

# Sutter Extension Water District Sutter-Butte Main Canal Lining Project

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## 1. Project Description

<b><i>Project Type:</i></b>	System improvement
<b><i>Location:</i></b>	Butte and Sutter counties
<b><i>Proponent(s):</i></b>	Joint Water Districts Board—Sutter Extension Water District (SEWD), Butte Water District, Biggs/West Gridley Water District, Richvale Irrigation District
<b><i>Project Beneficiaries:</i></b>	Joint Water Districts, Gray Lodge Wildlife Area, and Sutter National Wildlife Refuge (NWR)
<b><u>Total Project Components:</u></b>	Short-term components, lining Sutter-Butte Main Canal
<b><i>Potential Supply:</i></b>	24,000 acre-feet per year (ac-ft/yr) reduction in Feather River diversions
<b><i>Cost:</i></b>	\$29.3 million
<b><i>Current Funding:</i></b>	None
<b><u>Short-term Components:</u></b>	Conduct field studies, obtain environmental and construction permits, develop final construction drawings and specifications
<b><i>Potential Supply (by 2003):</i></b>	None
<b><i>Cost:</i></b>	\$5.9 million (\$1.3 million field investigation and feasibility, \$4.6 million permitting and design)
<b><i>Current Funding:</i></b>	None
<b><i>Implementation Challenges:</i></b>	Construction scheduling, environmental concerns related to riparian habitat along the canal, potential impacts to groundwater levels, recharge to the Feather River
<b><i>Key Agencies:</i></b>	California Department of Water Resources (DWR), State Water Contractors, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), Butte County, Sutter County, U.S. Bureau of Reclamation (USBR)

## Summary

The purpose of this project is to evaluate and potentially implement lining of the Sutter-Butte Main Canal (Main Canal). The Main Canal delivers Feather River water supply to four districts that are located generally south and west of Lake Oroville and the Feather River along the eastern side of the Sacramento Valley—Richvale Irrigation District, Biggs/West Gridley Water District, Butte Water District, and the Sutter Extension Water District. Figure 12B-1 illustrates the project area. These four water districts hold senior water rights on the Feather River, pre-dating the State Water Project. Following the construction of the Sate Water Project’s Oroville Dam and related downstream facilities, the canal began taking supply from a new turnout on the Thermalito Afterbay. The canal route runs roughly north to south, with major turnouts to each of the four districts’ internal distribution systems. The canal is approximately 17 miles long, and is unlined. The existing operating capacity ranges from approximately 1,600 cubic feet per second (cfs) at the upstream end to approximately 500 cfs at the downstream end. Operation and maintenance (O&M) of the Main Canal is conducted by the Joint Water Districts Board, which includes representatives of each of the four districts.

The canal has typically operated form early April to October, and is shut down in the winter for maintenance. In recent years the canal has continued operation as late as December to provide water for rice straw decomposition and flood-up water for duck clubs and two wildlife refuges (the Gray Lodge Wildlife Area and the Sutter National Wildlife Refuge). Annual water delivery for a typical year is shown in Table 12B-1, based on 1998 data.

**TABLE 12B-1**  
 1998 Annual Water Delivery from the Sutter-Butte Main Canal  
*Sutter Extension Water District Sutter-Butte Main Canal Lining Project*

<b>Water District</b>	<b>Water Delivery (ac-ft/yr)</b>
Richvale	32,500
Biggs/West Gridley	158,000
Butte	67,000
Sutter Extension	118,000
<b>Total</b>	<b>375,500</b>

The seepage losses along the Main Canal are estimated by the Joint Water Districts Board to be approximately 1 percent of the conveyance flow per mile. The seepage loss estimated by the Joint Water Districts Board translates to approximately 31,500 ac-ft/yr. The proposed canal lining would reduce the canal seepage to approximately 2 percent of the total annual conveyance volume, or approximately 7,500 ac-ft/yr. The reduced seepage rate would reduce required Feather River diversions to the Joint Water Districts Board canal by approximately 24,000 ac-ft/yr.

