that also provide habitat.

For water transfers the analysis would be to look at the habitat quality ET value of fields fallowed at various stages such as after a growing season, following a cover crop or following a winter flood up. The differential in habitat along with the ET changes will be used to develop guidelines to quantify the affects of water transfers on habitat.

Deliverable: Technical memorandum that describes all data, procedures and results of analysis. This deliverable will contain a quantitative analysis of at least five of the actions listed in Table 1 along with a logical sequence of actions such as the reduction of district spills coupled with expanded operations of regulating reservoirs or on-farm regulating ponds.

Budget: \$61,220

**Table 1. Water management actions that potentially affect habitat. Low, medium and high indicates the difficulty of quantifying the action.**

<b>District Actions</b>
Spill reduction (medium)
Canal Lining (high)
Settling Basins (high)
Vegetation on conveyance facilities (high)
Infiltration basins (low)
Reuse of drain water (high)
Maintaining water in conveyance facilities (high)
Managing regulating reservoirs (high)
<b>On-farm Actions</b>
Delay fall tillage (low)
Flood harvested field (low)
Cover cropping of orchards (low)
Fallowed fields -water transfers (low)
Cover cropping of fallowed fields (low)
Tailwater ponds (medium)
Reuse of drainwater (high)
Maintaining water in ditches and drain (medium)
Managing regulating ponds (high)
Traditional surface irrigation methods (low)
Conversion of surface irrigation to micro or sprinkler irrigation (low)
Improved surface irrigation management (high)
<b>Non-farmed Areas Actions</b>
Perennial vegetation (low)
Shelterbelts (medium)
Ditchbank slope vegetation (high)
Native vegetation (high)
Managed wetland vegetation (high)

#### **Task 6. Performance measures.**

Performance measures track the implementation of program activities. This task is to take the information developed in Tasks 2 through 5 and develop performance measures for previous, current and proposed water management and water transfers on habitat. Performance measures

will identify the pre and post-project metrics that must be collected, identify a method to select targets, identify indicators that are required for informing program success and establishing appropriate goals.

Deliverable: Technical memorandum describing all data, procedures and results for the development of a system of indicators, targets and reporting metrics to use when monitoring water management programs targeted at providing habitat. Appropriate performance measures will be provided for local agencies and statewide program implementers.

Budget \$22,120

**Task 7. Develop guidance protocols on how to estimate the benefits of wildlife friendly agriculture for local agencies and growers.**

In this task protocols for local agencies and growers will be developed that provide step-by-step procedures for estimating the benefits derived from implementing actions defined in task 4. These protocols will provide information on the level and type of pre and post -project data to collect to determine implementation outcomes. The AWMC hosts several protocols for determining the benefits of water management actions. These actions would complement what is available by expanding the potential benefits that can be achieved from irrigation water management.

Budget: \$14,120

Deliverable: Technical memorandum describing all data, procedures and results for the development of a system of protocols to use when estimating pre-and post project information for program development. Protocols will be developed for five individual actions and five coupled actions such as the one described in the deliverable for task 5 above.

**Task 8. Public outreach for local agencies and growers.**

The objective of this task will be to take the information learned in this project out to potential implementers. Workshops will be conducted in the four priority basins. In addition a web based edition utilizing slide shows and narratives will be hosted by the AWMC.

Budget: \$7,300

Deliverable: Please see detail in section 9 of this proposal.

### **Task 9. Final Report**

The objective of this task is to provide a final report that embodies all work effort. The final report will include the technical memorandums prepared for each task, an overall summary and conclusions section as well as recommendations.

Budget: \$10,100

## **5. Performance Evaluation**

This section provides the monitoring plan for this project. Since this project is entirely a planning and outreach exercise the performance measures are somewhat limited to items that report on the quality of the information developed and the utility of the protocols outlined in task 7 under the approach and scope of work section. Currently the AWMC hosts ([www.agwatercouncil.org](http://www.agwatercouncil.org)) four monitoring and verification protocols that were developed for other water management actions. These protocols provide an idea of the type of information that will be developed.

A critical factor for project success is developing monitoring and evaluation protocols that are 1) practical and implementable by growers, 2) can be used by local agencies to craft programs and 3) result in the consistent collection, reporting, and management of relevant data that allows for the assessment and documentation of implementation performance. The monitoring and assessment plan is structured to monitor these criteria, as well as:

- Document the benefits of water management and water transfer actions on habitat and
- Determine the success of the Project in relation to project goals and objectives.

AWMC will collaborate with CALFED staff, other ERP participants and growers with the development of performance measures and monitoring and evaluation protocols. The benefits of the proposed project will largely be ensured through the collaborative development of the protocols, including the incorporation of suggestions and feedback received during development. Suggestions and feedback received from CALFED, ERP representatives and growers will be compiled and provided to CALFED to document that the feedback was included in the final protocols.

Project progress will be tracked by the AWMC and reported to CALFED, including both technical and budgetary progress. AWMC will append the project scope, schedule, and budget as needed. AWMC will submit progress reports and associated invoices with task level detail reflecting technical and budgetary progress during the proceeding time period. Invoices will be required to include the percent complete by task through the current invoice period. Project

progress will also be demonstrated through the submittal of deliverables as described in the Approach and Scope of work section.

AWMC has been careful to link the project goal and objectives to individual tasks described in the Statement of Work. The work and associated deliverables defined under each task directly relates to a corresponding project objective. A project objective will be successfully satisfied at the completion of each task. This direct link between project objectives and task activities/deliverables provides CALFED with direct evidence of the activities that will be completed to successfully satisfy each objective.

