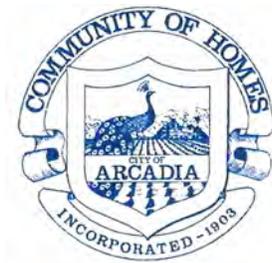

East Raymond Basin Water Resources Plan
Appendix H – Preliminary Environmental Review

Prepared for: Cities of Arcadia and Sierra Madre
And the Los Angeles County Department of Public Works



FINAL DRAFT
September 9, 2005

Prepared by:

Jones & Stokes

EAST RAYMOND BASIN WATER RESOURCES PLAN
APPENDIX H – PRELIMINARY ENVIRONMENTAL REVIEW

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EAST RAYMOND BASIN WATER RESOURCES PLAN

APPENDIX H – PRELIMINARY ENVIRONMENTAL REVIEW

1.0 INTRODUCTION

The East Raymond Basin Water Resources Plan (the Plan) proposes one or more projects located within the Cities of Arcadia and Sierra Madre in Los Angeles County. The proposed improvements would enhance and enlarge spreading operations in the East Raymond Basin (ERB) and are intended to reduce potential damage and facilitate the restoration of local water system infrastructure in the event of a major earthquake.

This preliminary environmental review provides a broad, programmatic-level summary of potential environmental issues associated with implementation of the Plan. This review is intended to serve as an initial evaluation of potential impacts to 1) help guide decision makers in pursuing the appropriate level of future environmental documentation, 2) assist in determining the feasibility of proposed improvements, and 3) identify permitting schedules that should be considered in prioritizing various projects.

The issues discussed herein are suitable for consideration in the preparation of future environmental documentation—such as an environmental impact report (EIR), environmental impact statement (EIS), initial study/mitigated negative declaration (IS/MND), environmental assessment/finding of no significant impact (EA/FONSI), or categorical exemption/categorical exclusion (CatEx)—pursuant to the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Toward that end, this preliminary environmental review identifies additional studies and/or fieldwork that would be needed to properly evaluate environmental impacts in support of a future CEQA and/or NEPA document.

The following information is provided in this preliminary environmental review:

- a summary of environmental permitting considerations;
- a brief project description;
- a programmatic-level summary of existing conditions and environmental issues relevant to the proposed project sites, presented in a CEQA initial study checklist format (but is not intended to comprise a CEQA document); and
- a table summarizing potential environmental permit requirements associated with each project alternative (table identifies anticipated agency involvement, technical studies, fieldwork, permits, and cost and schedule estimates).

2.0 ENVIRONMENTAL PERMITTING CONSIDERATIONS

2.1 Agencies Involved

Facilities potentially affected by the Plan are located within multiple jurisdictions and are owned by various agencies. Accordingly, there are several agencies that may have environmental permitting approval for proposed improvements. The Los Angeles County Department of Public Works (LACDPW) maintains ownership of:

- ▶ Santa Anita Dam,
- ▶ Santa Anita Debris Dam,
- ▶ Santa Anita Diversion Headworks,
- ▶ Santa Anita Spreading Grounds, and
- ▶ any well that would be constructed associated with control of ground water mounding at the Santa Anita Spreading Grounds.

The City of Sierra Madre maintains ownership of:

- ▶ Sierra Madre Spreading Grounds,
- ▶ Santa Anita Diversion Pipeline (from Headworks to Sierra Madre Spreading Grounds),
- ▶ Sierra Madre Diversion Structure,
- ▶ tunnels at Sierra Madre Dam, and
- ▶ any well that would be constructed associated with control of ground water mounding at the Sierra Madre Spreading Grounds.

Other agencies that may have permit authority over one or more project components include:

- ▶ City of Arcadia,
- ▶ City of Monrovia,
- ▶ U.S. Fish and Wildlife Service (USFWS),
- ▶ U.S. Army Corps of Engineers (Corps),
- ▶ U.S. Forest Service (USFS),
- ▶ U.S. Environmental Protection Agency (EPA),

- ▶ State Water Resources Control Board (SWRCB),
- ▶ Los Angeles Regional Water Quality Control Board (LARWQCB),
- ▶ California Department of Fish and Game (CDFG),
- ▶ State Division of Safety of Dams (DSOD), and
- ▶ Metropolitan Water District of Southern California (MWD).

With respect to the determination of which agency would serve as the lead agency for purposes of complying with CEQA, in general the lead agency is that agency with principal authority for approving or carrying out a project. Where multiple agencies may have principal roles, the lead role is typically assumed by the agency that will grant the first approval. The identification of CEQA lead agency for individual projects proposed by the Plan is based on looking at those projects in isolation. Lead agency responsibility may shift if individual projects are combined into one or more larger projects.

The lead agency for NEPA clearance is different than for CEQA, and must be a federal agency. Identification of the NEPA lead considers the underlying property ownership as well as permitting responsibility. For the East Raymond Basin Plan, the Santa Anita Dam is understood to be on federal lands and therefore would require identification of a federal lead agency for NEPA documentation. For other project locations identified under the Plan, it is understood that underlying property is located within local public rights-of-way, or is owned by the operating entity. In such cases, federal agency involvement depends on permit approvals rather than property ownership.

For individual improvement projects associated within Santa Anita Dam, Santa Anita Debris Basin, and Santa Anita Spreading Grounds, the LACDPW would appropriately serve as the CEQA lead agency and the applicant for environmental permits. At this juncture, it appears that state involvement for the individual projects would be in a responsible/trustee role related to required permits or funding authorization. If the San Gabriel Valley Municipal Water District

(SGVMWD) Pipeline Extension and/or State Water Project Supply from Upper Feeder components entail water rights applications, then the SWRCB may have a more prominent role.

2.2 CEQA/NEPA Process

The projects proposed involve multiple alternatives with varying degrees of reconstruction at each project site. Table H-1 summarizes the potential environmental permitting requirements associated with each alternative and provides a preliminary estimate of related cost and schedule requirements.

2.2.1 Type of Environmental Document

One or more environmental documents—prepared in accordance with CEQA and NEPA—will need to be prepared for the projects. The appropriate form of environmental document—EIR, EIS, IS/MND, EA/FONSI, or CatEx—may apply to a given project or combination of projects. Based on project information known at this time, the anticipated form of environmental document is provided in the ‘Notes’ column of Table H-1; however, the ultimate determination will need to be made by the appropriate lead agency based upon the final project configuration and the potential environmental impacts identified through subsequent analysis and fieldwork.

2.2.2 Programmatic- vs. Project-Level Environmental Document

A programmatic-level environmental document can be considered in order to address potential environmental impacts associated with the overall program. However, because the funding for various project components will occur over several years, and—most importantly—because each project component is understood to have independent utility (i.e., does not depend on the

construction and/or operation of other project components), there are a variety of approaches that can be considered to appropriately comply with CEQA and NEPA.

One approach is to prepare a programmatic-level EIR/EIS or EIR/EA document for all projects and then “tier off” lower-level IS/EAs. Another approach is to prepare separate environmental documents for the smaller, less-complex project components, while concurrently initiating a larger, programmatic-level document on the larger projects. In either case, it will be critical to thoroughly address potential cumulative impacts from all project components so that the selected CEQA/NEPA approach does not inadvertently segment the environmental analysis.

