

# Maxwell Irrigation District Conjunctive Use Project

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## 1. Project Description

<b><i>Project Type:</i></b>	Conjunctive water management
<b><i>Location:</i></b>	Colusa County
<b><i>Proponent(s):</i></b>	Maxwell Irrigation District (MID or District)
<b><i>Project Beneficiaries:</i></b>	MID, in- and out-of-basin users, environment, Delta
<b><u>Total Project Components:</u></b>	Short-term components, development of District-owned groundwater well facilities
<b><i>Potential Supply:</i></b>	8,000 to 13,000 acre-feet per year (ac-ft/yr)
<b><i>Cost:</i></b>	\$2 million
<b><i>Current Funding:</i></b>	\$75,000 (authorized District cost-share)
<b><u>Short-term Components:</u></b>	Test-hole drilling, evaluation and production well construction and testing, groundwater monitoring
<b><i>Potential Supply (by 2003):</i></b>	8,000 to 13,000 ac-ft/yr
<b><i>Cost:</i></b>	\$2 million
<b><i>Current Funding:</i></b>	\$75,000 (authorized District cost-share)
<b><i>Implementation Challenges:</i></b>	Public perception, coordination among public and private entities, coordination between concurrent and similar regional projects, lack of sufficient groundwater data, water rights implications, environmental regulatory compliance, land acquisition, recharge basins
<b><i>Key Agencies:</i></b>	MID, Colusa Basin counties, local landowners, U.S. Bureau of Reclamation (USBR), California Department of Water Resources (DWR), environmental interest groups, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), Sacramento-San Joaquin Delta

## Summary

Maxwell Irrigation District is proposing a conjunctive water management project. The project would involve construction and operation of up to three new deep water wells for (1) reduction in surface water diversions, (2) improved reliability and availability of good-quality water to the District; (3) supplemental water for agriculturally induced wetlands; and (4) supply for Colusa Sub-basin lands during times of critical need. Each well would be located adjacent to or in close proximity of the District's existing conveyance canals. Short lengths (less than 100 feet) of 16-inch smooth-wall pipe would be used, as needed, to convey water from the wells to the existing canals. The water could then flow by gravity into the District's distribution system. This evaluation describes a short-term project that would yield approximately 8,000 acre-feet (ac-ft) of groundwater from the new wells during the irrigation season. It is assumed that an additional yield of approximately 5,000 ac-ft could be developed to meet the wetland needs within the District and/or the adjacent Delevan National Wildlife Refuge (NWR) in the fall of drier years. The project location and well sites are illustrated on Figure 6A-1.

The District is located approximately 10 miles north of the City of Williams and approximately 15 miles south of the City of Willows. The District boundaries are the Colusa Drain on the east, Maxwell Road on the north, and Two Mile Road on the west (Figure 6A-1). The southern boundary is irregular and locally extends to Lurline Road. Glenn-Colusa ID surrounds the District on the north, west, and south. A portion of the District's northern boundary is shared with Delevan NWR. Sharing property boundaries with Delevan NWR gives the District opportunities to assist in providing environmental benefits. For instance, within the District, approximately 4,600 acres are planted with rice each year, and 1,500 acres are permanent wetlands. This represents almost 90 percent of the entire District, which provides obvious and direct environmental benefit to the waterfowl migration in the Pacific Flyway.

The majority of the District overlies the Stony Creek aquifer, which has excellent recharge characteristics. The District has already undertaken reconnaissance-level subsurface exploration to better understand and evaluate its ability to make use of this aquifer. Such investigations should be coordinated with other similar projects within the sub-basin so as to ascertain a comprehensive understanding of system dynamics and determine possible associated impacts to the basin with regard to future groundwater development. Groundwater development of the Stony Creek aquifer is being considered by several districts within the Colusa Sub-basin, including but not limited to Glenn-Colusa ID, Orland-Ortois Water District, and Orland Unit.

## Short-term Component

The proposed conjunctive use project would include the development of up to three deep wells (approximately 900 feet below ground surface (ft-bgs) that would pump approximately 5,000 to 6,000 gallons per minute (gpm) each and would be located in close proximity to the District's existing conveyance canals. Each well would be constructed of 20-inch and 16-inch blank and 16-inch perforated casing. The perforated casing would consist of louvered well screen. Use of louvered well screens would minimize the risk of being damaged during construction and well development. It would also allow for future re-development of the well using aggressive surging and bailing techniques. Each well would

be grouted and sealed to a depth of 270 ft-bgs to minimize the risk from infiltration of surface water into the subsurface.

Initially, the wells would be used primarily as a supplemental or back-up supply to the District's existing surface water supplies from the Sacramento River and its tributaries when surface water supplies are curtailed. The project would improve the availability of a reliable supply of good-quality water for the District's 6,100 acres of permanent and agriculturally induced wetlands, reducing dependence on surface water diversions for this use. In addition, having groundwater wells available would provide the opportunity to supply 8,000 to 13,000 ac-ft of groundwater to lands within the Colusa Sub-basin during times of critical need.

The District has an agreement with a landowner to develop up to two wells located along the District's main east/west canal leading from the Sacramento River to the Colusa Drain (potential Tuttle well sites) in Section 9, Township 16 North and Range 2 West (Figure 6A-1).