## **6. Feasibility**

For the most part this project is not dependent on other actions or activities to proceed. The one exception is task 3 under the scope of work where various types of habitat must be identified. However given that there are about 1.5 million acres of land within the Landsat image that will be analyzed it is highly likely that all habitat types will be identified.

The majority of this project is not dependent upon the participation of other agencies or organizations. AWMC is proposing to develop technical assistance materials and the project does not involve physical conditions or commodity markets. No permits or environmental or state agreements are necessary to complete this project. The Project does include the participation of ERP and CALFED representatives. However not much of their time is requested in the project.

Also, the AWMC has included in this proposal meetings with farmers and other grantees to review and comment on project findings. Although their participation in the project is not essential to the project's completion it would add value to the materials overall applicability and accuracy.

The overall schedule for the project is provided below.

	2007									2008									2009								
Assumes Contract Start Date of 1/1/07	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Task 1: Issue Paper																											
Task 2: Habitat Identification																											
Task 3: Analysis of Consumptive Use and Vegetation																											
Task 4: Analysis of Water Mgt Actions																											
Task 5: Performance measures																											
Task 6: Guidance protocols																											
Task 7: Public outreach																											
Task 8: Final Report																											

## 7. Data Handling and Storage

The AWMC has a track record of providing information to stakeholders and the general public. All deliverables developed, along with all raw data will be made available on the AWMCs website ([www.agwatercouncil.org](http://www.agwatercouncil.org)) and through CDs upon request. In addition the AWMC maintains a staff of three that are available to guide users to the various sections of their website.

AWMC will prepare Technical Memorandums along with each task to document the assumptions and methodology for developing the monitoring protocols. This will ensure the quality of the product. Reviewers will be able to trace the development of the methodology to ensure that the data generated from the use of the protocols developed in this project will be used in appropriate context. The goal of this project is to create monitoring protocols that can be duplicated for future projects and implementation of water management actions. For each deliverable the AWMC will supply CALFED with both a hard copy and an electronic copy for reference.

## 8. Information Value



The data and information developed from this project will significantly further the understanding of the relationship of water management actions and ecosystem benefits. The Project will improve growers and the state's understanding of the outcomes and effects from implementing water management actions. AWMC will create a structure for data recording that will allow for analysis of past, on-going and future agricultural related restoration efforts. The protocols will allow the State to begin consistent and comparable data collection on conservation activities and to evaluate contributions to the CALFED goals.

## **9. Public involvement and outreach**

AWMC will keep stakeholders updated and involved during implementation of the proposed Project. AWMC maintains relationships with the majority of the agricultural water suppliers, resource conservation districts in California, and county Farm Bureaus. AWMC will optimize these relationships to market the monitoring protocols to the growers. In addition, AWMC will pursue technical cooperation from environmental stakeholders during the process. Effective outreach is imperative to ensure grower participation and Project success.

AWMC public outreach objectives for the proposed Project include:

- Develop and implement a process whereby growers are informed of all project efforts; and
- Provide the opportunity for water suppliers and growers to share ideas and input on the analysis of actions.

Effective outreach efforts on the project are especially important to ensure grower and state participation. The activities described below will inform stakeholders on how implementation of the proposed project will demonstrate the benefits achieved by implementing conservation based farming practices. Also encouraging stakeholders to provide ideas and feedback will result in monitoring protocols that meet the needs of CALFED but are also feasible from a local agency or grower perspective. The outreach efforts seek to create a collaborative working environment where the results will meet the needs of all stakeholders.

AWMC will focus on three levels of outreach:

### Notification Activities

AWMC will use several methods to notify growers and the public of the Project. AWMC will mail an announcement to agricultural water supplier members, resource conservation districts, local Natural Resource Conservation Service offices, county Farm Bureaus, and state agencies. AWMC will post an announcement in an issue of the AWMC quarterly newsletter, Best

Management, and the Association of California Water Agencies newsletter, ACWA News, to notify the agricultural community about the project.

AWMC hosts a full functioning website at [www.agwatercouncil.org](http://www.agwatercouncil.org) that provides tools and resources for agricultural water suppliers and water users to support the advancement of water use efficiency activities. AWMC will add a feature to the website that describes the project, including the scope and schedule, at the beginning of the project. The monitoring protocols will be posted to the AWMC website alongside other technical resources that agricultural water suppliers can share with their water users.

#### Information Activities

AWMC will work to continuously provide information updates to interested parties. The main information activities will focus on helping users to apply the information contained in the user guides. AWMC will work to educate growers on the contents and methods in the user guides through public meetings and individual contact with Proposition 50 grant recipients.

AWMC will conduct public workshops (Task 8, section 5) at the conclusion of the Project as a training session for interested growers and local agencies. AWMC will publicize this meeting on its website and in the initial mailings as part of the notification activities. AWMC will work to try to time this meeting to be at the same time and location as regular AWMC quarterly meeting to boost meeting attendance. All interested parties will be encouraged to attend.

#### Participation Activities

In the initial mailings and website information on the Project, AWMC will include information regarding two public meetings. Disseminating meeting information in this way will ensure that the information reaches growers and other interested stakeholders.

The public meetings will be scheduled to correspond with critical milestones on the project. AWMC will conduct the first meeting after completing the white paper and obtaining the GIS and habitat delineation. The second meeting will be scheduled after the draft user guides are available. During these meetings, AWMC will explain the draft methodology and draft user guides and solicit stakeholder input. AWMC will attempt to schedule these meetings at the same times and locations as other regional agricultural meetings or conferences to increase public participation.

