

# Reclamation District No. 2068 Conjunctive Use Proposal

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## 1. Project Description

<b><i>Project Type:</i></b>	Conjunctive water management
<b><i>Location:</i></b>	Reclamation District No. 2068 (RD 2068 or District) service area, 15 miles southwest of Sacramento
<b><i>Proponent(s):</i></b>	RD 2068
<b><i>Project Beneficiaries:</i></b>	Government agencies, Bay Area water user, South-of-Delta user, RD 2068
<b><u>Total Project Components:</u></b>	Short-term components, full-scale construction of groundwater injection/extraction wells (or infiltration basins), a recharge water treatment system, and other conjunctive use facilities and capital improvements
<b><i>Potential Supply:</i></b>	Undetermined
<b><i>Cost:</i></b>	\$1,643,000 (short-term component); costs have not been evaluated for long-term project component
<b><i>Current Funding:</i></b>	1,000 to 2,000 acre-feet per year (ac-ft/yr)
<b><u>Short-term Components:</u></b>	Feasibility study and pilot project
<b><i>Potential Supply (by 2003):</i></b>	None
<b><i>Cost:</i></b>	\$1,643,000
<b><i>Current Funding:</i></b>	None
<b><i>Implementation Challenges:</i></b>	Concern from some that groundwater levels in the area would be lowered and existing or future groundwater use by area landowners might be impaired
<b><i>Key Agencies:</i></b>	Landowners, nearby resource/reclamation/irrigation districts, other governmental agencies

### Summary

The proposed project location covers the entire service area of RD 2068. RD 2068 is located about 15 miles southwest of Sacramento. If aquifer conditions near the main canal are acceptable, the proposed conjunctive use facilities (production and recharge wells) would

likely be located along the main canal near pumping stations PS2 and PS3 to facilitate distribution of the groundwater and access to recharge water.

RD 2068 irrigates approximately 13,000 acres, diverting approximately 50,000 acre-feet (ac-ft) of surface water annually. This water is withdrawn from Hass Slough (located in the north Delta). No irrigation wells operate within the District, so the aquifer underlying the District is essentially unused. Existing wells located near the District have produced 800 gallons per minute (gpm) to 4,000 gpm.

The intent of this conjunctive use program is to develop groundwater as a reliable substitute for current surface water diversions, and thereby make surface water available for other uses. During critical drought periods, groundwater withdrawal associated with the project could be increased, allowing more surface water to remain in the Sacramento River and the Delta or to be used by other water users.

The proposed conjunctive use program would entail substituting groundwater for some of the surface water withdrawn from Hass Slough (Delta water). A project well would be constructed to demonstrate the yield of the aquifer underlying the District. This single well is anticipated to produce 1,000 to 2,000 gpm (between 1,000 and 2,000 ac-ft per irrigation season). Potentially, a full-scale conjunctive use program could produce 10,000 ac-ft or more of groundwater per irrigation season. In dry years, groundwater could be used even more heavily than in normal years.

The sustainable yield of the aquifer underlying the District is currently unknown. It is, however, anticipated that this conjunctive use program would use only a portion of the sustainable yield of the aquifer. If necessary and feasible, the conjunctive use program could also include augmented recharge of the aquifer through infiltration facilities or use of injection/extraction wells during the wintertime. The water source for the infiltration facilities or injection wells would be runoff from the upstream watershed or water pumped from Hass Slough.

This conjunctive use program could result in up to 10,000 ac-ft annually of surface water not being used for irrigation on the District, and even more in dry years. This surface water could be transferred to a governmental agency to improve in-stream flows through the Sacramento River and the Delta. Alternatively, it could be provided to another water user, either a Bay Area user or a south-of-Delta user.

This project has two phases. The first phase is a feasibility study and pilot project, which is addressed in this proposal. Phase 1 would result in determination of the sustainable yield of the underlying aquifer, the potential for augmented recharge of the aquifer, identification and siting of required facilities, and actual demonstration of the conjunctive use program through a demonstration pilot injection/extraction well.

The second phase would be the full-scale construction of groundwater injection/extraction wells (or infiltration basins), an injection water treatment system, and other conjunctive use facilities and capital improvements. The second phase is not described in detail or covered by this proposal. The second phase will be defined based on the results of the first phase.

## Background

RD 2068 was formed in 1924 under the provisions of the Reclamation District section of the State Water Code, currently Division 15. Reclamation works included levees, drains, and a drainage pumping plant. Concurrent with the reclamation work, an irrigation system of pumping plants, canals, and distribution system was constructed. Water deliveries began in 1927.

The District irrigates approximately 13,000 acres, using approximately 50,000 ac-ft of surface water withdrawn from Haas Slough (Delta water) annually. Historically, this quantity has been as low as 38,000 ac-ft and as much as 70,000 ac-ft.

## Appropriative Water Rights

The District holds water right Licenses 6103 (Application 2318) and 9339 (Application 19229) and Permit 19205 (Application 24961). Table 21A-1 provides a brief summary of these rights. The water rights are for irrigation and recreation diversions.