## Short-term Component

Short-term components of this project, which could be completed by the end of 2003, would include:

- Field investigations for engineering and environmental evaluations, in support of a conceptual design and feasibility study for the canal lining
- Preliminary design based on the findings of the above work
- Completing the environmental assessment/initial study (EA/IS), and if necessary the environmental impact study/environmental impact report (EIR/EIS).
- Final design and producing drawings and specifications for construction

These components are discussed in greater detail under Section 6, Implementation Plan.

## 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.

The long-term component of the project, completed by early 2005, would be the lining of the Main Canal.

## 2. Potential Project Benefits/Beneficiaries

The primary water supply and management benefit of the canal lining would be reduced seepage losses, which in turn would reduce diversions of Feather River surface water supplies from the Thermalito Afterbay. This reduced diversion quantity could then be stored in Oroville Reservoir and its release could be managed to serve other beneficial uses. The canal lining would also increase the canal's capacity, improve operations efficiency, help control nuisance weeds, possibly reduce overall O&M costs, and allow for year-round operation of the lined portion of the canal. The project may also allow the removal (or greatly reduced operation) of the Sutter Extension Water District's Sunset Pump Station. This pump station is used to supplement Sutter Extension Water District supply when the Main Canal is at maximum capacity and cannot deliver adequate supply to the upper end of the Sutter Extension Water District system. With the increased canal capacity, it may be feasible to either remove or reduce the operation of this pump station. The Sunset Pumps currently divert approximately 66,500 ac-ft of water annually from the Feather River to augment water supply for the Sutter Extension Water District. Regional benefits in the form of reduced energy consumption by the Sunset Pumps could also accrue from project implementation.

## Other Beneficiaries

USBR, in cooperation with USFWS and CDFG are currently evaluating a range of improvements to the Biggs/West Gridley Water District and Sutter Extension Water District conveyance systems to allow these districts to convey water to the Gray Lodge Wildlife Area and Sutter NWR. The lining of the Main Canal would support the ability to make winter season deliveries to the refuges, depending on the final scope of improvements to each district's internal distribution facilities.

## 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.

Table 12B-2 is a planning-level estimate of project costs. The total project cost is \$29.25 million. Of this total, the canal lining accounts for approximately \$18 million (as estimated by the project proponents); contingencies and allowances are \$5.4 million; and engineering, environmental, construction management, and administration costs are \$5.85million.

**TABLE 12B-2**  
 Planning-level Project Costs  
*Sutter Extension Water District Sutter-Butte Main Canal Lining Project*

Item	Quantity	Units	Unit Price	Total Cost (x 1,000)	Assumptions
Canal Lining	--	--	--	\$18,000	Construction costs estimated by Joint Water Districts Board
			Contingencies and Allowances (30%) ->	\$5,400	
			Total Construction Costs ->	\$23,400	
			Engineering, Environmental, Construction Management and Admin. (25%) ->	\$5,850	
			<b>Total Initial Project Cost -&gt;</b>	<b>\$29,250</b>	

## 4. Environmental Issues

As noted in Section 2, this project is anticipated to provide benefits in the form of reduced surface diversions from the Thermalito Afterbay, increased capacity, and more stabilized

and reliable delivery. Additionally, the project could provide environmental benefits by potentially eliminating the need for the Sunset Pumps, which would eliminate any potential for fish entrainment or impingement.

Canal lining would remove existing riparian vegetation and may result in habitat loss for various species of concern. Riparian vegetation and habitat loss are of special concern between the Thermalito Diversion and combined diversion for Richvale and Biggs/West Gridley. This reach of the canal is ill-defined, and resembles a natural meandering stream with an established riparian zone. It is possible that this reach could remain unlined while still retaining most of the project's intended benefits. The feasibility study would evaluate the pros and cons of leaving this portion of the canal unlined.