AWMC quarterly public meetings are attended by stakeholders in the agricultural community throughout the state including members of environmental and public interest groups, the academic community and representatives from DWR and USBR, and CBDA. AWMC will also invite additional stakeholders through the notification activities above.

**Deliverables:****Notification**

Mail project announcements to agricultural water suppliers, resource conservation districts, county Farm Bureaus, state agencies, and Proposition 50 grant recipients.

There will be two mailings; 1) to publicize regional meetings to solicit grower and stakeholder input on draft monitoring protocols; and 2) to publicize regional meetings to educate growers and stakeholders on how to use the monitoring guides.

Notification of the Project will be included in the AWMC quarterly newsletter publication, Best Management.

AWMC will notify other agricultural publications of the Project.

**Information**

Draft guidelines will be posted to the AWMC website for stakeholder comments.

Final guidelines will be available for download from the AWMC website.

Project progress reports will be given at the AWMC quarterly meetings.

Stakeholder Feedback-AWMC will host meetings in each of the priority basins to solicit grower and other stakeholder input and comments on the draft methodology used to develop the monitoring and verification protocols.

Training Sessions—AWMC will host a training session in each of the GGS priority basins to work with growers, water suppliers, other Proposition 50 grant recipients, and other interested stakeholders on how to use the protocols and user guides.

**B. Applicability to CALFED Bay-Delta Program and ERP Goals and priorities for this solicitation.****1. ERP priorities**

This project addresses monitoring and evaluation that assesses the impacts of cropping patterns and idling/shifting on giant garter snake and assess the efficacy of conservation practices on giant garter snake and other wetland dependent species. This project will focus on the priority areas outlined for the giant garter snake: Butte, Colusa, Sutter and American Basins. This project will quantify the benefit of the practices in accordance with the PSP documentation and

for those listed in Table 1 of this proposal. In addition this project will assess the impacts of water transfers on GGS habitat.

## **2. Relationship to other ecosystem restoration activities or program investments**

The Water Use Efficiency element of CALFED is an objective based program that pursues the CALFED goals through irrigation water management. Over the past four years there has been an effort to push irrigated agriculture to implement locally cost effective water management actions and to pursue grant funding for non-locally cost effective state benefits. One of the stated objectives

(<http://calwater.ca.gov/Archives/WaterUseEfficiency/WaterUseEfficiencyQuantifiableObjectives.shtml>) is to implement practices that support wildlife friendly agriculture. A major obstacle in this effort is that there is no quantified information that local agencies such as water and irrigation districts can use to design a program. By quantifying the benefits this proposal will enable greater participation by growers and local agencies.

## **C. Qualifications and Organizations**

The AWMC will be the fiscal agent for this proposal. AWMC is a non-profit organization established in 1996 dedicated to bringing together all interested parties in agricultural water management. AWMC formed as a result of AB 3616--the Agricultural Water Suppliers Efficient Water Management Practices Act of 1990. The purpose of AWMC is to work with agricultural water suppliers to improve water management efficiency and to demonstrate to the public and water industry how agricultural water and resources are efficiently used.

AWMC maintains a unique position in the agricultural community to provide technical assistance and data to water suppliers, water users, and the public interested in California water and resource management. AWMC has formed partnerships with the California Department of Water Resources, U.S. Bureau of Reclamation, California Bay-Delta Authority, California Department of Food and Agriculture as well as members from the agricultural community and environmental and public interest groups. All are signatories to the AB 3616 Memorandum of Understanding (MOU). Partnerships strengthen the consensus-based actions of the AWMC and ensure various points of view are represented in the AWMC actions. AWMC continues to seek partnerships with those interested in efficient water resource management. Over 100 water suppliers and water resources conservation districts are signatories to the AB 3616 MOU.

AWMC has a history of managing successful grants with CBDA, USBR, and DWR. This Project would be an extension of the many technical services AWMC provides to water suppliers and water users to improve water use efficiency. Many of the conservation farming practices involve water application, water management, and irrigation scheduling. Promoting wildlife friendly farming practices aligns with AWMC's purpose to advance water management while enhancing the natural environment. AWMC represents over 5.5 million irrigated acres, more than half of the state's total irrigated land.

**Kathryn Charlton; Project Administrator**

The Project Administrator will be Ms. Kathryn Charlton. Ms. Charlton is a resource economist and has been responsible for carrying out program activities for the AWMC since June 2002. With AWMC she has developed an outreach strategy to reach agricultural water suppliers that were not AWMC members, which has lead to the increased reporting of water management activities. She has directed several grants with USBR, DWR and CALFED, including a project to integrate the CALFED Targeted Benefits and Quantifiable Objectives into local water management actions. Ms. Charlton will be responsible for tracking project progress, submitting invoices, preparing user documents, as well as conducting all the stakeholder outreach activities.

This project will be managed by Dr. Mark Roberson, an independent consultant. Dr. Roberson has over sixteen years of experience in water management and has worked for growers, local, state and federal agencies on water management issues. Most recently he managed two projects for the US Bureau of Reclamation - a remote sensing project in the Southern San Joaquin Valley and the development of project monitoring and verification protocols and completed an analysis of the impacts of water use efficiency improvements on agricultural water use for the CALFED Bay-Delta Program. Dr. Roberson will be responsible for integrating the technical work and the primary author on all deliverables.

Mr. Peter Wijsman will be under contract to serve as the GIS expert. Mr. Wijsman recently completed a MS degree in the use of remote sensing of ET to analyze the impacts of fallowed land, water management and water transfers on water use efficiency. This project will expand the knowledge base by exploring the impacts of water management on wildlife friendly agriculture. Ms. Wisjman's responsibility will be to maintain the GIS that will be used for the analysis.