**TABLE 21A-1**  
 Water Rights Summary  
 Reclamation District No. 2068 Conjunctive Use Proposal

Provisions	License 6103	License 9339	Permit 19205
Source	Haas Slough	Haas Slough	Dixon Drainage
Season	March 1 to October 31	November 1 to March 1	March 1 to October 31
Priority Date	April 22, 1921	February 11, 1960	December 23, 1975
Amount	200 cfs	42 cfs	55 cfs (not to exceed 20,000 ac-ft)
Purpose	Irrigation	Irrigation and recreation	Irrigation

cfs = cubic feet per second

## Statements of Water Rights Diversion

The District has filed 21 Statements of Diversion for water diverted from either constructed and/or natural drainages within the District.

## Other Water Rights

The District lands are included in and receive the contractual protections of the Contract Between State of California Department of Water Resources and North Delta Water Agency for the Assurance of a Dependable Water Supply of Suitable Quality (North Delta Contract). This contract recognizes rights based on riparian and appropriative claims and makes water quantity and water quality assurances to lands within the North Delta Water Agency.

Additionally, the District has agreements with Maine Prairie Water District (MPWD) and the Dixon Resource Conservation District (DRCD) for the transfer and use of water conveyed to the District by MPWD and DRCD through their respective and/or common drainage collection systems.

The District's surface water rights have historically provided sufficient supply to meet their irrigation needs. The District currently uses available supply to meet these needs.

## Proposed Project

There are two phases of this project. This proposal addresses the first phase, which would be a feasibility study and pilot project. The second phase would be the full-scale construction of groundwater injection/extraction wells (or infiltration basins), a recharge water treatment system, and other conjunctive use facilities and capital improvements.

## Short-term Component

As discussed above, RD2068's development of conjunctive water management facilities is expected to be accomplished in two phases. The first phase of this project, covered by this proposal, includes a feasibility study and a pilot project. This phase is described in the following work tasks listed below. Much of the work would be subcontracted to WYA, a consulting engineering firm. Construction of test borings, nested monitoring wells, and the pilot injection/extraction well would be subcontracted to a qualified drilling/construction contractor. The second phase is not described in detail or covered by this proposal. The second phase would be defined based on the results of the first phase.

The short-term component consists of the following tasks:

- Task 1 – Review and analysis of existing data
- Task 2 – Regulatory, environmental, permitting, and other issues
- Task 3 – Test borings and infiltration tests
- Task 4 – Nested monitoring wells
- Task 5 – Pilot injection/extraction well
- Task 6 – Draft and final reports
- Task 7 – Project management

Each of these tasks is described in detail below.

### Task 1: Review and Analysis of Existing Data

**Work Scope**—Existing surface and groundwater data would be collected and evaluated. Potential sources of data include:

- Solano Water Authority groundwater and well database - In 1993, WYA developed a database of existing groundwater, aquifer, and well information for this area. This would be updated to include any additional information available from:
  - Department of Water Resources – Well completion reports, groundwater elevations, and other surface and groundwater resources information for recently constructed wells.
  - United States Geological Survey – Hydrogeologic information.
  - Utility company water well pumping plant performance tests.
  - Professional organizations and companies such as Groundwater Resources Association and local drilling companies.

- On-site reconnaissance including detailed evaluation of up to six existing wells, including water quality sampling/analysis, pumping and well performance testing, and select well video surveys. The District does not currently own water wells, but because of the regional support of this project, nearby private well owners are expected to allow such reconnaissance.

After review and analysis of the existing data, the initial approach for development of a successful conjunctive use program would be evaluated and adjusted if necessary to integrate findings obtained from this initial analysis.

**Work Product**—The findings of Task 1 would be summarized in a technical memorandum.

## **Task 2: Regulatory, Environmental, Permitting, and Other Issues**

**Work Scope**—The project would be analyzed, and modified if necessary, to comply with federal, state, and local laws, regulations, and/or guidelines. Any permits required for construction of the pilot facilities (test borings, monitoring wells, and single injection/extraction well) would be identified and applications submitted. Permits required for implementation of the full conjunctive use program would also be identified. The District has an AB 3030 plan. The Solano Water Authority has implemented basinwide groundwater planning, with participation by RD 2068, Maine Prairie Water District, Solano Irrigation District, City of Vacaville, and Solano County Water Agency. The proposed project would be structured to be consistent with these programs.

This project is not expected to have significant environmental impacts. The potential water supply and environmental benefits and impacts would be identified. The requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) would be identified. A CEQA initial study would be prepared to determine if an Environmental Impact Report or a Negative Declaration needs to be prepared. If any potential impacts are identified, appropriate mitigation measures would also be developed. If impacts exist, a monitoring program would be developed to track the impacts and mitigation measures, including monitoring of the groundwater level.

The District Board of Trustees is supportive of evaluating the potential for a conjunctive use program. A meeting would be held to describe the proposed project to local stakeholders and the public. Potential stakeholders include the landowners, nearby resource/reclamation/irrigation districts, and other governmental agencies. The meeting would be advertised in the Dixon and Vacaville newspapers to encourage attendance by the general public. Social and economic issues would be identified and evaluated.