Two additional potential well sites have been identified along the northern boundary of the District's main service area adjacent to Maxwell Road (potential Gunnersfield well sites). The Gunnersfield sites are adjacent to the District's main delivery canal in Section 5, Township 16 North and Range 2 East. Test Holes 6312 and 6313 were drilled and logged at these locations in 1993 to depths of 750 and 770 ft-bgs, respectively. Luhdorff & Scalmanini, Consulting Engineers conducted an evaluation of the sites and prepared a report for the District (dated March 1995). The report indicates that adequate, reliable supply is available to the District from the Stony Creek Aquifer. Use of these sites would be dependent upon their acquisition from the landowner.

The District is in an ideal location to take advantage of available groundwater supplies to enhance conjunctive use and provide water for environmental benefits. These benefits could come as reduced diversions from the Sacramento River and/or increased supplies to Delevan NWR and improved water quality in the Colusa Drain. This project would provide the opportunity to realize these environmental benefits.

## Monitoring

Questions that need to be addressed with regard to the impacts of implementing conjunctive use operations in close proximity to the Sacramento River and tributary streams include, but are not limited to:

1. Would pumping intercept surface water from the river by directly inducing infiltration in response to nearby groundwater pumping?
2. Would induced recharge occur, and if so, how, where, and when (e.g., purposeful artificial recharge vs. in-lieu recharge)?
3. How would the basin be managed within its perennial yield?
4. Would third-party impacts (e.g., groundwater-level impacts) result from operations during pumping cycles?

Once construction is complete, the District would implement a program to collect, evaluate, and report data regarding water use, water quality, and the groundwater/surface water interaction of the project. The District intends to develop its monitoring program in conjunction with its groundwater management plan. Detailed parameters of the monitoring program would be developed during program design and initial program administration. This is likely to occur concurrent with well design and construction.

The District plans to include the Colusa High School Environmental Science Academy (Academy) as an integral component of the program. The District would provide technical assistance, training, and funding to the Academy to assure the continuation of a quality program. The reason for involving the Academy is to provide the participants with a valuable hands-on educational program relating to both local and statewide conservation and environmental issues, while at the same time collecting the necessary data for evaluation by the District or its engineer of project impacts on groundwater levels, quality, and river/aquifer interaction.

The monitoring and reporting program could include the following data collection:

- Collecting static groundwater-level data each spring and fall (initially this could be more frequently obtained).
- Collecting monthly electrical conductivity (EC) and temperature data from each well.
- Collecting monthly EC and temperature data in the canal upstream and downstream of each well when the wells are in use.
- Groundwater sampling at least once each year when the wells are in use (possibly more frequently during initial stages of the project).
- Performing annual reconnaissance surveys to identify and evaluate any potential impacts, either positive or negative, resulting from the project. Should negative impacts be discovered, the District would take steps to evaluate the extent of the impacts and determine how best to remedy or mitigate them. Preparing quarterly reports that summarize data collected and comparing them with historical data. The reports might include maps, photographs, charts, or other reasonable means to clearly depict the data.

## **Long-term Component**

There is no direct long-term component associated with this project. The results of this project could lead to further development of regional groundwater resources.

## **Hydrogeologic Evaluation**

### **Hydrogeologic Setting**

The easterly portion of Colusa County, in which the District is located, is part of the Sacramento Basin, an extensive groundwater body. The principal geologic formations in the project area consist of continental Tehama Formation sediments at depth overlain by Quaternary alluvium and flood basin deposits. Flood basin deposits consist chiefly of silt and clay deposited in low-lying areas adjacent to major streams during periods of high runoff. Coarser-grained alluvial fan deposits, exposed to the west of the project, might

interfinger with these flood basin deposits in the project area. The Tehama Formation continental deposit, which outcrops in the hills west of the project, is chiefly a heterogeneous mix of gravel, sand, silt, and clay, some cobbles and boulders, sandstone, breccia, and conglomerate. These deposits extend to the base of freshwater at a depth of about 2,000 feet. The Quaternary flood basin deposits probably do not extend to more than 200 or 250 feet below the surface within the District.

Groundwater within the upper 200 to 250 feet is generally unconfined. The flood basin deposits are saturated most of the year because they absorb water from rainfall and the overflow of small creeks. Recharge to the underlying continental deposits occurs as direct infiltration of rainfall and surface water flows in their outcrop area west of the project and possibly via discharge from adjacent alluvial fan deposits and other deep sources.

Available groundwater-level data in the general vicinity of the District (Figures 6A-2, 6A-3, and 6A-4) suggest that local pumping has caused minimal seasonal impacts and essentially no long-term impacts on groundwater levels and associated groundwater storage.

Hydrographs of groundwater levels, plotted from the DWR online database, indicates that seasonal fluctuations are generally on the order of less than 10 feet, and that there has been no historical trend toward lowering groundwater levels that are not reflective of periodic regional drought conditions. Depth to groundwater in wells has generally been less than 20 ft-bgs since about 1960. The locations of wells depicted on Figures 6A-2, 6A-3, and 6A-4 hydrographs are shown on Figure 6A-1.

The sources of recharge identified above are of excellent quality for the purposes of irrigation and wetland water supply. As indicated by historical observations from wells in the surrounding area, the groundwater that would be pumped from these wells is also of excellent quality for the intended uses.