Other personnel that will be contracted include an expert in giant garter snake habitat and an ET/NDVI analyst. The habitat expert will be responsible for interfacing with the state and federal agencies and for delineating habitat wetland biologist/ecologist. The ET/NDVI analyst will be responsible for preparing ArcInfo grids with ET and NDVI information.

## **D. Budget, Cost Share and Matching funds**

The tasks presented in section 5 represent the necessary steps required to complete the project. The AWMC will contribute approximately \$10,000 to host and support web based activities of this project. The following lists each task and describes the impact of funding the various tasks separately.

<b>Task</b>	<b>Budget</b>	<b>Consequence if not fully funded</b>
1 Administration	\$5,185	
2 Issues Paper	\$15,100	This task provides a fully documented compilation of all pertinent information. Reducing this task would result in less detail and potentially an inadequate review of literature.
3 Habitat Identification	\$66,100	Can potential be reduced however there is an economy of scale issue where project cannot proceed without minimum funding. Completing a usable set of GIS images is critical for project success.
4 Consumptive Use and Vegetation Information	\$66,440	The cost to purchase and process an image is about \$4,000. A minimum of three is required to ensure that adequate temporal coverage is obtained however \$ this would dramatically reduce the quality of data. In addition there are fixed GIS analysis costs associated with the task.
5 Analysis of Water Management Actions	\$61,220	A reduction in funding for this task will result in fewer actions quantified.
6 Performance Measures	\$22,120	This task is essential for agencies to evaluate the success of existing practices and plan and monitor additional wildlife friendly efforts. A reduction in funding will result in less detail.
7 Guidance Protocols	\$14,120	Reduced funding will lead to the elimination of some protocols.
8 Public Outreach	\$7,300	Reduced number of workshops and public outreach efforts.
9 Final Report	\$10,100	This is essential
Total	\$267,685	

Cost sharing for this project is in the form of cooperation from growers, local agencies and the AWMC. Although the level of effort by growers and local agencies will not be significant it is

vital to the project's success. The AWMC will provide maintenance for hosting all deliverables on its website and for responding to inquiries.

## **E. Compliance with Standard Terms and Conditions**

The AWMC will comply with the terms of the ERP grant agreement template.

## **G. Literature Cited**

Ecosystem Restoration Program. 2005. Projects that assist farmers in integrating agricultural activities with ecosystem restoration. Proposal Solicitation Package.

California Bay Delta Authority website. PSP Tools

Wetlands Monitoring and Management – [www.sebal.us](http://www.sebal.us)

Surface energy Algorithm for Land (SEBAL). 2005. <http://www.waterwatch.nl/>

Farming for Wildlife. 1997. California department of Fish and Game.

Wisjman, P. 2005. Taking a closer look at water transfers in the Southern San Joaquin Valley. MS Thesis Irrigation and Water Engineering Group, Wageningen University, Netherlands.

## **H. Nonprofit Certification**



# Tasks And Deliverables

Task ID	Task Name	Start Month	End Month	Personnel Involved	Deliverables
2	Issues Paper	1	6	Charlton, Kathryn Roberson, Mark	1) A white paper that presents the institutional, legal and regulatory issues associated with water management actions, wildlife friendly practices that utilize water and water transfers on habitat.
3	Habitat identification	5	16	Charlton, Kathryn	1) Technical memorandum that describes all data, procedures and results of analysis. GIS based maps that identify habitat that is suitable for GGS. Coverage will also include land use information such as crop type or native vegetation, irrigation method and water supplier service areas.
4	Consumptive water use and vegetation information	5	15	Charlton, Kathryn Roberson, Mark Wijsman, Peter	1) Technical memorandum that describes all data, procedures and results of analysis. ArcInfo GRID files and EXCEL spreadsheet files

					containing actual ET and NDVI for each pixel in an image at a 90m2 resolution. In addition, SEBAL determined ET will be compared with the reference ET from the CIMIS database. The fraction of $ET_a/ET_{ref}$ or $K_c$ for every land use category will be compared with the generic $K_c$ values from standard tables.
5	Water management analysis	13	24	Charlton, Kathryn Roberson, Mark Wijsman, Peter	1) Technical memorandum that describes all data, procedures and results of analysis. This deliverable will contain a quantitative analysis of at least five of the actions listed in Table 1 along with a logical sequence of actions such as the reduction of district spills coupled with expanded operations of regulating reservoirs or on-farm regulating ponds.
6	Performance measures	7	27	Charlton,	1) Technical memorandum

				Kathryn Roberson, Mark	describing all data, procedures and results for the development of a system of indicators, targets and reporting metrics to use when monitoring water management programs targeted at providing habitat. Appropriate performance measures will be provided for local agencies and statewide program implementers.
7	Guidance protocols	22	29	Charlton, Kathryn Roberson, Mark	1) Technical memorandum describing all data, procedures and results for the development of a system of protocols to use when estimating pre-and post project information for program development. Protocols will be developed for five individual actions and five coupled actions such as the one described in the deliverable for task 5 above.
8	Public Outreach	25	31	Charlton, Kathryn	1) Mail project announcements. There will be 2 mailings;