A financial analysis of the project would be prepared to determine if the project (revenues from sale of surface water) would generate sufficient funds to cover construction and operations/maintenance of project facilities required to implement the full conjunctive use program.

**Work Product**—The findings of Task 2 would be summarized in a technical memorandum.

## **Task 3: Test Borings and Infiltration Tests**

**Work Scope**—According to the review of the existing data, up to six test hole borings would be sited and completed. It has been assumed that the test borings would be 6 inches in

diameter, and would be about 400 to 600 feet deep. Accurate formation samples would be collected and preserved. A geophysical log of each boring would be performed and analyzed. Geologic cross-sections would be developed, as applicable, and preliminary groundwater quality would be determined from analysis of the borehole geophysical records. The suitability of available aquifers for conjunctive use would be determined. At the conclusion of this project, these test borings would either be converted into monitoring wells or destroyed in accordance with state and local requirements.

Up to six surface infiltration tests would be performed to evaluate the potential for using existing District channels and ponds for infiltration to recharge the underlying aquifer.

**Work Product**—The findings from the test boring program would be summarized in a technical memorandum, including a recommendation on where to site the nested monitoring wells.

#### **Task 4: Nested Monitoring Wells**

**Work Scope**—Nested monitoring wells would be designed and constructed at up to three selected locations. It has been assumed that the monitoring wells would include 18-inch-diameter holes equipped with three 4-inch casings screened at three separate aquifers. The monitoring wells are assumed to be about 400 to 600 feet deep. The completed monitoring wells would be pumped, and groundwater samples would be collected from potential aquifers and analyzed to determine water quality and preliminary aquifer characteristics.

After the aquifer properties have been determined, the potential yield in District water supply and improvements in supply reliability would be assessed. The potential to reduce dry-year surface water diversions would be evaluated. These wells would be maintained indefinitely and used as monitoring wells.

The injection of surface water into the groundwater basin may result in adverse water quality interactions. Water quality for both the groundwater and the surface water would be evaluated, and geochemical modeling would be used to assess mixing and water quality interactions. Specific tasks would include:

- Identifying data gaps and needs for geochemical modeling
- Performing additional sampling and analysis as needed to fill defined data gaps
- Conducting geochemical modeling to assess whether adverse impacts to the aquifer may result from the mixing of groundwater and surface water, to identify potential water quality compatibility issues between the native groundwater and raw surface water, and to determine if treatment of the surface water would be required prior to injection
- Developing a treatment process to resolved the problems if the results of the geochemical modeling indicate that adverse chemical interactions may occur

As indicated by the findings of this project, the natural recharge rate of the underlying aquifers would be estimated. Use of groundwater at the natural or augmented recharge rates constitutes a refinement of this project that would eliminate the need for the constructed recharge facilities.

**Work Product**—The findings of Task 4 would be summarized in a technical memorandum, including a recommendation for siting and preliminary design of a single full-scale injection/extraction well, including any needed water treatment facilities.

### **Task 5: Pilot Injection/Extraction Well**

**Work Scope**—Using the hydrogeologic data collected and analyzed above, a pilot injection/extraction well would be designed and constructed to demonstrate the potential of a full-scale conjunctive use well. This well would be a full-scale injection/extraction well, but it would be a pilot well because it would be the first of potentially several wells.

Well performance and aquifer evaluation tests would be performed and analyzed to determine or confirm well and aquifer parameters including specific capacity, transmissivity, and storativity. These tests would be performed at four constant flow rates for 2 hours and one constant test rate for 8 hours. The testing may include the use of a down-hole spinner/flowmeter survey that would be used to determine production rates from all perforated or screened zones within the well and provide injection and production profiles. The monitoring wells completed in Task 5 would serve as observation wells during these tests to assist in determining the well and aquifer parameters. A system of subsidence monitoring points would be constructed and monitored.

Initial injection testing and water quality sampling, if appropriate, would involve trial injection, backflush, and recovery in the production well to determine appropriate injection and recovery rates. Following the trial testing, short-term and intermediate testing cycles (including injection, storage, and recovery) would be performed.

Pressure transducers, data loggers, and other flow recording equipment would be used to collect data during these tests. Specific tasks would include:

- Conduct trial injection, backflush, and recovery of water in the production well to determine appropriate injection and recovery rates and refine testing protocol as needed
- Perform testing for a short-term period (3 to 4 days)
- Perform testing for an intermediate period (3 to 4 weeks)
- Evaluate all test results including injection and recovery rates and water quality

**Work Product**—The findings of Task 5 would be summarized in a technical memorandum.

### **Task 6: Draft and Final Reports**

**Work Scope**—The technical memoranda, well completion reports, geophysical logs, well and aquifer performance results, water quality results, design drawings, and other pertinent information would be combined into a draft report. The draft report would be submitted for review and comment. A final report would be prepared incorporating the received comments. If addressing the comments requires significant effort beyond that described in this work scope, a budget increase would be requested to cover the additional work.

The report would include estimates of the sustainable yield of the aquifer underlying the District under a range of recharge options (natural recharge, infiltration facilities, injection wells). A full-scale conjunctive use program would be developed to a preliminary design

level, including injection/extraction wells, infiltration facilities, and an appropriate water treatment system (if needed). Required facilities would be conceptually laid out, cost estimates would be prepared, and a financial analysis of the proposed program would be developed.