The drawback of preparing a programmatic-level EIR/EIS document is that the less complex projects proposed under the Plan would be delayed by the extended studies and procedures required for the programmatic-level analysis. If individual components can be demonstrated to have independent utility, it may be preferable to treat them as standalone projects with individual environmental documents. This approach may also provide additional flexibility in securing state or federal funding; if the application for funding presents all proposed improvements as a single program, it may be difficult to split the improvements as separate projects for purposes of environmental review.

Based on the above, it is recommended that project-level environmental documents be prepared for various project components as they are prioritized for funding and construction.

2.2.3 Joint vs. Standalone CEQA/NEPA Documentation

Based on federal lands involvement and potential federal permitting/funding, a joint (i.e., CEQA/NEPA) document approach would be most appropriate for the Santa Anita Dam improvements. For improvements proposed at other project sites, federal involvement would comprise a responsible or trustee role related to permit implementation or funding. In such cases, some federal agencies (for example, the Corps) may prefer to prepare the environmental

document themselves. The relative timing of clearances under state and federal environmental review processes may be such that preparation of separate CEQA and NEPA documents is preferred.

2.2.4 Schedule for Implementation

Many factors affect the schedule for preparing environmental documentation for the Plan. Specifically, there are numerous potential projects proposed under the Plan, and each project can be constructed partially or fully. In addition, there are many potential combinations of projects, and schedule and funding priorities have not yet been established for each respective project. The schedule for implementation of all projects will likely exceed 10 years due to funding availability, politics, interagency involvement, and determination of responsibility for the overall program.

3.0 PROJECT DESCRIPTION

3.1 Project Background

The Cities of Sierra Madre and Arcadia have worked for several years under the Water Resources Development Act of 1990 (WRDA) to develop a Water System Reliability Program (WSRP) with the Corps. The intent of the program is to address the region's water supply reliability, quantity and quality, and full service restoration of the water system infrastructure following a major earthquake.

As part of the WSRP, study recommendations were made to conduct future studies addressing the potential to increase water production in the ERB through enhancing and/or enlarging the spreading operations along Santa Anita Creek and within the ERB's tributary areas. In 2003, the cities received a federal grant from the EPA to prepare the East Raymond Basin Water Resources Plan (the Plan). The Plan would investigate the potential to develop backup ground water supplies for the cities by rehabilitation and expansion of the existing ground water replenishment spreading basins along the Santa Anita Creek and operational improvements to the spreading basins along Sierra Madre Creek. The WRSP hydrological study indicates that over 11,000 acre-feet of water could potentially be spread annually and retained in the East Raymond Ground Water Basin by the accomplishment of these improvements.

The primary aim of the Plan is to identify potential projects that can be undertaken in order to improve water conservation in the ERB by enhancing recharge and water management. The proposed project should also reduce the potential for downstream flooding and damage to the riparian habitat adjacent to the Santa Anita Creek.

Congress appropriated federal funds in the 2000 fiscal year under Section 206 of the WRDA to conduct a study of a project on the east side of Santa Anita Creek that would create an artificial streambed. This streambed would allow for aquatic restoration and the potential to increase replenishment in the basin. The study's Preliminary Restoration Plan (PRP), completed in 2000

by the Corps, indicated that significant amounts of earthwork would be required in order to create adequate area for the project's development, and the study effort was terminated.

The Cities of Sierra Madre and Arcadia have conducted legal reviews of the water rights in the ERB and have ascertained, with the corroboration of the Raymond Basin Management Board, that they are the only pumpers within the basin and hence have rights to potential surplus water.

At present, the East Raymond Basin Water Resources Plan proposes one or more projects located within the Cities of Arcadia and Sierra Madre in Los Angeles County. The proposed improvements would enhance and enlarge spreading operations in the ERB and would be intended to reduce potential damage and facilitate the restoration of local water system infrastructure in the event of a major earthquake. The proposed improvements would involve multiple alternatives with varying degrees of reconstruction at each project site. This document will describe existing conditions and proposed improvements at each of the project sites and their surrounding areas. Figure H-1 shows the location of the proposed improvements.

Appendix G contains the detailed report on various Project Alternatives.

3.2 Project Components

3.2.1 Santa Anita Dam

3.2.1.1 Existing Conditions

The existing Santa Anita Dam is a 230-foot high concrete arch dam located on Big Santa Anita Creek approximately four miles north of the City of Arcadia. The dam is located within the Angeles National Forest and is surrounded by undeveloped open space. It was constructed in 1924 and 1927 for the purpose of flood control and water conservation and is now owned and operated by LACDPW, under the jurisdiction of the State Division of Safety of Dams (DSOD).

The reservoir is designed to operate within the elevation range of approximately 1,180 feet and 1,316 feet with a high water level elevation of 1,325 feet. The capacity is 1,376 acre-feet with water surface elevation at 1,316 feet.

In various studies conducted between 1977 and 1980, it was determined that the dam structure has insufficient strength under anticipated maximum credible earthquake load conditions and insufficient spillway capacity for runoff associated with the Probable Maximum Precipitation (12,100 cfs). As a safety measure the LACDPW restricted the maximum high water level to elevation 1,280 feet. It was also determined that the reservoir storage capacity had been severely reduced due to sediment and the original low-level outlet has since been abandoned.

The DSOD will not allow the indefinite operation of the Santa Anita Dam in its current condition. Modifications will be needed to the dam in order to meet current safety requirements for hydraulic capacity and seismic performance.

3.2.1.2 Proposed Improvement Alternatives

Alternatives currently under consideration for the continued operation of the Santa Anita Dam in any capacity include: Full Rehabilitation, Partial Rehabilitation, and Debris Retention.

Full Rehabilitation Alternative

Full rehabilitation of Santa Anita Dam would involve:

- ▶ notching the crest of the dam to create a new control spillway with a crest elevation of 1,300 feet, and
- ▶ constructing a concrete buttress against the downstream face of the dam to effectively convert the dam from an arch structure to a massive gravity structure.

The existing penstocks through the dam would be extended through the buttress, and the sluiceway would be fitted with a riser to elevation 1,200 feet. It is understood that the LACDPW would attempt to control sediment accumulation in the reservoir to elevation 1,200 feet, and the normal reservoir operating range would be from elevation 1,254 feet to 1,300 feet, which provides approximately 420 acre-feet of storage for potential water conservation purposes.

Storm water volume included in the recession portion of a storm that exceeds the available storage volume in the basin would be considered available for routing to both the Santa Anita and Sierra Madre spreading grounds.

Partial Rehabilitation Alternative

Partial rehabilitation of Santa Anita Dam would involve:

- ▶ notching the crest of the dam to create a new control spillway with a crest elevation of 1,300 feet,
- ▶ constructing an 8-foot diameter orifice spillway through the dam at elevation 1,270 feet, and
- ▶ constructing a concrete buttress against a portion of the downstream face of the dam (up to elevation 1,270 feet).

The existing penstocks through the dam would be extended through the buttress, and the sluiceway would be fitted with a riser to elevation 1,200 feet. As with the full rehabilitation concept, it is understood that the LACDPW would attempt to control sediment accumulation in the reservoir to elevation 1,200 feet, and the normal reservoir operating range would be from elevation 1,254 feet to 1,270 feet, which provides approximately 117 acre-feet of storage for potential water conservation purposes.

Storm water volume included in the recession portion of a storm that exceeds the available storage volume in the basin would be considered available for routing to both the Santa Anita and Sierra Madre spreading grounds.