### **Hydrogeologic Suitability**

Varying amounts of groundwater were pumped for different purposes in the Town of Maxwell area, mostly within the boundaries of the surrounding GCID during the years 1992, 1994, 1995, 1996, and 1997. Throughout this time period, notably including the 1992 and 1994 dry years when totals of 77,776 ac-ft and 52,152 ac-ft, respectively, were pumped, groundwater levels remained consistent with historical conditions (that is, minor seasonal fluctuations, but essentially no increasing or decreasing trend over time). Although the majority of this intermittent groundwater pumping occurred more to the north in GCID, some pumping at very high capacities also occurred in the Maxwell area. A review of the historical records indicates the pumping in this area has not caused a significant change in groundwater levels or quality. Thus, even without purposeful artificial recharge, there is widespread historical evidence that in-lieu recharge, particularly during periods of low to no pumping, has maintained an essentially constant or "full" groundwater basin. This is a bold statement...this is based on information from a couple of dry years separated by a wet year and not a long-term drought condition. From these historical observations, it is assumed that MID's proposed conjunctive use program of pumping and in-lieu recharge is both technically feasible and unlikely to result in any substantial change in groundwater conditions over those that have been experienced historically.

## Preliminary Evaluations

The majority of wells in the vicinity of the planned District wells are constructed about 300 to 400 ft-bgs; two wells are constructed to approximately 700 ft-bgs – a municipal well in Maxwell to the west of the District and an irrigation well about 2 ½ miles northwest of the District. The District's Gunnersfield test holes TH6312 and TH 6313 were drilled and logged to depths of 750 770 ft-bgs, respectively.

Thick aquifer materials exist between about 100 and 400 ft-bgs throughout the area east and northeast of the District. These aquifer materials are highly transmissive and capable of yielding significant volumes of groundwater to wells that develop from them. These same materials thin significantly from east to west, and occur as relatively thin lenses at the locations of the District's test holes. For purposes of this summary, the aquifer materials between 100 and 400 ft-bgs are called the shallow aquifer.

At both of the District's Gunnersfield test hole sites, highly permeable aquifer materials were encountered at depth of approximately 600 ft-bgs. Few wells are completed in the deep aquifer near the planned District wells. The only deep wells with logs on file at DWR are the one municipal well at Maxwell, located about 5 miles west of the District's test hole sites, and one irrigation well, located about 2 ½ miles northwest of the District's test hole sites. For purposes of this summary, aquifer materials below a depth of about 400 ft-bgs are called the deep aquifer.

The distribution of the deep aquifer materials to the east and northeast is not known . There has been no groundwater exploration below about 400 ft-bgs. This is likely because wells completed to that depth have provided sufficient yields, and there has been no need to incur the expense to explore for deeper aquifer materials.

Using the results of the Gunnersfield test hole evaluations for TH 6312 and TH 6313, preliminary well designs have been prepared. Final well designs would be prepared upon the completion and evaluation of three new test holes that would be drilled to about 1,000 ft-bgs. The preliminary design would include wells constructed to depths of about 900 ft-bgs with multiple sections of well screen beginning at a depth of about 240 ft-bgs. Plans call for a 75-foot sanitary seal, 230 feet of annular seal, and 20-inch-diameter casing transitioning to 16-inch-diameter casing with a slip joint at about 290 feet in. This preliminary well design was used to obtain well construction costs. *(The District is currently working with a well driller to refine the well construction and equipping costs).*

## Preliminary Aquifer Response Analysis

Estimates of aquifer characteristics, derived from lithologic descriptions and shallow well yields, indicate the transmissivity of the shallow aquifer is on the order of 150,000 gallons per day per foot (gpd/ft) of aquifer width. The only available data on deep well yield from the Maxwell municipal well suggests that the transmissivity of the deep aquifer could be as low as 12,000 to 15,000 gpd/ft. However, the nature of the deep aquifer materials at the District's test hole sites suggests that well yields should be closer to those of the shallow aquifer to the east-northeast, and not as low as to the west at Maxwell. Consequently, for purposes of this summary, the transmissivity of the deep aquifer materials at the District's well sites is estimated to be about 150,000 gpd/ft.

There are no data with which to estimate the storativity of the shallow or deep aquifer materials in the Maxwell area. The lithology of the area suggests that the shallow materials are likely to be semi-confined, and the deep materials are more likely confined. For purposes of this evaluation, aquifer storativity is assumed to be in the range of those conditions: 0.005 (semi-confined) to 0.0005 (confined).

As introduced above, the District's planned wells would each be designed for pumping capacities up to 6,000 gpm; depending on aquifer characteristics and associated well yields in the area, it is desired that a minimum pumping capacity be 5,000 gpm per well. Since the District plans to use the wells as a supplemental, or partial replacement, supply for a portion of its surface water deliveries from USBR, there are no defined water requirements for the wells in a conventional sense (i.e., the wells would discharge a planned annual volume of water to irrigate a certain area). Rather, the wells would initially be used to supplement or "replace," as necessary, some of the District's early season surface water diversions. The wells could be operated, during the irrigation season, as long as 60 days during April and May, or as long as 120 days from April through mid-August in any given year. In addition, the wells could be used to provide water in the fall of drier years for rice straw decomposition and for wetland habitat both within the District and, if necessary, within Delevan NWR.

Distance drawdown and well interference computations were made using the theoretical aquifer characteristics described above and a well field consisting of two wells spaced approximately 1,500 feet apart. If each of the proposed wells located at the sites for TH 6312 and TH 6313 were pumped at their design capacity of 6,000 gpm, the pumping water level in each well would be about 134 ft-bgs after 120 days of pumping. Distance drawdown calculations indicate that similarly constructed wells can be expected to experience about 45 feet of interference drawdown at a radial distance of 1,000 feet, and about 20 feet of interference drawdown 10,000 feet from the wells. However, once the future wells come online, an evaluation of the potential for groundwater/surface water interaction would be conducted. Furthermore, coordination with adjacent groundwater users would be needed to forecast the additional interference drawdown that would occur as a result of implementing combined conjunctive use programs valleywide.