**Work Product**—Draft and final reports.

### **Task 7: Project Management**

**Work Scope**—Project management activities would include meetings, preparation of quarterly progress reports, coordination of subcontractors, design review of test borings, monitoring wells, and the injection/extraction well designs.

**Work Product**—Quarterly progress reports.

### **Long-term Component**

The primary purpose of this evaluation is to evaluate the potential for this project to provide water supply benefits in the short-term (by end of 2003). As part of this initial evaluation, potential long-term components of the proposed project (defined as any part of the project proceeding past or initiated after December 2003) have been considered on a conceptual level. Further consideration and technical evaluation of long-term component feasibility and cost will occur as the next level of review under the Sacramento Valley Water Management Agreement. Long-term-component project descriptions are included in these short-term project evaluations only as a guide to the reader to convey overall project intent.

### **Design and Construction of Conjunctive Use Facilities**

Phase 2 of this program is not covered by this proposal, but will be covered in a future proposal. Phase 2 would tier off the Phase 1 findings and would include final design, specifications, bidding, and contracting for construction, construction management, and development of operation procedures and manuals for facilities for a full-scale conjunctive use program.

### **Aquifer Characteristics**

Because the District has secure surface water rights, little detailed evaluation of the underlying aquifer has been performed. The most comprehensive study covering this area was performed by WYA for the Solano Water Authority. In 1993, WYA developed a database of existing groundwater, aquifer, and well information for this area. As part of this study (Task 1), this database and any other available information would be compiled to determine the underlying aquifer characteristics, groundwater levels, direction of flow, hydraulic gradient, recharge areas, and sustainable yield. Because this area is irrigated with surface water, a groundwater overdraft condition does not exist.

### **Conjunctive Use Facilities**

Currently, the District irrigates approximately 13,000 acres from a delivery system of 50 miles of canals, four primary surface water pumping plants, numerous agricultural drainwater recovery pumping plants, and 47 miles of associated drainage canals. Effectively, all land within the District has been developed for irrigated production agriculture.

The existence of the surface water delivery system and surface water entitlements has effectively negated the need to develop groundwater resources within the District's service area. The District has no operating irrigation or aquifer recharge wells within its jurisdiction.

The proposed conjunctive use facilities include groundwater extraction wells, infiltration facilities, and possibly injection/extraction wells and an injection water treatment system. The conjunctive use system would use the existing conveyance facilities to deliver the water across the District's service area. The District's existing distribution and drain channels would be modified slightly to be useable as infiltration facilities.

## Conjunctive Use Operations

Phase 1 of this project would determine the following:

- Aquifer characteristics – The underlying aquifer storage characteristics of transmissivity, specific yield, and porosity would be determined. Also, groundwater levels, direction of groundwater flow, hydraulic gradient, proximity to recharge areas, and sustainable yield would be determined. It would also be determined whether multiple aquifers exist.
- Recharge rates – Several potential recharge options exist, including:
  - Natural recharge – Natural recharge currently occurs from several sources including rainfall, irrigation with surface water, recharge from the Districts water conveyance channels and ponds, recharge from flooding of the Yolo Bypass, and recharge from the Yolo Bypass Wetlands.
  - Augmented recharge – The District has almost 100 miles of irrigation and drainage channels. The channels could be modified slightly to function as recharge facilities during the wintertime without significantly impacting their primary functions. The channels would be filled with standing water in the wintertime, permitting infiltration from the channels to the groundwater.
  - Injection wells – This would be the most complicated recharge option. It would entail evaluation of the chemical suitability and required treatment of the raw surface water for injection, determination of potential injection rates, and construction of treatment facilities and injection wells. Surface water would be injected into the underlying aquifer during the winter.

Pumping rates – The allowable pumping rates would be determined according to the selected recharge option. Pumping would be limited to prevent overdraft of the aquifer.

Ideally, the conjunctive use wells would most likely be located along the District's main canal, near pumping stations PS2 or PS3. These wells would be at least 4miles from the Sacramento River or the Hass Slough (Delta). Consequently, it is unlikely that there would be significant interaction between the wells and these surface water bodies. However, once the final well locations are selected and flow rates estimated, an evaluation of the potential for groundwater/surface water interaction would be conducted. Use of the groundwater would constitute development of a new water source, and thereby reduce the District's use of surface water. By locating the wells near the District's existing main canal, no new

distribution facilities would be needed. Groundwater quality and level monitoring would be implemented as part of this program.

The intent of this program would be to develop groundwater as a reliable substitute for current surface water diversions, and thereby make surface water available for other uses every year. During critical periods, more groundwater could be used, allowing more surface water to remain in the Sacramento River and the Delta or for use by other water users. The evaluation of the potential impacts of this project on groundwater and surface water would include an analysis of these increased groundwater production rates in drought conditions.