Debris Retention Alternative

Under the Debris Retention condition, the Santa Anita Dam would be modified to meet the minimum requirements for the continued operation of the facility. The work that would be required includes:

- ▶ notching the crest of the dam to create a new control spillway with a crest elevation of 1,300 feet,
- ▶ removing all existing valves and gates to create a free-draining structure, and
- ▶ constructing a riser on the upstream face of the dam to elevation 1,230 feet.

This concept would allow free-draining sediment accumulation in the reservoir to elevation 1,230 feet, and drain freestanding water in the reservoir. However, it is understood that the LACDPW would attempt to control sediment accumulation in the reservoir to elevation 1,200 feet, and make the range from elevation 1,200 to 1,230 feet available for water conservation, which range would provide approximately 70 acre-feet of storage capacity.

Storm water volume included in the recession portion of a storm that exceeds the available storage volume in the basin would be considered available for routing to both the Santa Anita and Sierra Madre spreading grounds.

3.2.2 Santa Anita Headworks

3.2.2.1 Existing Conditions

The Headworks is located on Big Santa Anita Creek in a generally undeveloped area. There is a park located in the surrounding area to the south of the facility. The existing Santa Anita Diversion Headworks was built prior to 1950 and was designed and constructed to divert flows in Big Santa Anita Creek through a pipeline to the Sierra Madre Spreading Grounds. The City of Sierra Madre is entitled to 5,000 acre-feet per year from Big Santa Anita Creek.

The existing headworks structure is essentially a concrete-lined section of the Big Santa Anita Creek channel. There is also an earthen berm associated with the headworks that creates a forebay to increase head at the gates. The headworks facility is reported by Los Angeles LACDPW to have been designed to pass 1,000 cfs. Flows in excess of 1,000 cfs have historically overtopped and washed out the earthen berm. For perspective, the 50-year runoff upstream Santa Anita Dam is calculated to be on the order of 100,000 cfs, and the peak runoff to the downstream Santa Anita Debris Basin during a 5-year storm is on the order of 4,000 cfs. The latest berm washout at the headworks facility occurred in January 2005 during an estimated 100-year storm event.

Currently, diversions at the headworks are made manually by LACDPW personnel. Specifically, when the creek flow is considered sufficiently clear of sediment based on visual observations, the gates are adjusted to divert the flow to the Sierra Madre Spreading Grounds.

The existing headworks facility is considered satisfactory for its purpose provided that the LACDPW monitors water quality at sufficient intervals and that the facility has not been damaged by storm run-off. However, the operations could be more efficient, and result in greater reliability for takes from the creek, if the facility was able to accommodate remote monitoring and operation of the diversions and overtopping events without failure.

3.2.2.2 Proposed Improvements

Potential improvements to the headworks facility to increase the efficiency of the diversion operations would include:

- ▶ replacing the existing earthen berm with a more permanent spillway structure, such as a roller-compacted concrete weir with an engineered foundation;
- ▶ inspecting the pipeline for determination of condition and maintenance needs;
- ▶ replacing mechanical equipment; and
- ▶ investigating the use of a SCADA System for operation of the headworks.

3.2.3 Santa Anita Debris Dam

3.2.3.1 Existing Conditions

Santa Anita Debris Dam was designed and constructed in the 1955–1960 timeframe for flood control, debris retention, and water conservation. It is located near the mouth of Santa Anita Canyon, on Big Santa Anita Creek, on the south slopes of the San Gabriel Mountains in the City of Arcadia. The dam is currently owned and operated by the LACDPW. The area surrounding the debris dam is residential and open space. Residential uses are located to the west and south, and there is open but privately owned land to the northeast.

The debris basin was designed with a debris capacity of 232 acre-feet at the spillway crest; however, the LACDPW estimates that the current basin capacity at the spillway crest is on the order of 120 acre-feet. The LACDPW’s current design debris event is 118 acre-feet.

The spillway for Santa Anita Debris Dam consists of an ungated, concrete-lined rectangular open channel, founded within the embankment near the left abutment. The spillway was designed to pass the design flood of 38,000 cfs and provide a freeboard of 3 feet. The existing slide gates

that are mounted have been secured in the open position to assure that there is no water stored in the debris basin as it is currently operated under a zero sustained reservoir storage level restriction.

The DSOD will not allow the operation of Santa Anita Debris Dam in its current condition for either debris retention or water conservation. At a minimum, for continued use for debris retention only, modifications will be needed to repair the spillway walls and intake tower in order to meet current safety requirements regarding seismic performance.

3.2.3.2 Proposed Improvement Alternatives

Full Rehabilitation Alternative

Full rehabilitation of Santa Anita Debris Dam to maintain its debris retention capacity as well as permit water storage above the level of the debris would involve, at a minimum:

- ▶ seismic strengthening (or replacement) of the intake tower, and
- ▶ relocating the over-the-embankment spillway to a bedrock foundation.

It is also likely that the DSOD will require ground improvements to reduce the potential reduction of strength in the embankment and foundation materials due to seismic-induced liquefaction.

Under this condition, 88 acre-ft of storm water could be stored in the debris basin up to the existing spillway crest elevation. This volume would be available for routing to the Santa Anita Spreading Grounds.

Partial Rehabilitation Alternative

Partial rehabilitation of Santa Anita Debris Dam would involve lowering the overflow spillway elevation sufficiently to reduce dam height and/or basin storage capacity to below the threshold for DSOD jurisdiction. Based on the as-built topography of the debris basin, this alternative would involve lowering the crest of the existing spillway from elevation 775 feet to approximately 764 to reduce the basin water storage to about 25 acre-feet. However, in order to maintain design debris storage capacity, a trash rack would need to be constructed across the spillway channel up to the original spillway crest elevation of 775 feet. In addition, the intake tower would need to be strengthened for seismic loads.

Water stored in Santa Anita Debris Dam under the partial rehabilitation alternative would be available for routing to the Santa Anita Spreading Grounds.

Debris Retention Alternative

The debris retention alternative for Santa Anita Dam would essentially involve permanently eliminating all water conservation storage capacity. The work that would be required to maintain the dam for debris retention only includes:

- ▶ seismic strengthening of the existing intake tower,
- ▶ permanent removal of the control valve in the tower (for unrestricted discharge of water entering the basin), and
- ▶ seismic strengthening of the existing spillway walls.

3.2.4 Santa Anita Spreading Grounds

3.2.4.1 Existing Conditions

The Santa Anita Spreading Grounds are located on the westerly side of the Santa Anita Channel. Currently the grounds consist of 12 separate excavated basins that can receive water from the Santa Anita Debris Basin. The surrounding area contains a combination of residential and open space. The area to the west is residential while the areas to the north, east and south are generally undeveloped properties at this time.

Volume measurements of the basins show a total capacity of 25 acre-ft and an average infiltration rate of approximately 7 to 9 cfs.

3.2.4.2 Proposed Improvements

Potential improvements to the spreading grounds to encourage storage and assist with infiltration are:

- ▶ creating cleanable bottoms by removing large boulders and adding sand,
- ▶ conducting mechanical cleaning up to once a year,
- ▶ expanding the grounds storage capacity by adding more storage basins at the south end of the spreading grounds and/or a possible combination of these three, and
- ▶ installing a production well to control ground water mounding.