				<p>first to publicize regional meetings to solicit grower and stakeholder input on draft monitoring protocols, and second to publicize regional meetings to educate stakeholders on guidance protocols.</p> <p>2) Notification of the project will be included in the AWMC quarterly newsletter publication. 3) AWMC will notify other agricultural publications of the project. 4) Draft guidelines will be posted to the AWMC website for stakeholder comments. 5) Final guidelines will be available for download from AWMC website. 6) Project progress reports will be given AWMC quarterly meetings. 7) AWMC will host meetings in each of the priority basins to solicit grower and other stakeholder input and comments on the draft methodology used to develop the</p>
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					monitoring and verification protocols. 8) Training sessions-AWMC will host a training session in each of the GGS priority basins to work with growers, water suppliers, and other Prop 50 grant recipients, and other interested stakeholders on how to use the protocols and user guides.
9	Final Report	31	33	Charlton, Kathryn Roberson, Mark	Final Report
1	Administration	1	33	Charlton, Kathryn	Invoices, Progress Reports

1/ Indicate your rate, and change formula in column immediately to the right of this cell
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.
3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

**Detailed Budget Breakdown by Task and by Fiscal Year**

BUDGET FOR TASK TWO	TOTAL AMOUNT TASK 2 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
<b>Personnel</b>										
Kathryn Charlton	\$ 6,100.00	\$ 61.00	100	\$ 6,100.00	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
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	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
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	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
<b>Personnel Subtotal</b>	<b>\$ 6,100.00</b>			<b>\$ 6,100.00</b>			<b>\$ -</b>			<b>\$ -</b>
1/ Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$6,100.00</b>			<b>\$6,100.00</b>			<b>\$0.00</b>			<b>\$0.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor; Mark Roberson @ \$100/hr	\$ 9,000.00			\$ 9,000.00			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 9,000.00</b>			<b>\$ 9,000.00</b>			<b>\$ -</b>			<b>\$ -</b>
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Two</b>	<b>\$ 15,100.00</b>			<b>\$ 15,100.00</b>			<b>\$ -</b>			<b>\$ -</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK THREE	TOTAL AMOUNT TASK 3 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
<b>Personnel</b>										
Kathryn Charlton	\$ 6,100.00	\$ 61.00	50	\$ 3,050.00	\$ 61.00	50	\$ 3,050.00	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -

Applicant Name

[illegible]



Proposal Number  
Proposal Name

### Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

<b>Personnel Subtotal</b>	<b>\$ 2,440.00</b>			<b>\$ 1,220.00</b>			<b>\$ 1,220.00</b>			<b>\$ -</b>
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$2,440.00</b>			<b>\$1,220.00</b>			<b>\$1,220.00</b>			<b>\$0.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor; Mark Roberson @ \$100/hr	\$ 4,000.00			\$ 2,000.00			\$ 2,000.00			\$ -
4/ Sub-Contractor; Peter Wijsman @\$50/hr	\$ 20,000.00			\$ 5,000.00			\$ 15,000.00			\$ -
4/ Sub-Contractor; Remote Sensing Specialist @\$150/hr	\$ 40,000.00			\$ 30,000.00			\$ 10,000.00			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 64,000.00</b>			<b>\$ 37,000.00</b>			<b>\$ 27,000.00</b>			<b>\$ -</b>
<sup>5/</sup> Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Four</b>	<b>\$ 66,440.00</b>			<b>\$ 38,220.00</b>			<b>\$ 28,220.00</b>			<b>\$ -</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK FIVE	TOTAL AMOUNT TASK 5 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
Personnel										
Kathryn Charlton	\$ 1,220.00	\$ -		\$ -	\$ 61.00	20	\$ 1,220.00	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
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	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
Personnel Subtotal	\$ 1,220.00			\$ -			\$ 1,220.00			\$ - -
										-
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
Personnel Total (salary + benefits)	\$1,220.00			\$0.00			\$1,220.00			\$0.00
Other Costs	Total All Years			Total Year 1			Total Year 2			Total Year 3

Proposal Number  
Proposal Name

### Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor; Mark Roberson @100/hr	\$ 45,000.00						\$ 45,000.00			\$ -
4/ Sub-Contractor; Peter Wijsman @ \$50/hr	\$ 15,000.00			\$ -			\$ 15,000.00			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 60,000.00</b>			<b>\$ -</b>			<b>\$ 60,000.00</b>			<b>\$ -</b>
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Five</b>	<b>\$ 61,220.00</b>			<b>\$ -</b>			<b>\$ 61,220.00</b>			<b>\$ -</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK SIX	TOTAL AMOUNT TASK 6 All Years	Year 1		Total Amount for Year 1	Year 2		Total Amount for Year 2	Year 3		Total Amount for Year 3
		Amount per hour	Number of Hours		Amount per hour	Number of Hours		Amount per hour	Number of Hours	
<b>Personnel</b>										
Kathryn Charlton	\$ 7,320.00	\$ 61.00	30	\$ 1,830.00	\$ 61.00	60	\$ 3,660.00	\$ 61.00	30	\$ 1,830.00
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
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	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
<b>Personnel Subtotal</b>	<b>\$ 7,320.00</b>			<b>\$ 1,830.00</b>			<b>\$ 3,660.00</b>			<b>\$ 1,830.00</b>
1/ Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$7,320.00</b>			<b>\$1,830.00</b>			<b>\$3,660.00</b>			<b>\$1,830.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ 800.00			\$ -			\$ 400.00			\$ 400.00
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor; Mark Roberson @\$100/hr	\$ 14,000.00			\$ 2,000.00			\$ 4,000.00			\$ 8,000.00
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -

Proposal Number  
Proposal Name

### Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 14,800.00</b>			<b>\$ 2,000.00</b>			<b>\$ 4,400.00</b>			<b>\$ 8,400.00</b>
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Six</b>	<b>\$ 22,120.00</b>			<b>\$ 3,830.00</b>			<b>\$ 8,060.00</b>			<b>\$ 10,230.00</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK SEVEN	TOTAL AMOUNT TASK 7 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
Personnel										
Kathryn Charlton	\$ 7,320.00	\$ -		\$ -	\$ 61.00	60	\$ 3,660.00	\$ 61.00	60	\$ 3,660.00
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
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	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
Personnel Subtotal	\$ 7,320.00			\$ -			\$ 3,660.00			\$ 3,660.00
										-
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
Personnel Total (salary + benefits)	\$7,320.00			\$0.00			\$3,660.00			\$3,660.00
Other Costs	Total All Years			Total Year 1			Total Year 2			Total Year 3
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc) 2/ Travel and Per Diem 3/ Equipment 4/ Sub-Contractor; Mark Roberson @ \$100/hr 4/ Sub-Contractor 4/ Sub-Contractor 4/ Sub-Contractor 4/ Sub-Contractor										
	\$ -			\$ -			\$ -			\$ -
	\$ 800.00			\$ -			\$ 400.00			\$ 400.00
	\$ -			\$ -			\$ -			\$ -
	\$ 6,000.00			\$ -			\$ 3,000.00			\$ 3,000.00
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
Other Costs Subtotal	\$ 6,800.00			\$ -			\$ 3,400.00			\$ 3,400.00
<sup>5/</sup> Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -

Proposal Number  
Proposal Name

**Detailed Budget Breakdown by Task and by Fiscal Year**

Applicant Name

<b>Total Costs for Task Seven</b>	<b>\$ 14,120.00</b>			<b>\$ -</b>			<b>\$ 7,060.00</b>			<b>\$ 7,060.00</b>
1/ Indicate your rate, and change formula in column immediately to the right of this cell										
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.										
3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet										
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")										
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification										
<b>BUDGET FOR TASK EIGHT</b>		<b>Year 1</b>			<b>Year 2</b>			<b>Year 3</b>		
	<b>TOTAL AMOUNT TASK 8 All Years</b>	<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 1</b>	<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 2</b>	<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 3</b>
	<i>Personnel</i>									
	Kathryn Charlton	\$ 6,100.00	\$ 61.00 20	\$ 1,220.00	\$ 61.00 20	\$ 1,220.00	\$ 61.00 60	\$ 3,660.00		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
<b>Personnel Subtotal</b>	<b>\$ 6,100.00</b>			<b>\$ 1,220.00</b>			<b>\$ 1,220.00</b>			<b>\$ 3,660.00</b>
1/ Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$6,100.00</b>			<b>\$1,220.00</b>			<b>\$1,220.00</b>			<b>\$3,660.00</b>
<i>Other Costs</i>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ 1,200.00			\$ -			\$ 400.00			\$ 800.00
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 1,200.00</b>			<b>\$ -</b>			<b>\$ 400.00</b>			<b>\$ 800.00</b>
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Eight</b>	<b>\$ 7,300.00</b>			<b>\$ 1,220.00</b>			<b>\$ 1,620.00</b>			<b>\$ 4,460.00</b>
1/ Indicate your rate, and change formula in column immediately to the right of this cell										
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.										
3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet										
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")										
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification										

**Detailed Budget Breakdown by Task and by Fiscal Year**

BUDGET FOR TASK NINE	TOTAL AMOUNT TASK 9 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
<b>Personnel</b>										
Kathryn Charlton	\$ 6,100.00	\$ -		\$ -	\$ -		\$ -	\$ 61.00	100	\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ 6,100.00
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
<b>Personnel Subtotal</b>	<b>\$ 6,100.00</b>			<b>\$ -</b>			<b>\$ -</b>			<b>\$ 6,100.00</b>
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$6,100.00</b>			<b>\$0.00</b>			<b>\$0.00</b>			<b>\$6,100.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor; Mark Roberson @ \$100/hr	\$ 4,000.00			\$ -			\$ -			\$ 4,000.00
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ 4,000.00</b>			<b>\$ -</b>			<b>\$ -</b>			<b>\$ 4,000.00</b>
<sup>5/</sup> Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Nine</b>	<b>\$ 10,100.00</b>			<b>\$ -</b>			<b>\$ -</b>			<b>\$ 10,100.00</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK TEN	TOTAL AMOUNT TASK 10 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
<b>Personnel</b>										
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -

Applicant Name

[illegible]

Proposal Number  
Proposal Name

**Detailed Budget Breakdown by Task and by Fiscal Year**

Applicant Name

<b>Personnel Subtotal</b>	\$ -			\$ -			\$ -			\$ -
1/ Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$0.00</b>			<b>\$0.00</b>			<b>\$0.00</b>			<b>\$0.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	<b>\$ -</b>			<b>\$ -</b>			<b>\$ -</b>			<b>\$ -</b>
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Eleven</b>	<b>\$ -</b>			<b>\$ -</b>			<b>\$ -</b>			<b>\$ -</b>

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK TWELVE	TOTAL AMOUNT TASK 12 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
Personnel										
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
Personnel Subtotal	\$ -			\$ -			\$ -			\$ - -
										-
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
Personnel Total (salary + benefits)	\$0.00			\$0.00			\$0.00			\$0.00
Other Costs	Total All Years			Total Year 1			Total Year 2			Total Year 3

Proposal Number  
Proposal Name

**Detailed Budget Breakdown by Task and by Fiscal Year**

Applicant Name

Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	\$ -			\$ -			\$ -			\$ -
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Twelve</b>	\$ -			\$ -			\$ -			\$ -