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

This project would assure that a reliable supply of good-quality water would be available to support a diverse wetland community within the project area. Initially, this supply would be used as a supplemental or back-up supply for the District's surface water supplies. Therefore, the wells would be used, as needed, to assure a continuous supply to the District's 6,100 acres of permanent and agriculturally induced wetlands. In addition, this project would provide the opportunity to help meet the increasing water supply and water quality demands of the District, Colusa Drain, Delevan NWR, Sacramento River, and Bay-Delta Estuary.

### **Local Benefits**

Local benefits of this project include a reliable supply of good-quality water to meet both the agricultural and wetland needs within the District, especially in times of shortages. In

addition, the conjunctive use of water developed under this project would provide more reliable supplies for water users who rely on the water supply available in the Colusa Drain. This also could result in improved water quality in the Colusa Drain. The project could be expanded in the future to provide water to the Delevan NWR while maintaining the supply to meet the District's needs.

### **Added Delta Supply**

In times of shortages in the Delta, the District could rely on the groundwater supply developed under this project and forego some of its surface water supply. This remaining surface water supply could then be made available to help meet Delta outflow and water quality requirements as well as other Delta demands.

### **Water Quality Improvement**

This project would provide a supplemental supply of good-quality water, which could be used to maintain and improve water quality within the District as well as the Colusa Drain. This alone would benefit over 50,000 acres. In addition, this water supply could be used, if necessary, to improve water quality conditions within Delevan NWR. Water not diverted by the District from the Sacramento River could be made available to meet water quality requirements downstream of the District's point of a diversion and in the Delta.

## **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.

The capital costs for developing this program are estimated to be approximately \$1,287,000 as shown in Table 6A-1. The District's Board of Directors has authorized the cost share at a level of up to \$75,000. The District's share of the capital costs would be paid from its existing reserves. Future costs for operation of the project, maintenance of project facilities, and monitoring and reporting would be paid by the District through its standby water availability charges and water tolls. These future costs include the administration and monitoring of the conjunctive use plan that is estimated to cost approximately \$5,000 per year. In addition to the \$75,000 cost share and annual O&M and monitoring costs, the District has

paid \$20,000 towards securing the proposed Tuttle well site locations as well as approximately \$25,000 for the two Gunnersfield test wells and 1995 report. In addition, the District expended approximately \$650,000 to construct an inverted siphon under the Colusa Basin Drain to convey water from its Sacramento River pumping plant to the District's main canal. Prior to completion of this project, water diverted from the Sacramento River was delivered into the Colusa Basin Drain at the Maxwell Dam near the northeast boundary of Delevan NWR. This water was then re-diverted from the Colusa Drain, into the District's main canal, and on to the District's service area. The siphon project allows the District to deliver high-quality Sacramento River water directly to its place of use without mixing it with water from the Colusa Basin Drain. Groundwater pumped at the Tuttle sites would also be conveyed through the siphon to the remainder of the District's service area. While not constructed expressly for the purpose of conveying groundwater, the siphon project is an important element in the District's planned conjunctive use program.

**TABLE 6A-1**  
Planning-level Project Costs  
*Maxwell Irrigation District Conjunctive Use Project*

Item	Quantity	Units	Unit Price	Total Cost	Assumptions
Environmental Documentation (NEPA/CEQA)	1	Lump Sum	\$50,000	\$50,000	
Test-hole Drilling	3	Each	\$21,000	\$63,000	New exploration at the two Tuttle sites and one Gunnersfield site
Site Acquisition	2	Well Site	\$50,000	\$100,000	Two well sites at Gunnersfield
Well Construction and Equipping	3	Each Well	\$252,000	\$756,000	900-ft deep; 5,000 gpm, and 8,000 to 13,000 ac-ft/yr
Power Supply	3	Each Well Site	\$6,000	\$18,000	PG&E transformers and power drop to each well
Site Improvements	1	Lump Sum	\$50,000	\$50,000	Site grading, well pads, retaining walls as needed at each well site
Conveyance Construction	3	Each Well Site	\$6,000	\$18,000	250 ft of 16-inch pipe, valves, other materials and welding to convey well water to canals
Engineering-Test Holes	2	Each Site	\$5,000	\$10,000	Geologic logging, e-log evaluation, final well design
Engineering-Well Construction	3	Each Well	\$14,000	\$42,000	Well construction oversight and inspection
Engineering-Other	1	Lump Sum	\$5,000	\$5,000	
Legal	1	Lump Sum	\$5,000	\$5,000	
Groundwater Management Plan	1	Lump Sum	\$50,000	\$50,000	Development of groundwater management plan

**TABLE 6A-1**  
 Planning-level Project Costs  
*Maxwell Irrigation District Conjunctive Use Project*

Item	Quantity	Units	Unit Price	Total Cost	Assumptions
Administration	1	Lump Sum	\$20,000	\$20,000	Administer conjunctive use program development
Subtotal				\$1,187,000	
Contingencies and Allowances (30% )				\$356,100	
Total Construction Costs				\$1,543,100	
Environmental Mitigation (5%)				\$77,200	
Engineering, Construction Management and Admin. (25%)				\$385,800	
<b>Total Initial Project Cost</b>				<b>\$2,006,100</b>	

NEPA/CEQA = National Environmental Policy Act/California Environmental Quality Act  
 PG&E = Pacific Gas and Electric

## 4. Environmental Issues

The project area is located in Colusa County between the Town of Maxwell on the west and the Sacramento River on the east. As identified in a biological survey report prepared for the District in 1997, the topography of the project area is typical of the Great Central Valley of California, consisting primarily of flat and slightly undulating terrain with a 0 to 2 percent slope.