3.2.5 Sierra Madre Diversion Structure

3.2.5.1 Existing Conditions

The Sierra Madre Diversion Structure is located within the Sierra Madre Channel immediately downstream of the Camillo Street bridge crossing. Adjacent land uses are residential.

The structure can provide up to 17 cfs of diverted storm water to the Sierra Madre Spreading grounds in the recession portion of a storm event. The limited use of the structure to the recession portion of a storm reduces the potential of siltation of the spreading grounds. The diversion structure also receives water from the Sierra Madre Wash that is provided by the tunnel in the east abutment of Sierra Madre Dam. Recent evaluations of the east tunnel indicate an average ground water production rate of approximately 0.4cfs.

Field reviews indicate that the current flashboard system at the diversion site does not produce a watertight seal across the diversion channel. In addition, storm water diversions conducted in recent storm events indicated that the existing inlet flume at the Sierra Madre Spreading Grounds does not have adequate capacity to accurately measure flows in the diversion pipeline.

3.2.5.2 Proposed Improvements

A full rehabilitation of the structure is proposed in order for the structure to be able to provide full diversion of the east tunnel ground water and increased diversion of the storm water to the Sierra Madre Spreading Grounds. The improvements would include the following:

- ▶ constructing a reinforced concrete pier and adjoining debris nose downstream of the Camillo Street Bridge,
- ▶ constructing a steel catwalk above the improved gate structure to facilitate operation of the gate spanning from the top-of-channel to the top of the new reinforced concrete pier,

- ▶ installing a cast-iron canal gate between the new reinforced concrete pier and the existing southerly channel wall, and
- ▶ reconstructing the inlet flume at the Sierra Madre Spreading Grounds.

The operation of the diversion structure would continue to occur during non-storm periods and during the recession portion of storm events.

3.2.6 Sierra Madre Spreading Grounds

3.2.6.1 Existing Conditions

The Sierra Madre Spreading Grounds are located just west of the Sierra Madre Channel and south of Grand View Avenue in the City of Sierra Madre. The surrounding area consists of residential uses in all directions and a park is located to the south of the spreading grounds as well as the Sierra Madre Cemetery, which is located directly to the southwest.

The grounds consist of 18 separate, but interconnected excavated storage basins. Only 16 existing basins are currently being utilized. The spreading grounds can receive water from both the Sierra Madre Channel as well as the Santa Anita Headworks Diversion Structure via a transmission line. Volume measurements of the basins show a total capacity of 30 acre-ft and an average infiltration rate of 10 cfs.

3.2.6.2 Proposed Improvements

Potential improvements to the spreading grounds to encourage storage and assist with infiltration are:

- ▶ creating cleanable bottoms by adding sand,
- ▶ conducting mechanical maintenance up to once a year,
- ▶ expanding the grounds storage capacity by utilizing all available storage basins, and
- ▶ providing overflow relief by channeling excess water to a discharge location (likely either a local storm drain or the Sierra Madre Wash) in order to allow for the use of all available basins while reducing the risk of flooding.

3.2.7 Transmission Line (from Santa Anita Headworks to Sierra Madre Spreading Grounds)

3.2.7.1 Existing Conditions

The area between the Santa Anita Headworks and Sierra Madre Spreading Grounds is urbanized, with residential land uses and a surface transportation network of local roadways. An existing water transmission pipeline is located generally (from east to west) along Highland Drive, Elkins Avenue, Wilson Avenue, and Grandview Avenue.

It has been determined that water released from the Santa Anita Dam and diverted to the Sierra Madre Spreading Grounds via the Santa Anita Headworks incurs losses through the transmission pipeline. Water loss during transmission in the pipeline has been estimated at approximately 24 percent.

3.2.7.2 Proposed Improvements

Proposed improvements to the existing water transmission pipeline between the Santa Anita Headworks to the Sierra Madre Spreading Grounds include:

- ▶ calibrating flow rate measuring facilities to accurately determine water loss during transmission within the pipeline,
- ▶ inspecting the pipeline by video to determine damage and repairability,
- ▶ replacing the existing pipeline with a new transmission line or if possible in segments where damage or leaking occurs, and
- ▶ rehabilitating the existing transmission line with the installation of a liner.

3.2.8 Pipeline Extension (from City of Azusa to the East Raymond Basin)

3.2.8.1 Existing Conditions

The area between the ERB facilities and the proposed tie-in at Azusa Avenue and Sierra Madre Avenue in the City of Azusa is currently a combination of urban/ residential uses and open space.

3.2.8.2 Proposed Improvements

The proposed extension of the San Gabriel Valley Municipal Water District's (SGVMWD) Devil Canyon-Azusa Pipeline could provide a source of imported replenishment water for the East Raymond Water Basin. This pipeline could deliver water to the Santa Anita and Sierra Madre Spreading Grounds to deliver sufficient replenishment water to both spreading grounds over long-term spreading operations. The proposed pipeline would be approximately 55,000 ft long.

Because the SGVMWD uses water to generate power approximately four to six months a year (primarily in the summer), additional water would need to be obtained from Metropolitan Water District of Southern California (MWD) pipelines. There are two MWD pipelines in the vicinity of the Devil Canyon-Azusa Pipeline that could be used for an interconnection. This interconnection would allow SGVMWD and/or MWD to deliver water to the ERB year round with no interruption to their ability to generate power.

4.0 PRELIMINARY ENVIRONMENTAL CHECKLIST

1. Project Title:

East Raymond Basin Water Resources Plan

2. Lead Agency Name and Address:

City of Arcadia
City of Sierra Madre
County of Los Angeles DPW

3. Contact Person and Phone Number:

To be determined

4. Project Location:

Cities of Arcadia and Sierra Madre;
East Raymond Basin watershed

5. Project Sponsor's Name and Address:

To be determined

6. Description of Project:

Improvements to water facilities and recharge operations within the East Raymond Basin. See Chapter 3.0, Project Description, for additional details.

7. Surrounding Land Uses and Setting:

Surrounding land uses for project components under considerations are generally vacant, undeveloped open space, or residential uses.

8. Other Public Agencies whose Approval Is Required:

See Table H-1 for potential permitting agencies.

9. Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a “Potentially Significant Impact” or “Less Than Significant With Mitigation Incorporated”), as indicated by the checklist on the following pages. This preliminary environmental review assumes that potentially significant impacts can be mitigated to a less than significant level. During preparation of project-specific environmental documents for selected project components, additional analyses may indicate that some impacts cannot be mitigated below a level of significance, and that an Environmental Impact Report may be required for those components.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input checked="" 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 to 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 an impact on the environment that is “potentially significant” or “potentially significant unless mitigated” 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL

IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature

Date

Printed Name

For

Evaluation of Environmental Impacts:

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Negative Declaration: Less than Significant with Mitigation Incorporated” applies when the incorporation of mitigation measures has reduced an effect from a “Potentially Significant Impact” to a “Less-than-Significant Impact”. The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [Section 15063(c)(3)(D)]. In this case, a brief discussion should identify the following:
 - (a) Earlier Analysis Used. Identify and state where earlier analyses are available for review.
 - (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - (c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or

individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - (a) the significance criteria or threshold, if any, used to evaluate each question; and
 - (b) the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	AESTHETICS. Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. Temporary visual impacts would occur during construction activities at each project area. Physical improvements would be most noticeable at Santa Anita Dam, where addition of a concrete buttress would expand the dam footprint within the Angeles National Forest. There would be no substantial adverse effects on a scenic vista.
- b. The proposed improvements would not substantially damage existing scenic resources, and none of the improvements would be located adjacent to a scenic highway.
- c. Construction activities and equipment would create impacts to visual character, but these impacts would be temporary. The types of construction materials used at all project sites would be consistent with existing facilities and would not substantially degrade visual character or quality.
- d. Building materials would consist principally of concrete, piping, and other subsurface infrastructure that would not create a new source of substantial light or glare.