Because of the close proximity between the Sutter-Butte Main Canal and the Feather River, a high correlation between canal seepage and river recharge is expected and requires investigation. Reduced river recharge may diminish the water conservation benefit of the project and cause adverse environmental impacts. Field investigations and evaluation of groundwater flow patterns in the area would help determine the extent of the linkage between the canal seepage and Feather River recharge to or from the adjacent groundwater.

Construction-related impacts would occur during project implementation. Construction-related impacts would be similar to other, common construction projects that occur near seasonal drainages and waterways. It is likely that the appropriate level of environmental documentation necessary for this project would be an environmental impact statement/  
environmental impact report (EIS/EIR) based on the potential for significant impacts that could not be mitigated as well as the potential controversy associated with canal lining.

Implementation of the project would also require issuance of permits from various regulatory agencies. A summary of the likely permitting requirements follows. Additional permitting requirements may be identified pending further project refinement.

- **Regional Water Quality Control Board**—Large amounts of earthwork would be required for the construction of the canal lining. Depending upon project configuration and location, Water Quality Certification under the federal Clean Water Act may be required for construction.
- **Federal and State Endangered Species Act**—Consultation with state and federal resource agencies (e.g., USFWS, NMFS, CDFG) may be required to protect special-status species and their habitat.
- **U.S. Army Corps of Engineers (COE)**—The project may affect wetland habitat and require a permit for discharge of dredged or fill material pursuant to Section 404 of the federal Clean Water Act.
- **State Reclamation Board**. The project may be subject to rules regarding encroachment into existing floodways.
- **Federal Emergency Management Agency (FEMA)**—Letters of map revision need to be filed with FEMA for projects that affect Flood Insurance Rate Maps.

- **California Department of Fish and Game**—If alterations to streams or lakes are required as part of project implementation, a Streambed or Lakebed Alteration agreement may be required.
- **Local governments and special districts**—Specific agreements for rights-of-way, encroachments, use permits, or other arrangements may need to be made with local entities in the vicinity of the project.

A draft California Environmental Quality Act (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 project implementation would occur in several stages, all of which would have significant challenges. Many of these challenges would be inherent to any project of this size and complexity. The following lists some of the implementation challenges anticipated to be associated with this project.

### Coordination among Public and Private Entities

Active coordination would be required among local, state, and federal entities such as CDFG, the Regional Water Quality Control Board, and DWR. The governmental agencies would have strong interests associated directly with the project and indirectly as it may affect other interests in the area. It is very possible that competing, conflicting interests may arise through this coordination effort. For example, it is possible that water conserved through canal lining could be available for in-stream environmental uses and result in environmental benefits, but the means for conserving water (concrete lining) may have terrestrial environmental impacts along the canal. Not only could such a relationship cause conflict between agencies, it is possible that conflicts may arise within the agencies themselves. Likewise, private interests could be similarly affected. These potential conflicts underscore the need for effective project communication and coordination.

### Coordination between Concurrent Projects

Numerous parties are examining similar projects throughout the valley. To optimize the effectiveness of these projects, coordination between the projects would be required from the onset. The benefits of inter-project coordination is three-fold: (1) to avoid duplication of effort and as a result insufficiently utilize available funds, (2) to avoid the nullification of project benefits through competing projects, and, perhaps most importantly, (3) to optimize the benefits of these projects to the watershed.

### Environmental Regulatory Compliance

Extensive environmental documentation, surveying, monitoring, and permitting would be required for this project. Habitat for known Endangered Species Act-listed species such as the valley elderberry longhorn beetle and the giant garter snake is present within the project

area. Project scheduling would need to reflect environmental regulatory requirements including any limitation on windows of construction.

## Construction Timing

Construction of the canal lining would need to occur between October and March when the canals are not in operation. Consequently, it would likely require 2 years to construct.

## 6. Implementation Plan

Phases 1 through 4 include the engineering and environmental investigations necessary to construct this project and include field investigations and feasibility design, preliminary design, EA/EIR, and final design. These phases are estimated to take 18 months to complete, which corresponds with the short-term component of the overall project. It is expected that construction would be completed by the spring of 2005 (see Figure 12B-2).