## **2. Potential Project Benefit/Beneficiaries**

The quantity of water that could be available as groundwater in this area is currently unknown. Because the District has secure surface water rights, little detailed evaluation of the underlying aquifer has been performed. Accurately determining availability of groundwater and the costs of developing a conjunctive use program are the primary goals of this phase of this project.

### **Water Supply Benefits**

One beneficiary of this project would be the water user or governmental agency to which the District can transfer a portion of its surface water. The recipient of the water transfer would receive reliable, high-quality water. The surface water could be acquired by a governmental agency for environmental uses such as increasing in-stream flows. Alternatively, the water could be provided to another water user, either a Bay Area user or a South-of-Delta user. No agency or organization has been identified for transfer of the unused surface water from the District.

RD 2068 would also benefit from this program. The District would realize increased revenue through transfer of surface water to another water user or governmental agency. The District's farmers would benefit because the District would use the increased revenues to help stabilize the cost of providing water to its service area.

This project is consistent with CALFED's water supply objectives, plans, and recommendations. In normal climatic years, the proposed project would result in development of a new water supply for RD 2068, which would reduce the quantity of water withdrawn from the Delta at Hass Slough. During dry years, the project could be utilized more heavily. The project would not result in an increased overall water demand for the District because the District boundaries are set, and are not expected to be enlarged. The project would provide both a short- and long-term water supply (the expected life of an appropriately maintained well is about 50 years or longer).

This project is also potentially consistent with CALFED's ecosystem quality objectives, plans, and recommendations. Water that is not pumped from the Delta at Hass Slough could be transferred to a governmental agency and remain in the Delta to increase in-stream flows, thereby improving the ecological functions in the Bay-Delta system. During dry years, the project could be more heavily used, further improving the ecological functions of the Bay-Delta system during the most critical periods.

## **Water Management Benefits**

The primary water management benefit would be the development of a new water supply, which would reduce the District's irrigation diversion from Hass Slough. If artificial recharge is required, it would be accomplished using excess wintertime local runoff or excess wintertime Hass Slough (Delta) flow and local sources.

The proposed project would result in development of a new water supply for RD 2068, which would reduce the quantity of water withdrawn from the Hass Slough (Delta). During periods when it is critical to reduce surface water diversions, the groundwater could be utilized more heavily, further reducing the water withdrawn from the Hass Slough (Delta).

The project would not result in an increased overall water demand for the District because the District service area is completely formed and is not expected to be enlarged. The project would provide the District with a more reliable short- and long-term water supply by increasing their operational flexibility. The expected life of an appropriately maintained well is about 50 years.

## **Environmental Benefits**

Water that is not pumped from the Hass Slough (Delta) could be transferred to a governmental agency and remain in the Hass Slough (Delta) to increase in-stream flows, thereby improving the ecological functions in the Bay-Delta system. During critical periods, the project could be more heavily used, further improving the ecological functions of the Bay-Delta system during the most critical periods.

## **3. Project Costs**

The cost opinions shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation from the information available at the time of the estimate. It is normally expected that cost opinions of this type, an order-of-magnitude cost opinion, would be accurate within +50 to -30 percent. Project costs were developed at a conceptual level only, using data such as cost curves and comparisons with bid tabs and vendor quotes for similar projects. The costs were not based on detailed engineering design, site investigations, and other supporting information that would be required during subsequent evaluation efforts.

The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the final project costs will vary from the opinions presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

### **Phase 1 Cost Estimate**

The proposed project budget is \$1,643,000 and is presented in Table 21A-2 by work task. The work tasks are described in Section 1.

**TABLE 21A-2**  
 Project Budget  
*Reclamation District No. 2068 Conjunctive Use Proposal*

Work Task	Total Project Budget (\$)
1. Review Existing Data	21,000
2. Regulatory, Environmental, Permitting, and Other Issues	42,000
3. Test Borings	155,000
4. Nested Monitoring Wells	485,000
5. Injection/Extraction Well and Treatment System	403,000
6. Draft and Final Report	124,000
7. Project Management	30,000
Subtotal	1,260,000
Contingency (30%)	378,000
Land	5,000
<b>Total</b>	<b>1,643,000</b>

This budget does not include cost of land easements and right-of-way not already owned by the District.

## Funding

Funding for this project is being sought from sources beyond the District. A CALFED grant application was submitted for this program, but was declined. If funding for this project is not secured, the District will not fund or finance this project.

## 4. Environmental Issues

This project is primarily an exercise in data collection and analysis. Minimal physical impacts are anticipated to occur as a result of the project. The monitoring wells would be sited to minimize any disruption of local terrestrial habitats and species. Environmental improvements would not occur as a direct result of the project; however, data would be generated from the project that could be used to evaluate future conjunctive use projects. It is anticipated that the appropriate level of environmental documentation for the project would be a Categorical Exclusion/Categorical Exemption, requiring a very minimal degree of effort.

The District has an AB 3030 plan. The Solano Water Authority has implemented basinwide groundwater planning, with participation by RD 2068, Maine Prairie Water District, Solano Irrigation District, City of Vacaville, and Solano County Water Agency. The proposed project would be structured to be consistent with these programs.