See Table H-1 for additional information regarding project components that may require further evaluation of potential aesthetics impacts.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>II. AGRICULTURAL RESOURCES. In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:</p>				
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"/>	➔
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔
c. Involve other changes in the existing environment that, 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"/>	➔

- a. None of the project areas would involve conversion of farmland or agricultural uses.
- b. None of the project sites are located in areas zoned for agricultural uses.
- c. None of the project areas would involve changes in the environment that could result in conversion of farmland to non-agricultural uses.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III. AIR QUALITY. When 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. The South Coast Air Quality Management District has prepared an air quality management plan (AQMP), which was last updated in 2003. The project would not conflict with or obstruct implementation of the AQMP.
- b. Construction activities such as excavation, grading, and soil hauling could result in short-term air quality impacts at each project site. Mitigation measures would be implemented as applicable to reduce potential air quality impacts. The type and extent of potential air quality impacts will be further analyzed once additional information is available regarding project construction activities.
- c. Proposed improvements are located in a potential nonattainment area. Potential net increases in criteria pollutants will be further analyzed once additional information is available regarding project construction activities.
- d. & e. Several of the facilities (Santa Anita Debris Dam, Santa Anita Spreading Grounds, Sierra Madre Diversion Structure, Sierra Madre Spreading Grounds, and the transmission line west of the Santa Anita Headworks) are located near residential areas. Precautions and

mitigation measures would be implemented to reduce air quality impacts to adjacent residences during project construction.

See Table H-1 for additional information regarding project components that may require further evaluation of potential air quality impacts and permitting needs.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. 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?	<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, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<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, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	<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 with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<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?	<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"/>

- a. Rehabilitation of the Santa Anita Dam would improve its water storage capabilities. As a result, with sufficient rainfall the maximum inundation area behind the dam would be inundated with water and could potentially cause impacts to habitat and sensitive species. Further biological study of the areas must be conducted to determine existing biological resources and species of concern.

- b. Modifications to the Santa Anita Dam, Santa Anita Debris Dam, and Santa Anita Spreading Grounds could affect sensitive species. Additional biological resource surveys of these facilities will be required to identify the type and extent of potential impacts. The Sierra Madre Spreading Grounds are already in full-time operation, and changes to its footprint would be negligible (if any); therefore, few impacts to sensitive species are anticipated.
- c. Modifications to Santa Anita Dam and Santa Anita Debris Dam could affect wetland resources. Additional wetlands surveys of these facilities will be required to identify the type and extent of potential impacts.
- d. Modifications to Santa Anita Dam (and to a lesser extent the Santa Anita Debris Dam and Santa Anita Spreading Grounds) could affect wildlife movement. Additional surveys of these facilities will be required to identify the type and extent of potential impacts. It is anticipated that appropriate mitigation measures are available to reduce these potential impacts.
- e. The City of Arcadia has an Oak Tree Ordinance that requires an Oak Tree Permit if oak trees are to be removed, relocated, or damaged, or if their protected zones would be encroached upon. The proposed project would comply with this ordinance.
- f. The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. This conclusion will be further confirmed with additional review of the Arcadia and Sierra Madre General Plans.

See Table H-1 for additional information regarding project components that may require further evaluation of potential biological resources impacts and permitting needs.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V. CULTURAL RESOURCES.	Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<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 Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. The Santa Anita Dam (constructed 1924–1927), Santa Anita Debris Dam (constructed 1955–1960), and the Santa Anita Headworks are over 50 years old. Structural modifications proposed for each of these facilities will require further evaluation to determine their respective value.
- b. Construction activities at each of the project sites could potentially disturb archaeological resources. Although such occurrence is considered unlikely due to the extent of previous grading and earthmoving activities, a cultural resources records search and reconnaissance survey is necessary to refine the nature and extent of potential impacts. If it is determined that these resources do exist on site, mitigation measures would be implemented to ensure their protection and preservation.
- c. Construction activities at each of the project sites could potentially disturb paleontological or unique geologic resources. Although such occurrence is considered unlikely due to the extent of previous grading and earthmoving activities, a cultural resources records search and reconnaissance survey is necessary to refine the nature and extent of potential impacts. If it is determined that these resources do exist on site, mitigation measures would be implemented to ensure their protection and preservation.
- d. The presence of human remains is considered unlikely due to the extent of previous grading and earthmoving activities. Appropriate monitoring activities will be conducted during site grading and earthmoving at each project site.

See Table H-1 for additional information regarding project components that may require further evaluation of potential cultural resources impacts and permitting needs.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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 checked="" type="checkbox"/>	<input type="checkbox"/>
2. Strong seismic groundshaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table H-18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. There are several fault lines known to exist in the general area. Both the Sierra Madre and Raymond Faults lie within 1 mile of the general project vicinity. Given that southern California is seismically active, a major component of the proposed improvements is to increase system reliability in case of a major earthquake, particularly at the Santa Anita Dam and the Santa Anita Debris Dam. The proposed improvements would help reduce impacts associated with groundshaking, liquefaction, ground failure, or landslides, and

would improve upon existing onsite conditions. Further review of the Arcadia and Sierra Madre General Plans and other available documents will confirm assessments of existing soil conditions.

- b. Project construction activities would result in the temporary loss of topsoil. Longer-term impacts to topsoil and erosion would be negligible once new project facilities and revegetation are in place.
- c. The project sites have existing structures on them, and the proposed improvements are meant to improve stability and reliability of those structures. Impacts would be beneficial.
- d. The project sites have existing structures on them, and the proposed improvements are meant to improve stability and reliability of those structures. The potential for project components being located on expansive soils will be further evaluated with additional review of the Arcadia and Sierra Madre General Plans and other available documents.
- e. The proposed project does not involve the use or addition of septic tanks or wastewater systems.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS.				
Would the project:				
a.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				
b.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?				
c.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				
d.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Be located on a site that 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?				
e.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?				
f.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?				
g.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				
h.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?				