As noted in Section 2, this project is anticipated to provide benefits in the form of increased water supply, more flexible water management, and improved water quality – all of which could improve the greater Sacramento River ecosystem.

Project implementation would also result in impacts to the environment, notably through the artificial manipulation of groundwater levels. In some areas of the state, these types of projects have resulted in public concern and controversy, which tends to heighten scrutiny of the environmental effects of such projects. Efforts to address these concerns are noted in Section 5, Implementation Challenges. Construction-related impacts would also occur prior to 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).

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

- **State Water Resources Control Board**—Applications for new water rights and changes in point of diversion would be required.
- **Regional Water Quality Control Board**—Large amounts of earthwork would be required for the recharge basins. 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**—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 Lands Commission**—The project would need to consult with State Lands Commission on the public agency lease/encroachment permitting for use of state lands.
- **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.
- **Advisory Council on Historic Preservation**—Consultation under Section 106 of the National Historic Preservation Act may be necessary if historical resources are affected by construction of the project.
- **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 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 incremental stages, each 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.

### 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

during these water-tight times with regard to whom any project may or, just as importantly, may not benefit. As a result, many counties have passed ordinances and set numerous groundwater management objectives. To that end, the county has set strict guidelines for such water management programs as water transfers that dictate the priority of transfers taking into consideration primarily the intended recipient of the water.

### **Coordination among Public and Private Entities**

Strong coordination would be required among local, state, and federal entities such as USFWS, USBR, 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 highly probable that because of the complexity and far-reaching implications of the project that competing interest may arise. Reliable communication and integrated coordination would be required to create a successful project.

### **Coordination between Concurrent Projects**

Numerous parties are examining similar projects throughout the valley. To optimize the effectiveness of these projects, coordination between the endeavors would be required from the onset. The strongest motivation for such an effort is three-fold: (1) to avoid duplication of effort and as a result efficiently 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.

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

In many areas, there is limited groundwater information available, or the information that is available is unreliable.

### **Water Rights Implications**

Maxwell ID's water rights would have to be guaranteed and preserved. There is concern that a "use it or lose it" mentality may become prevalent during the implementation of the conjunctive use program. Although the District would be expecting to decrease their annual surface water diversions, it should not be assumed that they would be relinquishing a comparable amount to their water rights.

### **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 have to reflect environmental regulatory requirements including any limitation on windows of construction.

### **Land Acquisition**

It is probable that land would have to be acquired for the production wells, recharge basins, and conveyance systems. Some landowners may be resistant to the land purchases.

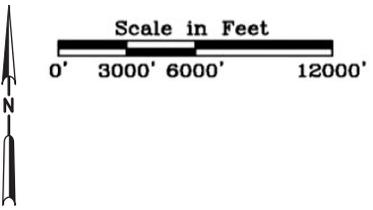
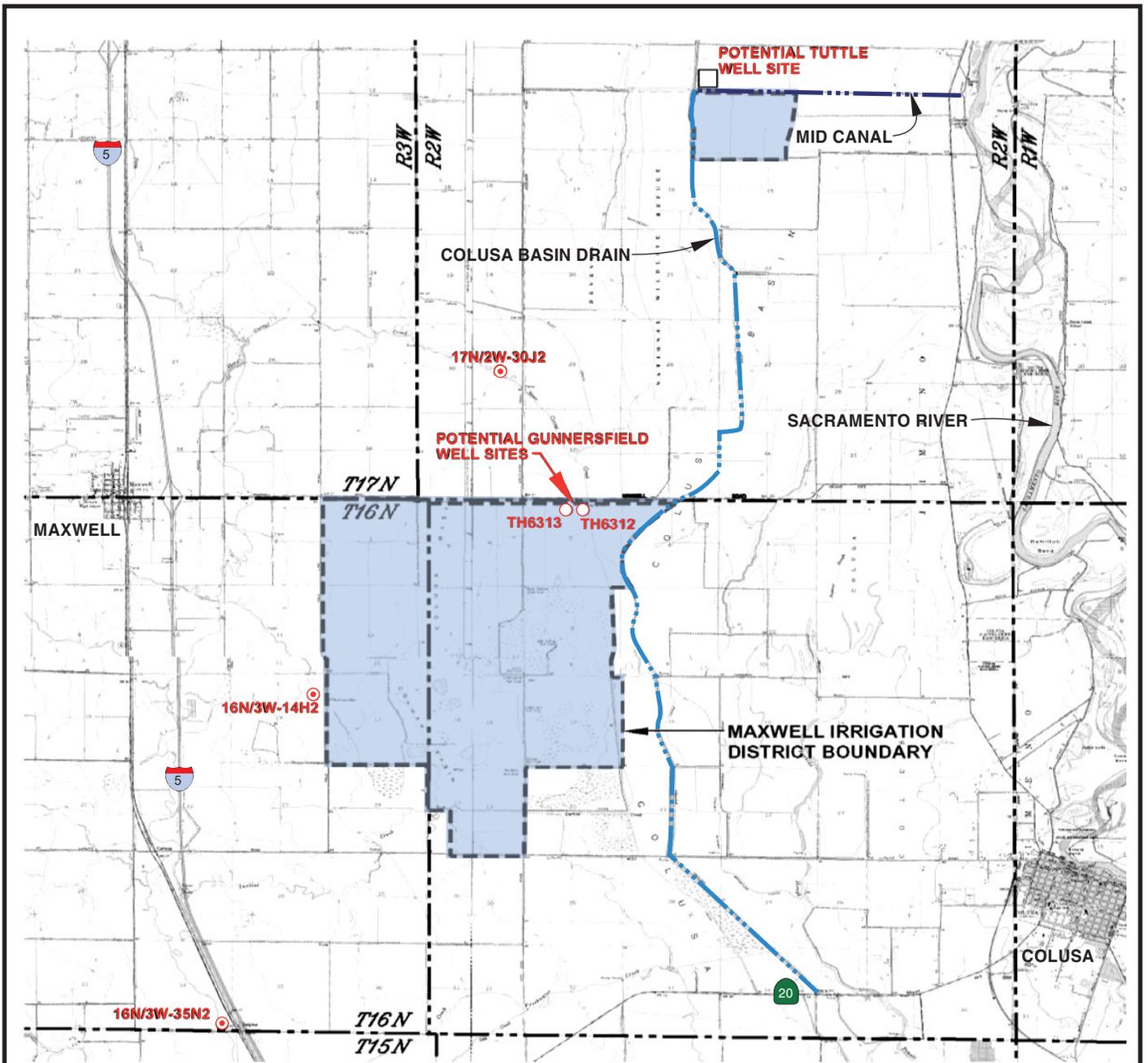
## Recharge Basins