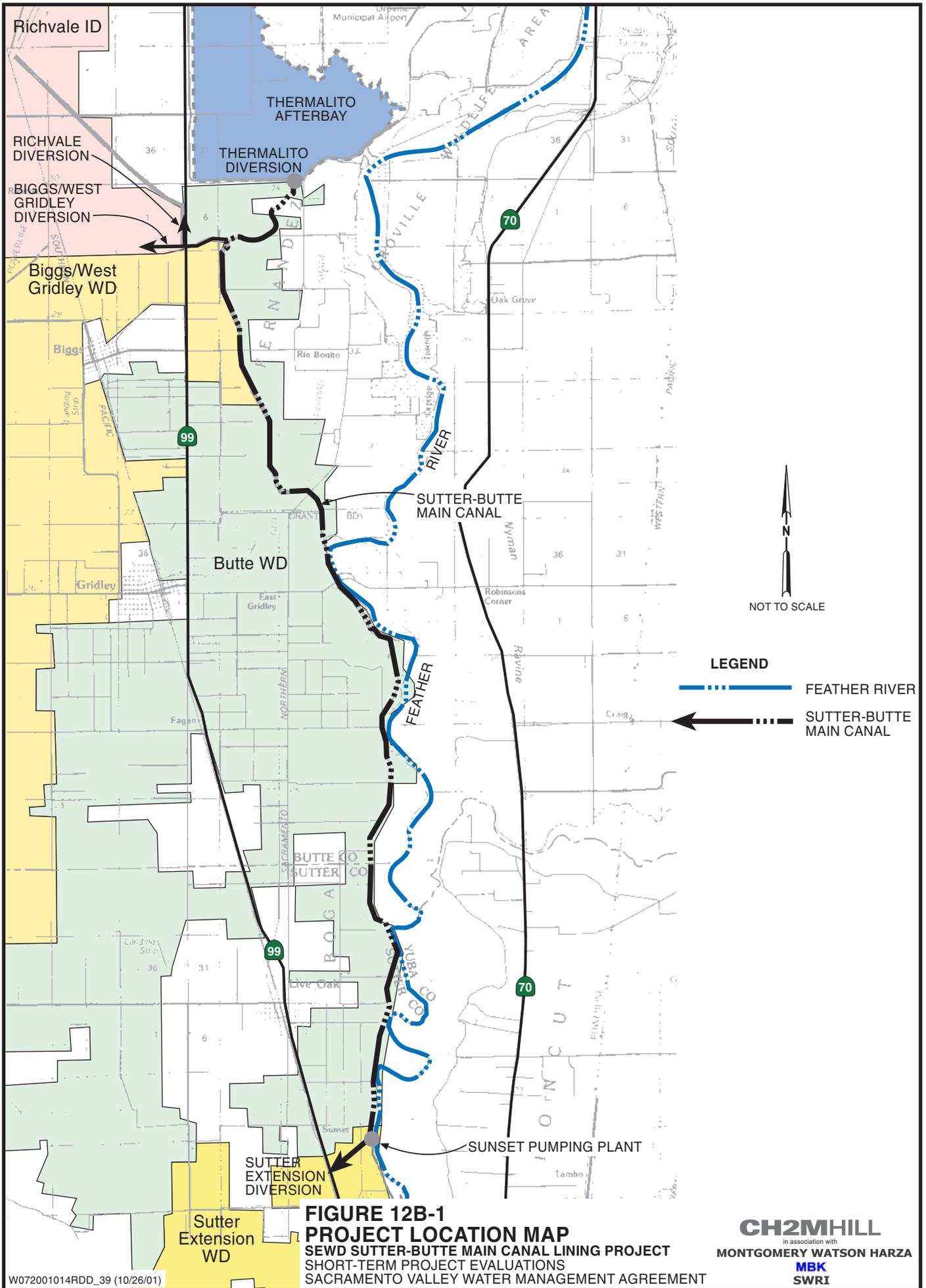
**Phase 1 - Field investigations and feasibility study**—Field investigations would determine the existing conditions including canal size and dimensions, canal capacity requirements, seepage rates, and groundwater elevations. According to the information obtained from the field investigation, a feasibility study would evaluate project costs and benefits. The estimated cost of this phase would be \$1.2 million and require 6 months to complete.