- a. Petroleum products and other hazardous materials may be used during project construction. Materials would be transported and stored in accordance with applicable

- safety requirements to reduce the likelihood of exposure to construction workers and the public. Construction and rehabilitation, of the Santa Anita Dam in particular, would require the removal and disposal of potentially large amounts of sediment. This sediment would need to be tested for possible contamination prior to disposal in an offsite location and handled and cleaned up accordingly if contamination is found.
- b. The potential for hazardous materials upset would be reduced by adherence to applicable regulations concerning the transport, storage, and use of such materials. Appropriate mitigation measures would be implemented to protect adjacent waters and biological resources.
 - c. There is an elementary school located within approximately 0.25 mile of the Sierra Madre Spreading Grounds; however, construction activities involving hazardous emissions or materials would be very limited at that site (if they would occur at all). Appropriate mitigation measures would be implemented during project construction to ensure that safety requirements are met. Other project components do not have schools located in their respective vicinities.
 - d. A VISTA database search would be conducted to determine the presence of listed hazardous materials sites in the project vicinity. Based upon the longstanding use of each project location for water resources management, it is anticipated that few contaminated sites, if any, will be identified. Excavated sediments would need to be tested for possible contamination prior to disposal in an offsite location. Contaminated sediments would be handled and disposed of in accordance with applicable regulations.
 - e. The project sites are not located within an airport plan or within 2 miles of an existing airport.
 - f. The project sites are not located within the vicinity of a private airstrip.
 - g. The proposed project would not interfere with an emergency response plan or evacuation plan.
 - h. Existing facilities are currently located at each of the proposed project sites. The current level of protection against damage from wildfires would continue at this location. There is the potential to expose construction workers to the risk of wildland fires; however, appropriate fire safety practices would be implemented during project construction to reduce the potential for construction-generated wildfires.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact	
VIII. HYDROLOGY AND WATER QUALITY.					
Would the project:					
a.	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in 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 that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in substantial erosion or siltation onsite or offsite?	<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 that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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"/>	➔➔
j.	Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔

- a. Construction activities, particularly at Santa Anita Dam, could result in potential water quality impacts unless sediment accumulation is controlled. Accordingly, sediment management, excavation, and disposal will be a critical component of construction activities. The Los Angeles County Department of Public Works intends to commence a separate, standalone sediment cleanout project behind Santa Anita Dam in fiscal year 2007-08 or 2008-09, subject to approval of necessary environmental review. Sediment management for the East Raymond Basin Plan would be consistent with the County’s standalone sediment cleanout project, and is expected to maintain potential sedimentation impacts from construction activities at a less-than significant level. With implementation of appropriate sediment management practices, the proposed East Raymond Basin project improvements would not violate any water quality standards or waste discharge requirements.
- b. The proposed project would not deplete groundwater supplies and proposes to increase recharge by making improvements to storage and infiltration capabilities at the Santa Anita and Sierra Madre Spreading Grounds. Impacts would be beneficial.
- c. The proposed project would not substantially alter drainage patterns. Where construction may occur within a drainage facility (e.g., Santa Anita Debris Basin and Sierra Madre Diversion Structure), the areas are constructed of solid materials such as cobblestone and concrete and are not be expected to be altered as a result of the improvements.
- d. As discussed above, the proposed project would not substantially alter drainage patterns. Potential impacts to runoff from the various project sites should be beneficial, as no substantial new impervious surfaces outside of existing facility footprints would be added and the spreading grounds improvements are expected to increase groundwater recharge.

There would be a small increase in surface water storage capacity in the watershed behind an improved headworks berm. Full rehabilitation of both Santa Anita Dam and Santa Anita Debris Dam would increase water conservation storage capacity for conservation above current allowed capacity at both of those facilities, but not more than the original design capacity. Partial rehabilitation of both Santa Anita Dam and Santa Anita Debris Dam would increase water conservation storage capacity for conservation above current allowed capacity at both of those facilities, but would be less than the

original design capacity. The debris retention only alternatives are essentially the current status quo and present no significant water conservation storage capacity.

- e. The Sierra Madre Spreading Grounds could potentially increase demand on the stormwater system during conditions when overflow may be directed to the system on an adjacent street. The quantity of overflow is not expected to exceed the capacity of the system. Overflows (which are typically rare) can be limited by restricting inflow from the Santa Anita and Sierra Madre diversion structures.
- f. As noted above in response VIII a, a sediment management plan would be implemented to reduce potential sedimentation from construction activities at Santa Anita Dam and other project locations.
- g. The project would not involve the construction of new housing or modify flood inundation areas such that existing housing would be located within a 100-year flood hazard area. For the alternatives that involve lowering of the spillway (i.e., partial rehabilitation and debris retention for Santa Anita Dam, and debris retention for Santa Anita Debris Dam), the time scale of the overflow hydrograph may be extended compared to original design and current allowed, but the flood peak is not expected to noticeably change.
- h. The project would not involve the construction of new housing. Although dam modifications may affect the location of downstream flood zones, overall, the number of homes affected by flood flows is not expected to measurably change.
- i. The project would include proposed improvements designed to improve the seismic stability of various flood control facilities. Impacts would be beneficial.
- j. The project would not contribute to inundation by seiche, tsunami, or mudflow.

See Table H-1 for additional information regarding project components that may require further evaluation of potential hydrology and water quality impacts and permitting needs.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX. LAND USE AND PLANNING. Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔

- a. The proposed project would involve improvements to existing facilities and would not physically divide an established community. Roadway lane closures, if any, due to pipeline construction would be temporary.
- b. The proposed project would not interfere with any plan or policy set forth to protect the communities and prepare for future development.
- c. The proposed project would not conflict with adopted conservation plans.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X. MINERAL RESOURCES.	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"/>	➔➔
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"/>	➔➔

- a. The project would not involve the loss of valuable mineral resources in the project vicinity.
- b. There are no locally important mineral resources in the project vicinity. This conclusion will be further confirmed with additional review of the Arcadia and Sierra Madre General Plans.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI. NOISE. Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a 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"/>
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in 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"/>
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and 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. Be located in the vicinity of a private airstrip and 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"/>

- a. Project construction activities (e.g., modifications to Santa Anita Dam, Santa Anita and Sierra Madre Debris Dams, diversion structure, and installation of production wells) would generate localized construction noise. Mitigation measures would be implemented to reduce and avoid noise impacts where possible, and to ensure consistency with local noise ordinances. Typical measures may include restrictions on time and duration for construction, installation of noise barriers, and limits on the number of equipment that may operate at one time.
- b. Grading, earthmoving, and related construction activities could temporarily increase groundborne noise and/or vibration levels. Mitigation measures would be implemented to reduce and avoid noise impacts where possible.
- c. Project construction activities will generate temporary noise impacts; however, upon completion, ambient noise levels should return to levels existing prior to construction. No permanent impacts are expected.

- d. Project construction activities would generate localized construction noise and increase ambient noise levels. Mitigation measures would be implemented to reduce and avoid noise impacts where possible. Typical measures may include restrictions on time and duration for construction, installation of noise barriers, and limits on the number of equipment that may operate at one time.
- e. The proposed project is not located within an airport land use plan or within 2 miles of an existing airport.
- f. The proposed project is not located within the vicinity of a private airstrip.