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes.  
No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK THIRTEEN	TOTAL AMOUNT TASK 13 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
<b>Personnel</b>										
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
<b>Personnel Subtotal</b>	\$ -			\$ -			\$ -			\$ -
1/ Benefits as percent of salary				\$0.00			\$0.00			\$0.00
<b>Personnel Total (salary + benefits)</b>	<b>\$0.00</b>			<b>\$0.00</b>			<b>\$0.00</b>			<b>\$0.00</b>
<b>Other Costs</b>	<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	\$ -			\$ -			\$ -			\$ -
2/ Travel and Per Diem	\$ -			\$ -			\$ -			\$ -
3/ Equipment	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -



Proposal Number  
Proposal Name

**Detailed Budget Breakdown by Task and by Fiscal Year**

Applicant Name

4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
4/ Sub-Contractor	\$ -			\$ -			\$ -			\$ -
<b>Other Costs Subtotal</b>	\$ -			\$ -			\$ -			\$ -
5/ Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -
<b>Total Costs for Task Thirteen</b>	\$ -			\$ -			\$ -			\$ -

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK FOURTEEN	TOTAL AMOUNT TASK 14 All Years	Year 1			Year 2			Year 3		
		Amount per hour	Number of Hours	Total Amount for Year 1	Amount per hour	Number of Hours	Total Amount for Year 2	Amount per hour	Number of Hours	Total Amount for Year 3
Personnel										
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -
Personnel Subtotal	\$ -			\$ -			\$ -			\$ -
										-
<sup>1/</sup> Benefits as percent of salary				\$0.00			\$0.00			\$0.00
Personnel Total (salary + benefits)	\$0.00			\$0.00			\$0.00			\$0.00
Other Costs	Total All Years			Total Year 1			Total Year 2			Total Year 3
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc) 2/ Travel and Per Diem 3/ Equipment 4/ Sub-Contractor 4/ Sub-Contractor 4/ Sub-Contractor 4/ Sub-Contractor 4/ Sub-Contractor										
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
	\$ -			\$ -			\$ -			\$ -
Other Costs Subtotal	\$ -			\$ -			\$ -			\$ -
<sup>5/</sup> Overhead Percentage (Applied to Personnel & Other Costs)				\$ -			\$ -			\$ -

Proposal Number  
Proposal Name

**Detailed Budget Breakdown by Task and by Fiscal Year**

Applicant Name

<b>Total Costs for Task Fourteen</b>		\$	-			\$	-			\$	-			\$	-
1/ Indicate your rate, and change formula in column immediately to the right of this cell															
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.															
3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet															
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")															
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification															
<b>BUDGET FOR TASK FIFTEEN</b>		<b>TOTAL AMOUNT TASK 15 All Years</b>	<b>Year 1</b>			<b>Year 2</b>			<b>Year 3</b>						
			<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 1</b>	<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 2</b>	<b>Amount per hour</b>	<b>Number of Hours</b>	<b>Total Amount for Year 3</b>				
<i>Personnel</i>															
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
<b>Personnel Subtotal</b>		\$	-			\$	-			\$	-			\$	-
1/ Benefits as percent of salary						\$0.00				\$0.00				\$0.00	
<b>Personnel Total (salary + benefits)</b>		<b>\$0.00</b>				<b>\$0.00</b>				<b>\$0.00</b>				<b>\$0.00</b>	
<i>Other Costs</i>		<b>Total All Years</b>			<b>Total Year 1</b>			<b>Total Year 2</b>			<b>Total Year 3</b>				
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)		\$	-		\$	-		\$	-		\$	-		\$	-
2/ Travel and Per Diem		\$	-		\$	-		\$	-		\$	-		\$	-
3/ Equipment		\$	-		\$	-		\$	-		\$	-		\$	-
4/ Sub-Contractor		\$	-		\$	-		\$	-		\$	-		\$	-
4/ Sub-Contractor		\$	-		\$	-		\$	-		\$	-		\$	-
4/ Sub-Contractor		\$	-		\$	-		\$	-		\$	-		\$	-
4/ Sub-Contractor		\$	-		\$	-		\$	-		\$	-		\$	-
4/ Sub-Contractor		\$	-		\$	-		\$	-		\$	-		\$	-
<b>Other Costs Subtotal</b>		\$	-		\$	-		\$	-		\$	-		\$	-
5/ Overhead Percentage (Applied to Personnel & Other Costs)					\$	-		\$	-		\$	-		\$	-
<b>Total Costs for Task Fifteen</b>		<b>\$</b>	<b>-</b>		<b>\$</b>	<b>-</b>		<b>\$</b>	<b>-</b>		<b>\$</b>	<b>-</b>		<b>\$</b>	<b>-</b>
1/ Indicate your rate, and change formula in column immediately to the right of this cell															
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.															
3/ Please provide a list and cost of major equipment (\$5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet															
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")															
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification															

# Environmental Compliance

## CEQA Compliance

Which type of CEQA documentation do you anticipate?

☒ none *Skip the remaining questions in this section.*

☐ negative declaration or mitigated negative declaration

☐ EIR

☐ categorical exemption *A categorical exemption may not be used for a project which may which may cause a substantial adverse change in the significance of a historical resource or result in damage to scenic resources within an officially designated state scenic highway.*

If you are using a categorical exemption, choose all of the applicable classes below.

☐ Class 1. Operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. The types of "existing facilities" itemized above are not intended to be all-inclusive of the types of projects which might fall within Class 1. The key consideration is whether the project involves negligible or no expansion of an existing use.

☐ Class 2. Replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.