**Phase 2 - Preliminary design**—The preliminary design drawings would include canal plan/profile sheets, water control structures, and instrumentation and control diagrams at a 10-percent level of completion. Preliminary design would also include aerial photography and mapping, geotechnical investigations, detailed environmental surveys, and right-of-way mapping. Preliminary design drawings would incorporate environmental mitigation requirements identified during Phase 3. The estimated cost of this phase would be \$0.6 million and require 6 months to complete.

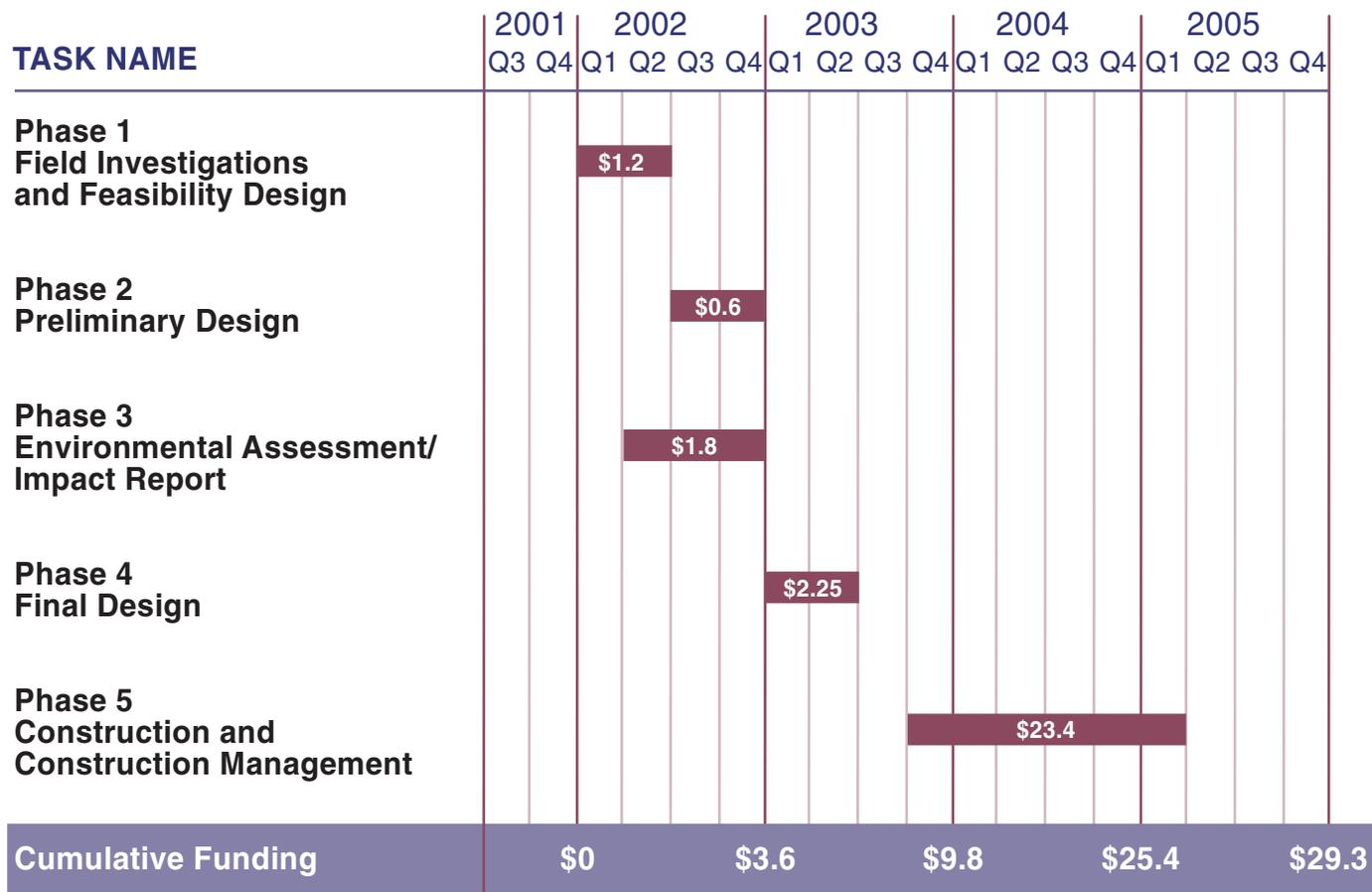
**Phase 3 - Environmental Assessment/Impact Report**—This task would complete the required National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) investigations and documentation. Specific permitting requirements would be addressed. The estimated cost of this phase would be \$1.8 million and require 9 months to complete. This phase could be conducted concurrently with phases 1 and 2.