Siting of the recharge basins could be politically and environmentally challenging. The basin siting would have to rely heavily on groundwater modeling results, public outreach, and close coordination with environmental interest groups and government agencies (e.g., USFWS).

## 6. Implementation Plan

As shown graphically on Figure 6A-5, upon approval of the project and subsequent funding agreements, the District would begin the preparation of the required environmental documentation for the project. This process is expected to take up to 2 months to complete. Once the environmental documentation is complete, the District would drill two new test holes for evaluation of the Tuttle well sites. The District would review the data from these test holes and compare them with the results of the two Gunnersfield test holes to determine which three of the four potential well sites would provide the greatest benefit for the project. Coincident with the drilling of the Tuttle test wells, the District would begin negotiations regarding the acquisition of the Gunnersfield site or sites. It is estimated that the selection of the well sites would be completed within approximately 1 month of the completion of the environmental documentation.

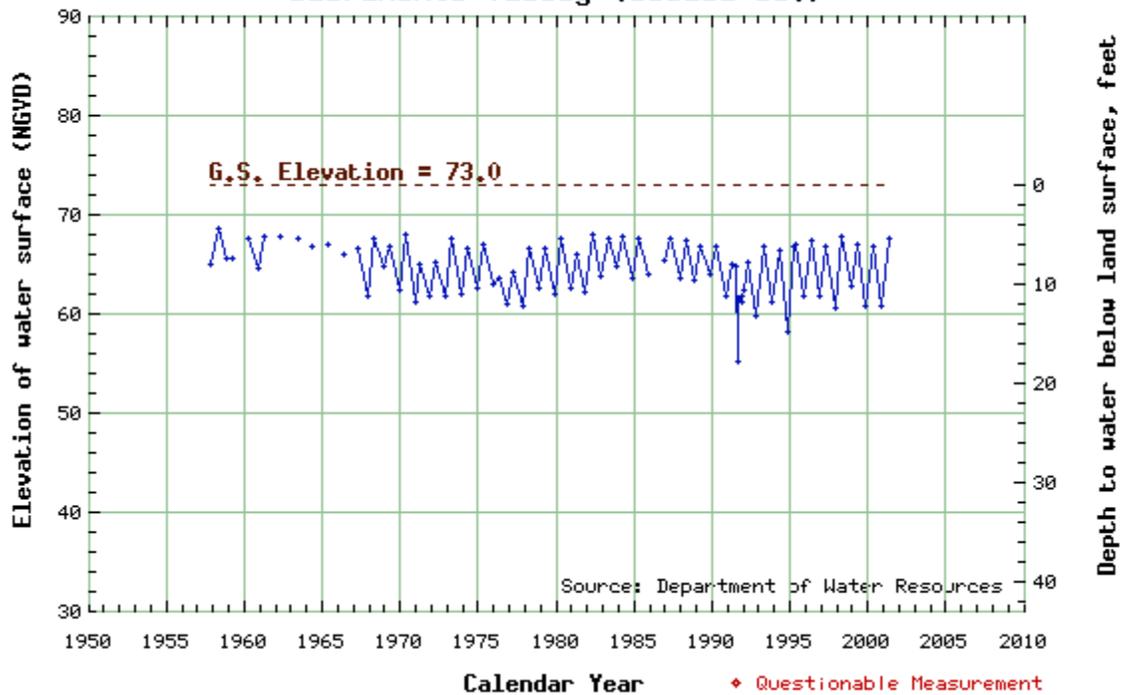
After the three well sites have been selected, contracts would be let for the required site improvements including drilling and completion of the wells and conveyances, and PG&E would be contacted for the installation of the necessary equipment for the power supply at each site. It is estimated the wells would be constructed, and all necessary tests would be completed within 7 ½ months after the funding agreements have been signed.