☐ Class 3. Construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. The numbers of structures described in this section are the maximum allowable on any legal parcel, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

☐ Class 4. Minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

– Class 6. Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

– Class 11. Construction, or placement of minor structures accessory to (appurtenant to) existing commercial, industrial, or institutional facilities, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

Identify the lead agency.

*Please write out all words in the agency title other than United States (Use the abbreviation "US".) and California (Use the abbreviation "CA".).*

Is the CEQA environmental impact assessment complete?

If the CEQA environmental impact assessment process is complete, provide the following information about the resulting document.

**Document Name**

**State Clearinghouse Number**

If the CEQA environmental impact assessment process is not complete, describe the plan for completing draft and/or final CEQA documents.

## NEPA Compliance

Which type of NEPA documentation do you anticipate?

☒ none *Skip the remaining questions in this section.*

– environmental assessment/FONSI

– EIS

– categorical exclusion

Identify the lead agency or agencies.

*Please write out all words in the agency title other than United States (Use the abbreviation*

"US".) and California (Use the abbreviation "CA").

If the NEPA environmental impact assessment process is complete, provide the name of the resulting document.

If the NEPA environmental impact assessment process is not complete, describe the plan for completing draft and/or final NEPA documents.

Successful applicants must tier their project's permitting from the CALFED Record of Decision and attachments providing programmatic guidance on complying with the state and federal endangered species acts, the Coastal Zone Management Act, and sections 404 and 401 of the Clean Water Act.

Please indicate what permits or other approvals may be required for the activities contained in your proposal and also which have already been obtained. Please check all that apply. If a permit is *not* required, leave both Required? and Obtained? check boxes blank.

<b>Local Permits And Approvals</b>	<b>Required?</b>	<b>Obtained?</b>	<b>Permit Number (If Applicable)</b>
<b>conditional Use Permit</b>	-	-	
<b>variance</b>	-	-	
<b>Subdivision Map Act</b>	-	-	
<b>grading Permit</b>	-	-	
<b>general Plan Amendment</b>	-	-	
<b>specific Plan Approval</b>	-	-	
<b>rezone</b>	-	-	
<b>Williamson Act Contract Cancellation</b>	-	-	
<b>other</b>	-	-	

<b>State Permits And Approvals</b>	<b>Required?</b>	<b>Obtained?</b>	<b>Permit Number (If Applicable)</b>
<b>scientific Collecting Permit</b>	-	-	
<b>CESA Compliance: 2081</b>	-	-	

<b>CESA Compliance: NCCP</b>	-	-	
<b>Lake Or Streambed Alteration Agreement</b>	-	-	
<b>CWA 401 Certification</b>	-	-	
<b>Bay Conservation And Development Commission Permit</b>	-	-	
<b>reclamation Board Approval</b>	-	-	
<b>Delta Protection Commission Notification</b>	-	-	
<b>state Lands Commission Lease Or Permit</b>	-	-	
<b>action Specific Implementation Plan</b>	-	-	
<b>SWRCB Water Transfer Approval</b>	-	-	
<b>other</b>	-	-	

<b>Federal Permits And Approvals</b>	<b>Required?</b>	<b>Obtained?</b>	<b>Permit Number (If Applicable)</b>
<b>ESA Compliance Section 7 Consultation</b>	-	-	
<b>ESA Compliance Section 10 Permit</b>	-	-	
<b>Rivers And Harbors Act</b>	-	-	
<b>CWA 404</b>	-	-	
<b>other</b>	-	-	

<b>Permission To Access Property</b>	<b>Required?</b>	<b>Obtained?</b>	<b>Permit Number (If Applicable)</b>
<b>permission To Access City, County Or Other Local Agency Land Agency Name</b>	-	-	
<b>permission To Access State Land Agency Name</b>	-	-	
<b>permission To Access Federal Land Agency Name</b>	-	-	
<b>permission To Access Private Land Landowner Name</b>	-	-	

If you have comments about any of these questions, enter them here.

# Land Use

Does the project involve land acquisition, either in fee or through easements?

**X** No. *Skip to the next set of questions.*

– Yes. *Answer the following questions.*

How many acres will be acquired by fee?

How many acres will be acquired by easement?

Describe the entity or organization that will manage the property and project activities, including operation and maintenance.

Is there an existing plan describing how the land and water will be managed?

– No.

– Yes. *Cite the title and author or describe briefly.*

Will the applicant require access across to or through public or private property that the applicant does not own to accomplish the activities in the proposal?

– No. *Skip to the next set of questions.*

**X** Yes. *Answer the following question.*

Describe briefly the provisions made to secure this access.

**Wetland specialist may be need to access land for site inspection.**

Do the actions in the proposal involve physical changes in the current land use?

**X** No. *Skip to the next set of questions.*

– Yes. *Answer the following questions.*

Describe the current zoning, including the zoning designation and the principal permitted uses permitted in the zone.

Describe the general plan land use element designation, including the purpose and uses allowed in the designation.

Describe relevant provisions in other general plan elements affecting the site, if any.

Is the land mapped as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program?

☒ No. *Skip to the next set of questions.*

☐ Yes. *Answer the following questions.*

Land Designation	Acres	Currently In Production?
Prime Farmland		–
Farmland Of Statewide Importance		–
Unique Farmland		–
Farmland Of Local Importance		–

Is the land affected by the project currently in an agricultural preserve established under the Williamson Act?

☒ No. *Skip to the next set of questions.*

☐ Yes. *Answer the following question.*

Is the land affected by the project currently under a Williamson Act contract?

☐ No. *Skip to the next set of questions.*

☐ Yes. *Answer the following question.*

Why is the land use proposed consistent with the contract's terms?

Describe any additional comments you have about the projects land use.