**Phase 4 - Final design**—Contract drawings and specifications would be developed from the preliminary designs. The drawings and specifications would provide all necessary detail for bidding and construction. The design task is estimated to cost \$2.25 million and require 6 months to complete.

**Phase 5 - Construction and construction management (CM)**—Construction oversight is required to enforce contract requirements and ensure a quality, functional end-product. Typical CM activities include (1) evaluating bids; (2) reviewing, approving, and testing proposed products and materials; (3) observing, photographing, and documenting all aspects of construction; (4) managing changes during construction; and (5) estimating contractor inventories, progress, and progress payments. Construction and CM activities for this project would require 2 years to complete and cost \$23.4 million.



**FIGURE 12B-1**  
**PROJECT LOCATION MAP**  
 SEWD SUTTER-BUTTE MAIN CANAL LINING PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT



NOTE:  
ALL DOLLAR FIGURES ARE IN MILLIONS

**FIGURE 12B-2**  
**PRELIMINARY IMPLEMENTATION SCHEDULE**  
 SEWD SUTTER-BUTTE MAIN CANAL LINING PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT



**Project 12B—Draft CEQA  
Environmental Checklist**

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## Project 12B—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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Increased air emissions could result from construction of the project. Implementation of best management practices (BMPs) during construction would reduce the amount of emissions, and reduce the impact to a less than significant level.</i>				
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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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</b> —Would the project:				
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>Known Endangered Species Act (ESA)-listed species such as the valley elderberry longhorn beetle and the giant garter snake are within the area. Additionally, sensitive riparian habitat exists in and around the project site. Project construction scheduling would have to reflect environmental regulatory requirements including any limitation on windows of construction.</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?  <i>See response to IV (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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?  <i>See response to IV (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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>The removal of some vegetation may be required for construction of the project. Mitigation measures would be implemented to replace vegetation removed during construction, which would reduce the impact to a less than significant level.</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?  <i>See response to IV (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>V. CULTURAL RESOURCES</b> —Would the project:				
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"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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"/>
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—Would the project:</b>				
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—Would the project:</b>				
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 BMPs were implemented.</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
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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><u>VIII. HYDROLOGY AND WATER QUALITY—</u></b>				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Increases in turbidity would be likely to occur during any in-stream construction work. Additionally, there would be a potential for an increase of erosion and sedimentation from construction activity. This could be a significant impact and would require an erosion control plan, and the implementation of BMPs to reduce any impacts to waterways in and around the project area.</i>				
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 type="checkbox"/>	<input checked="" type="checkbox"/>
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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>

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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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term noise levels are expected to increase for the duration of construction. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.</i>				
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"/>

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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"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

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<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"/>

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<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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>