- LEGEND**
- ⊙ WELL WITH HYDROGRAPH
  - TEST HOLE
  - 16N/3W-14H2 WELL IDENTIFICATION
  - TH6312 TEST HOLE IDENTIFICATION

**FIGURE 6A-1**  
**PROJECT LOCATION MAP**  
 MID CONJUNCTIVE USE PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

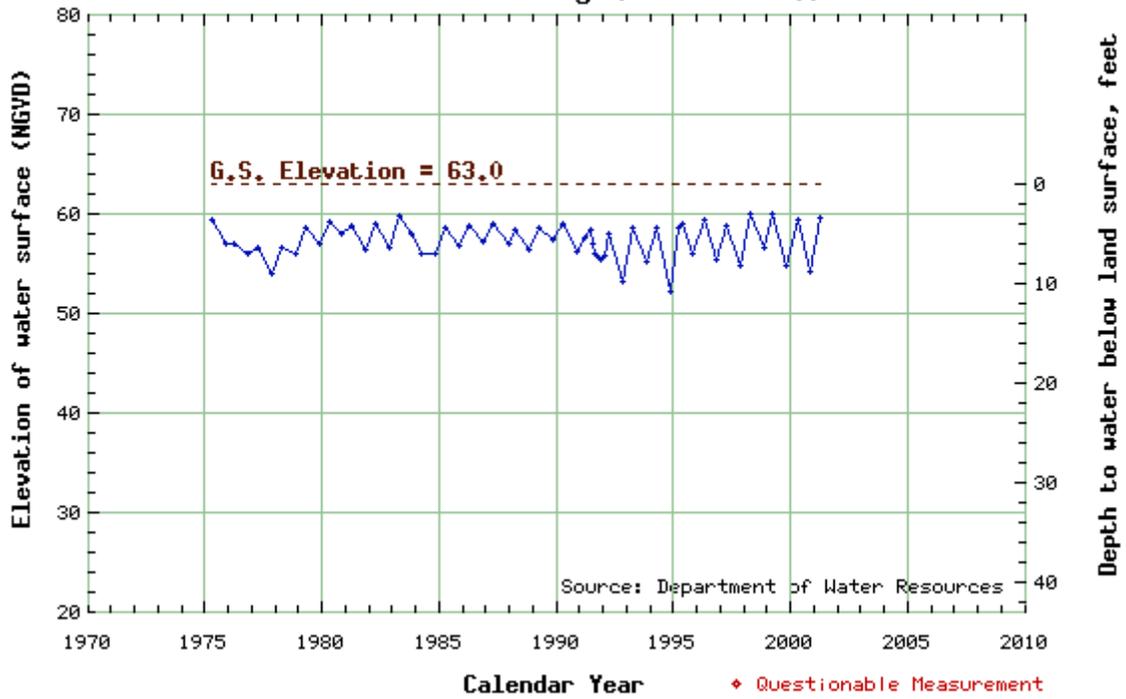
Groundwater Levels, 16N03W35N02M  
Sacramento Valley (Colusa Co.)



**FIGURE 6A-2**  
**HYDROGRAPH FOR WELL 16N/3W-35N2**  
MID CONJUNCTIVE USE PROJECT  
SHORT-TERM PROJECT EVALUATIONS  
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

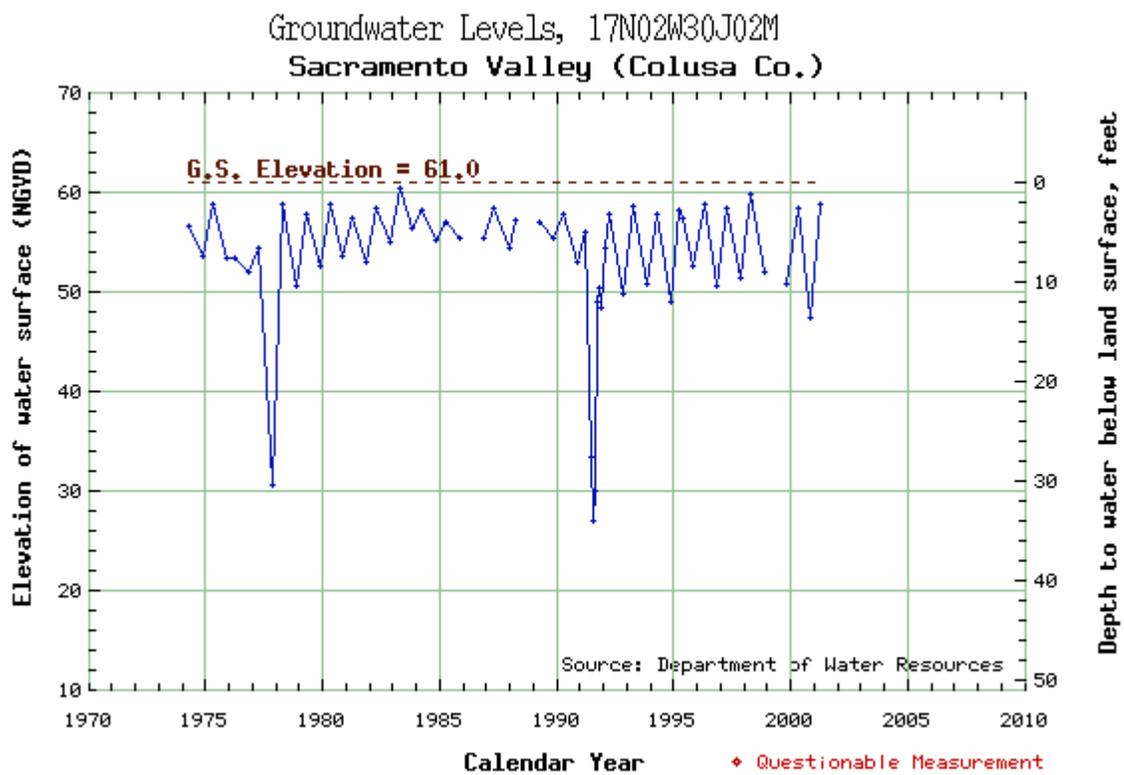
**CH2MHILL**  
in association with  
**MONTGOMERY WATSON HARZA**  
**MBK**  
**SWRI**

Groundwater Levels, 16N03W14H02M  
 Sacramento Valley (Colusa Co.)