See Table H-1 for additional information regarding project components that may require further evaluation of potential noise impacts and permitting needs.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII. POPULATION AND HOUSING. Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔

- a. The proposed project involves an increase in water storage and recharge capabilities (e.g., Santa Anita Dam, spreading grounds); however, this storage is intended to increase the supply reliability of the water system rather than the service population. Other proposed improvements would improve structure stability and delivery reliability in the event of a substantial seismic event. The project would not induce growth.
- b. No homes would be displaced as a result of the proposed project.
- c. No persons would be displaced as a result of the proposed project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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 following public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	➔➔

a. Project-related impacts to governmental facilities (e.g., fire, police, schools, parks, or other) would be negligible. No services would be altered and no additional facilities would be required as a result of the proposed project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV. RECREATION. Would the project:				
a. 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 checked="" type="checkbox"/>	<input type="checkbox"/>
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. The proposed project would not result in significant impacts to the use of neighborhood or regional parks. Hikers and other recreational users of Angeles National Forest trails could be temporarily affected by access restrictions adjacent to Santa Anita Dam. In addition, the Headworks are located near a County-operated wilderness park. Contractor staging may temporarily impact recreation, parking, and ambient noise; however, these impacts would be short-term.
- b. No additional or expanded recreational facilities would be required as a result of the proposed project. The future use of selected project locations for public recreation, if required by permitting agencies, is anticipated to beneficially affect local recreational users.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC. Would the project:				
a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 because of 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

- a. Construction activities will generate vehicle and truck trips on local roads associated with workers, equipment, and soil hauling. These impacts would be most substantial for improvements to Santa Anita Dam and construction of linear facilities (pipelines). Pipeline installation will likely involve the temporary closure of traffic lanes. A traffic study will be required to identify the extent of impacts to local streets and intersections for each project component, as well as mitigation measures to be implemented to reduce these impacts. Typical measures include restrictions on hauling activities (time of day, use of a designated route away from schools and other sensitive receptors), and public notification (informing neighboring residences of hauling and construction operations).
- b. Project-related truck traffic could result in longer traffic queues, turning movement delays, and temporary road closures or blockages that could adversely affect the level of

service (LOS) for local roads. Impacts are expected to be most noticeable for the Sierra Madre Diversion modifications, spreading grounds, and transmission line improvements, as these facilities are located in more densely populated areas. Appropriate mitigation measures would be identified in traffic studies for each respective project component and would be implemented to minimize impacts to LOS.

- c. The project would have no impacts to air traffic.
- d. Construction truck traffic would travel at a slower pace than local traffic; however, the project would not involve the addition or modification of design features to local roads that could result in any unique or substantial safety risks.
- e. The proposed improvements would not interfere with emergency access routes. The movement of large pieces of construction equipment or materials would be coordinated with local police and fire departments, as applicable.
- f. Project components involving pipeline installation would result in short-term parking impacts along local roads; however, these impacts would be short-term. Signage, temporary parking facilities, or other mitigation measures, as appropriate, would be identified in the project's traffic study. Activities at other facilities (e.g., Santa Anita Dam, spreading grounds) are not expected to affect parking.
- g. No impacts to public and/or alternative transportation would occur.

See Table H-1 for additional information regarding project components that may require further evaluation of potential transportation and traffic impacts and permitting needs.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. 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 checked="" type="checkbox"/>	<input type="checkbox"/>
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in a determination by the wastewater treatment provider that 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 type="checkbox"/>	<input checked="" type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. The proposed project would not exceed the LARWQCB's treatment requirements.
- b. The project proposes improvements to existing water facilities and may require that additional facilities (i.e., water or wastewater) be built or expanded (for example, pipeline connection for an extraction well).
- c. The Sierra Madre Spreading Grounds could potentially increase stormwater by directing overflow into the storm drain system. However, the amount of additional water would not be expected to significantly increase demand on the system.

- d. The proposed project's purpose is to increase reliability of the water supply system to ensure availability to the surrounding communities. No new or expanded water entitlements would be required, depending upon what modifications, if any, are made to the dams.
- e. The Sierra Madre Spreading Grounds could potentially increase demand on the stormwater system during conditions when overflow may be directed to the system on an adjacent street. The quantity of overflow is not expected to exceed the capacity of the system.
- f. Construction activities may result in a temporary increase in solid waste. Further details on construction methods and equipment will be necessary to determine the amount of solid waste potentially produced; however, such quantities would not exceed the capacity of local landfills.
- g. The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE.				
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 that 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"/>

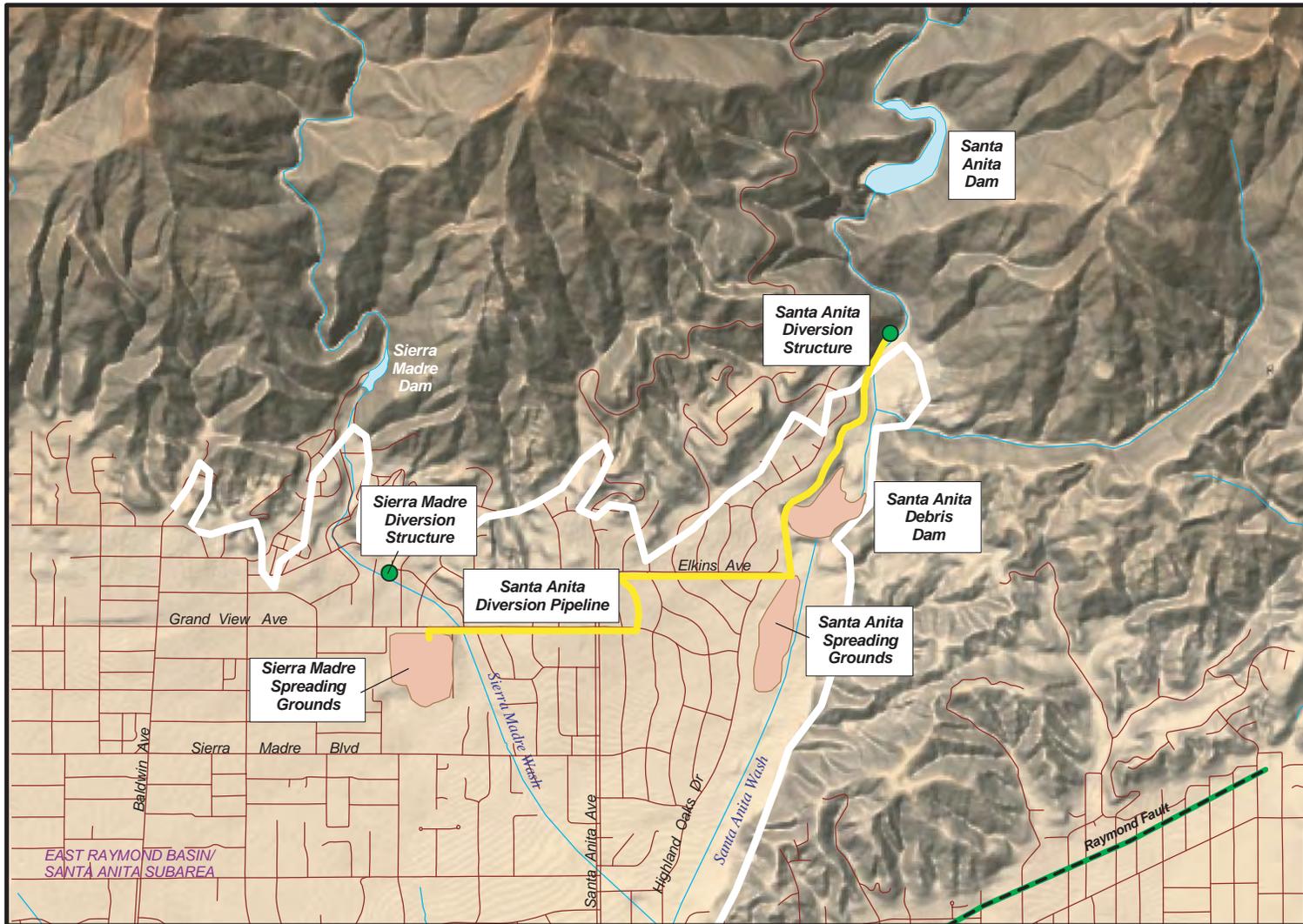
Mandatory findings of significance will be determined upon completion of additional studies and field surveys (biological resources, cultural resources) as may be required.