A draft CEQA environmental checklist has been prepared for this proposed project and is included as an attachment to this evaluation. The checklist provides a preliminary assessment of the environmental areas of concern, as well as areas that are not likely to be of concern, associated with this project. The checklist would be finalized as part of the environmental compliance required for project implementation.

## **5. Implementation Challenges**

The following sections discuss potential challenges to the successful implementation of the proposed project.

### **Public Perception**

Landowners have significant concern regarding possible groundwater overdraft. While the aquifer recharge aspects of this project may go a long way to alleviate these concerns, overdraft likely would remain a concern throughout the various stages of this project from feasibility analysis through construction and very likely continue thereafter. Monitoring and modeling of groundwater levels would not only be an essential part of this project technically, but also politically. Further, public concern accompanies any water delivery project (particularly during dry years) with regard to whom any project may or may not benefit.

### **Lack of Sufficient Groundwater Data**

Key elements in this proposal are the assumptions that the drawdown of the groundwater levels in the area would not have significant regional impacts on the groundwater system and that groundwater withdrawals would not have a substantial effect on dry-season flows in either Haas Slough or the Sacramento River. At present, there is not enough data to evaluate these assumptions. Data collected during the literature review and field testing portions of this project would be used to test these assumptions since adequate analysis of the proposed hydrogeologic system and safe yield estimates for the aquifer cannot be estimated without detailed knowledge of the area's hydrogeology.

### **Water Rights Implications**

It is anticipated that the operation of this project would occur within the guise of the District's existing water rights. Decreases in surface water diversions would be anticipated in some years, while full contract quantities would be used in other years.

### **Key Stakeholders**

The District Board of Trustees is supportive of evaluating the potential for a conjunctive use program, but does not want to impact other agencies or individuals. A meeting would be held at the start of the project to describe the proposed project to local stakeholders and the public. Potential stakeholders include the landowners, nearby resource/reclamation/irrigation districts, and other governmental agencies. All of the key potential stakeholders would be contacted and asked to attend a stakeholder meeting. The stakeholder meeting would also be advertised in the Dixon, Davis, and Vacaville newspapers to encourage the general public to attend. The meeting would cover technical aspects of the project as well as social and economic issues.

It is not expected that there would be significant opposition to this project. The primary concern might be that the groundwater level would be lowered and existing or future groundwater use by area landowners might be impaired. This concern, and others raised by stakeholders, would be addressed in the study.

## **6. Implementation Plan**

The following major tasks would be required to implement the project. Each task depends on successful completion of the previous supporting tasks and findings that support further actions, although the long-term project could be implemented in the absence of the short-term component. Figure 21A-2 shows an assumed implementation schedule based on typical time requirements for each task in a project of this scale.

### **Task 1: Review and Analysis of Existing Data**

Review and analysis of the existing data could begin immediately upon project funding. Data would be collected from the sources listed in the task description provided in Section 1 and a conceptual model of the site geology and hydrology developed (2 months).

### **Task 2: Regulatory, Environmental, Permitting, and Other Issues**

Regulatory and environmental assessments, along with acquisition of the necessary permits would be completed using the preliminary design as the basis for the permitting requirements (5 months).

### **Task 3: Test Borings and Infiltration Tests**

The test borings would be constructed following completion of the literature review task. The site conceptual model developed for the site would be used to select the locations of the test borings (3 months).

### **Task 4: Nested Monitoring Wells**

The construction of the nested monitoring wells would occur following completion of the test borings. Information obtained from the construction and testing of the test boring would be used to select target screen intervals for the nested monitoring wells (3 months).