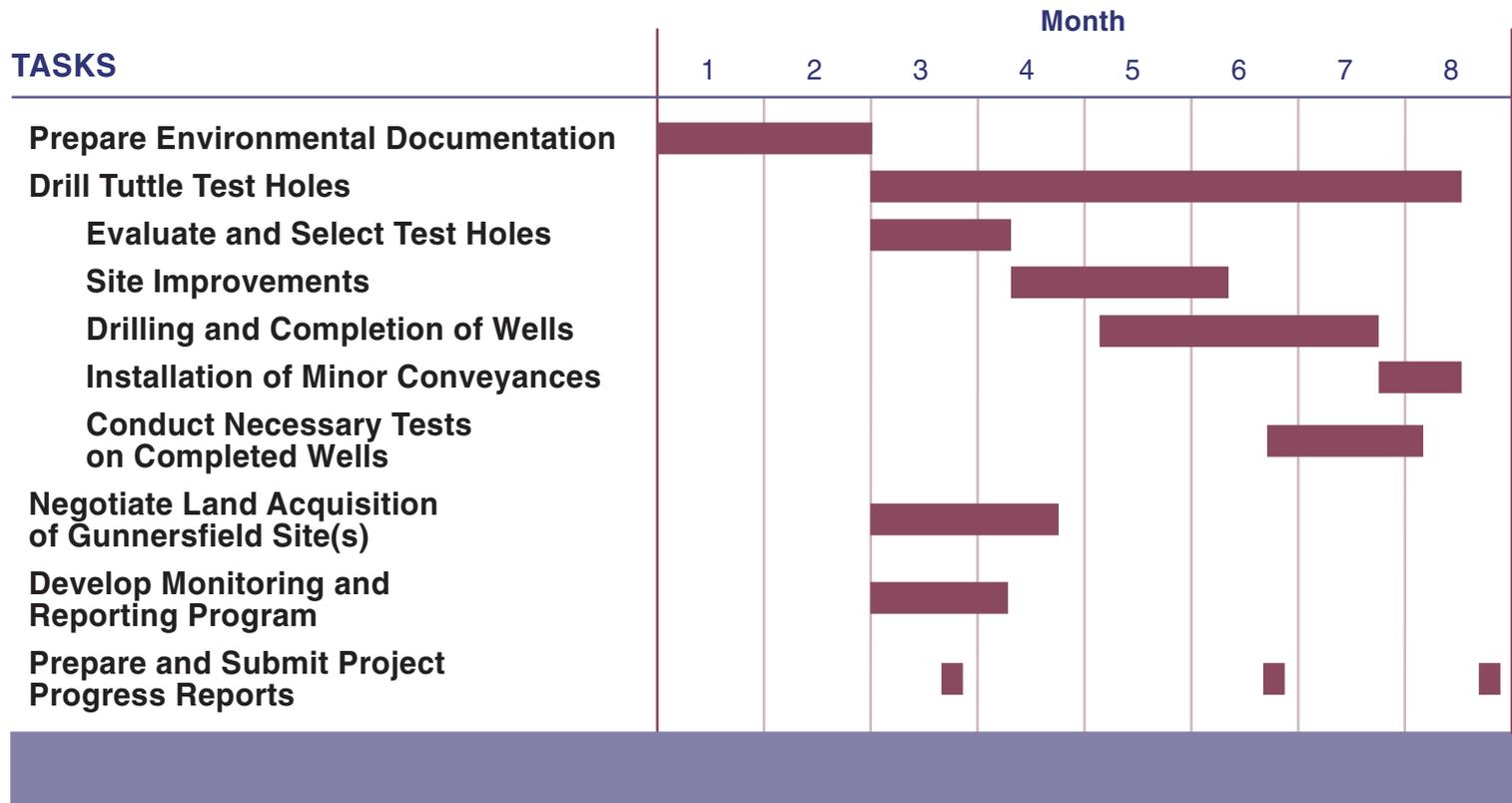


**FIGURE 6A-3**  
**HYDROGRAPH FOR WELL 16N/3W-14H2**  
 MID CONJUNCTIVE USE PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

**CH2MHILL**  
in association with  
**MONTGOMERY WATSON HARZA**  
**MBK**  
**SWRI**



**FIGURE 6A-4**  
**HYDROGRAPH FOR WELL 17N/2W-30J2**  
 MID CONJUNCTIVE USE PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT



**FIGURE 6A-5**  
**PRELIMINARY IMPLEMENTATION SCHEDULE**  
 MID CONJUNCTIVE USE PROJECT  
 SHORT-TERM PROJECT EVALUATIONS  
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

**Project 6A—Draft CEQA  
Environmental Checklist**

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## Project 6A—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 checked="" 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 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 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—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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>
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"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>VI. GEOLOGY AND SOILS</u> —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"/>
<u>VII. HAZARDS AND HAZARDOUS MATERIALS</u> —				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<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>				
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"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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? <i>There is a potential for an increase of erosion and sedimentation from construction activity that would require the implementation of BMPs to reduce any impacts to waterways in and around the project area.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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). <i>There are serious concerns about the long-term draw-down of the groundwater table and land subsidence, particularly in dry years. Model development would help in determining the effects of increased groundwater pumping. The impact that groundwater withdrawal would have on existing groundwater supplies is as yet undetermined; however, it is potentially significant because of the complexity of the issue.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>
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"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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?  <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>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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. 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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>