### **Task 5: Pilot Injection/Extraction Well**

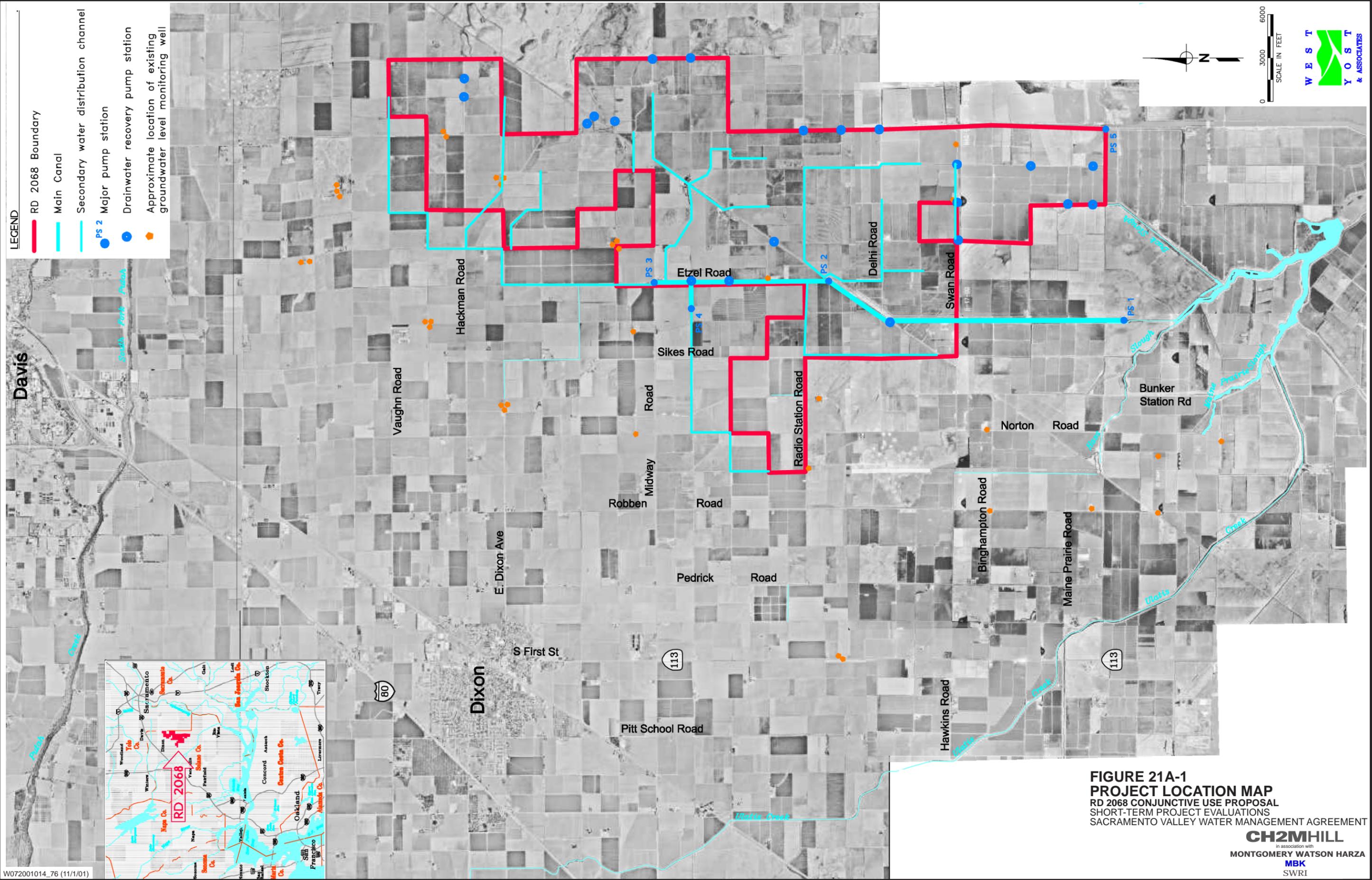
The construction of the pilot injection/extraction well would occur following the completion and testing of the nested monitoring wells (5 months).

### **Task 6: Draft and Final Reports**

The draft and final versions of short-term component project report would occur following the completion of all field construction and testing activities, along with all analyses of data collected during pilot testing (3 months).

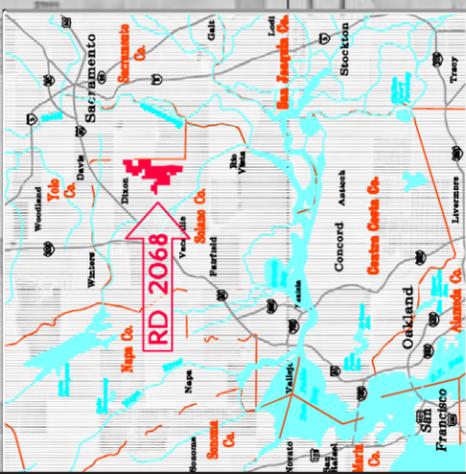
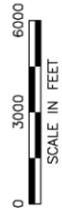
### **Task 7: Project Management**

Project management would occur coincident with all of the tasks associated with the project (13 months).

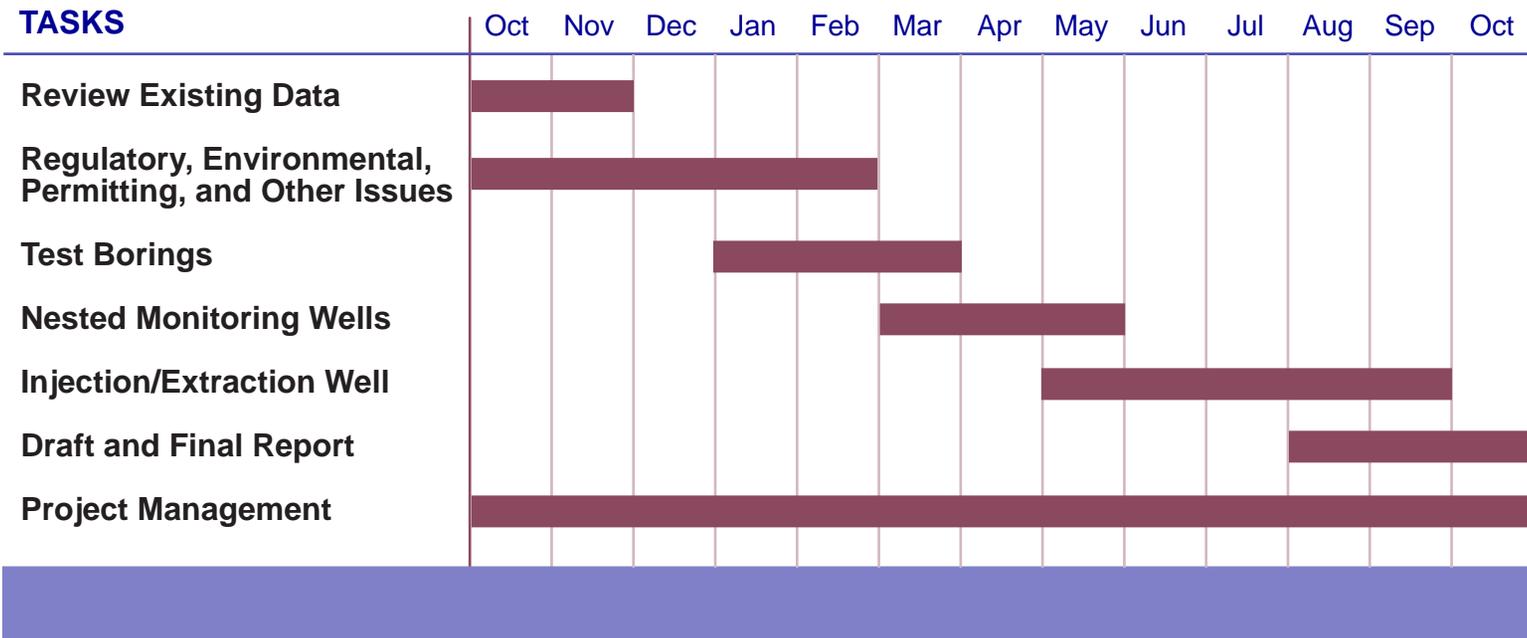


**LEGEND**

- RD 2068 Boundary
- Main Canal
- Secondary water distribution channel
- PS 2 Major pump station
- Drainwater recovery pump station
- Approximate location of existing groundwater level monitoring well



**FIGURE 21A-1  
PROJECT LOCATION MAP**  
RD 2068 CONJUNCTIVE USE PROPOSAL  
SHORT-TERM PROJECT EVALUATIONS  
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT



**FIGURE 21A-2**  
**PRELIMINARY IMPLEMENTATION SCHEDULE**  
 RD 2068 CONJUNCTIVE USE PROPOSAL  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT  
 SHORT-TERM PROJECT EVALUATIONS



**Project 21A—Draft CEQA  
Environmental Checklist**

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## Project 21A—Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                    | <input type="checkbox"/> Agriculture Resources              | <input type="checkbox"/> Air Quality            |
| <input type="checkbox"/> Biological Resources          | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology/Soils          |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality            | <input type="checkbox"/> Land Use/Planning      |
| <input type="checkbox"/> Mineral Resources             | <input type="checkbox"/> Noise                              | <input type="checkbox"/> Population/Housing     |
| <input type="checkbox"/> Public Services               | <input type="checkbox"/> Recreation                         | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems     | <input type="checkbox"/> Mandatory Findings of Significance |   |

### Determination:

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
For

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>I. AESTHETICS</u> —Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>II. AGRICULTURE RESOURCES</u> —Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>III. AIR QUALITY</u> —Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>IV. BIOLOGICAL RESOURCES—Would the project:</b>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?  <i>Up to six test hole borings, and up to three monitoring wells may be necessary to adequately monitor ground-water resources in Reclamation District 2068. These borings and wells may be required to be placed in environmentally sensitive areas. The borings and wells would be sited to minimize any disruption of local habitat areas.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?  <i>See response to IV (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or, impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?  <i>See response to IV (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>V. CULTURAL RESOURCES—Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?  <i>A significant impact would occur if a cultural resource were to be disturbed by activities associated with project development. In the event that an archaeological resource was discovered, appropriate measures would be undertaken to minimize any impacts.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?  <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?  <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>VI. GEOLOGY AND SOILS</b> —Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>VII. HAZARDS AND HAZARDOUS MATERIALS</b> —Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?  <i>Construction equipment would require the use of potentially hazardous materials. The potential for significant hazardous material spill would be unlikely because of the limited amount of such materials that would be used onsite. If a spill or release of such materials were to occur, it could potentially be significant unless best management practices (BMPs) were implemented.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?  <i>See response to VII (a) above.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>VIII. HYDROLOGY AND WATER QUALITY—</b>				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>There are serious concerns about the long-term draw-down of the groundwater table and land subsidence. Model development would help in determining the effects of increased groundwater pumping. Minimal pumping of groundwater would occur as a result of the monitoring program and model development; however, the impact is considered to be less than significant to groundwater supplies.</i>				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>IX. LAND USE AND PLANNING</b> —Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>X. MINERAL RESOURCES</b> —Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XI. NOISE</b> —Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.  <i>Short-term noise levels are expected to increase for the duration of construction of each monitoring well. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. <i>See response to XI (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XII. POPULATION AND HOUSING—Would the project:</b>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XIII. PUBLIC SERVICES—Would the project:</b>				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>XIV. RECREATION—Would the project:</b>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XV. TRANSPORTATION/TRAFFIC</u> —Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XVI. UTILITIES AND SERVICE SYSTEMS</u> —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XVII. MANDATORY FINDINGS OF SIGNIFICANCE</u>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>