APPENDIX H
FIGURE

GEOSCIENCE Support Services, Inc.



EAST RAYMOND BASIN WATER RESOURCES PLAN



CITIES OF ARCADIA AND SIERRA MADRE

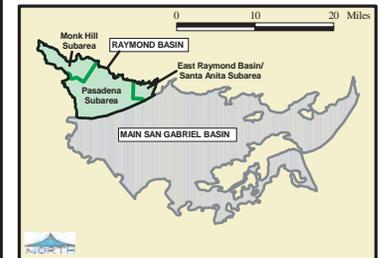
EXPLANATION

- Spreading Grounds or Debris Basin
- Surface Water
- Santa Anita Diversion Pipeline
- Diversion Structure
- Stream, Creek or River
- Raymond Basin Boundary
- Inferred Fault
- Faults from California Division of Mines and Geology, 1969. Scale 1:250,000.

NOTE: Identified Projects are Labeled with White Boxes



Ground Water Basins Inset



05056.05

Source: Geoscience, 2005.

Figure H-1
General Project Locations

APPENDIX H
TABLE

GEOSCIENCE Support Services, Inc.



SUMMARY OF POTENTIAL ENVIRONMENTAL PERMITTING REQUIREMENTS

✓ Likely required, based upon current information

* Possibly required; further information and/or field observation necessary

Alternative	Technical Studies/ Surveys Needed									Agencies Involved										Permits Needed						Estimated Cost and Schedule	Notes			
	Biology	Cultural	Air	Noise	Hydrology	Water Quality	Traffic	Phase I/ Sediment Sampling	Aesthetics	US Army Corps	USFWS	US Forest Service	EPA (US and/or Cal)	SWRCB	LARWQCB	CDFG	DSOD	LACoDPW	Other Cities	MWD	Other	404	401/WDRs	Section 7	Section 106			US Forest Service	1602	Sediment Removal
Santa Anita Dam Full Rehabilitation – crest spillway modification, new concrete buttress on downstream dam face, and outlets modifications. Considerations include reservoir level (drawdown for construction and operation changes), sediment removal and construction access/staging/facilities.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	*	*	✓	✓	✓	✓	✓			✓	✓	*	*	✓	✓	*	Costs: Tech studies: \$100,000 CEQA/NEPA: \$200,000 Permits: \$100,000 Overall schedule: 2 years	EIR/EIS. Site is within Angeles National Forest and City of Monrovia Corporate limits. Sediment removal is a key issue. CEQA lead – LACoDPW NEPA lead – U.S. Forest Service
Santa Anita Dam Partial Rehabilitation – crest spillway modification as with full rehabilitation, but with new spillway orifice through dam at elev 1270 and more limited buttress design. Considerations similar to above.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	*	*	✓	✓	✓	✓	✓			✓	✓	*	*	✓	✓	*	Costs: Tech studies: \$100,000 CEQA/NEPA: \$200,000 Permits: \$100,000 Overall schedule: 2 years	EIR/EIS. Site is within Angeles National Forest and City of Monrovia Corporate limits. Sediment removal is a key issue. CEQA lead – LACoDPW NEPA lead – U.S. Forest Service
Santa Anita Dam Debris Retention – would create free-draining condition with crest spillway modification as above. Considerations similar to above.	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	✓	*	*	✓	✓	✓	✓	✓			*	*	*	*	✓	✓	*	Costs: Tech studies: \$50,000 to \$100,000 CEQA/NEPA: \$50,000 to \$100,000 Permits: \$10,000 to \$100,000 Overall schedule: 1 to 2 years	EIR/EA. More limited alterations to dam structure may not require cultural resources or aesthetics evaluation. 404/401 requirement could be triggered if construction requires activity in Santa Anita Canyon on downstream side of dam or as a result of change in downstream conditions due to changes in reservoir operation CEQA lead – LACoDPW NEPA lead – U.S. Forest Service
Santa Anita Headworks Improvements – replace gates, install meters/cameras, engineered spillway to replace earthen berm. Considerations include construction access and staging requirements.	✓	✓	*	*			*	*	*	✓	*		*	*	✓	✓		✓				✓	✓	*	*		✓		Costs: Tech studies: \$10,000 to \$50,000 CEQA/NEPA: \$10,000 to \$50,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 1 year	IS/EA. Site and construction limits are understood to be outside Forest boundary and within City of Arcadia corporate limits CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Debris Dam Full Rehabilitation – intake tower repair/replacement, relocate spillway, outlet extension to relocated spillway. Considerations include construction access and staging requirements, and operational changes affecting impoundment and downstream discharges.	✓	✓	✓	✓	*	*	✓	✓	*	✓	*		*	*	✓	✓	✓	✓	✓			✓	✓	*	*		✓	*	Costs: Tech studies: \$25,000 to \$75,000 CEQA/NEPA: \$25,000 to \$75,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 2 years	IS/EA or EIR/EA. Basin straddles Arcadia/Monrovia corporate boundary. Potential property takes. CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead

Alternative	Technical Studies/ Surveys Needed										Agencies Involved										Permits Needed						Estimated Cost and Schedule	Notes		
	Biology	Cultural	Air	Noise	Hydrology	Water Quality	Traffic	Phase I/ Sediment Sampling	Aesthetics	US Army Corps	USFWS	US Forest Service	EPA (US and/or Cal)	SWRCB	LARWQCB	CDFG	DSOD	LACoDPW	Other Cities	MWD	Other	404	401/WDRs	Section 7	Section 106	US Forest Service			1602	Sediment Removal
Santa Anita Debris Dam Partial Rehabilitation – modifications to existing spillway (lowering and addition of trash rack) to reduce dam height/basin storage below DSOD thresholds. Considerations include construction access and staging requirements, and operational changes (impoundment, downstream discharge patterns and debris removal frequency).	✓	✓	✓	✓	*	*	✓	✓	*	✓	*		*	*	✓	✓	✓	✓	✓			✓	✓	*	*		✓	*	Costs: Tech studies: \$25,000 to \$75,000 CEQA/NEPA: \$25,000 to \$75,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 2 years	IS/EA or EIR/EA. CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Debris Dam Debris Retention – intake tower modifications (remove control valve, seismic strengthening) and seismic strengthening of spillway walls. Considerations include construction access and staging requirements, and operational changes relative to storage/downstream discharges.	✓	✓	*	*	*	*	*	*	*	✓	*		*	*	✓	✓	✓	✓	✓			✓	✓	*	*		✓	*	Costs: Tech studies: \$25,000 to \$75,000 CEQA/NEPA: \$25,000 to \$75,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 2 years	IS/EA or EIR/EA CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Spreading Grounds Basin Bottom Modifications – remove boulders and add sand to accommodate mechanical cleaning once a year. Considerations include construction material hauling and modification of vegetation conditions within maintained basins.	✓		✓	*	*		*	*		✓	*		*	*	✓	✓		✓		*		✓	✓	*	*		✓	*	Costs: Tech studies: \$10,000 to \$50,000 CEQA/NEPA: \$10,000 to \$50,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 1 year	IS/EA. MWD Upper Feeder in proximity CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Spreading Grounds Expansion – create 2 acres of additional basin area by excavating and creating perimeter berms.	✓	*	✓	*	*		*	*		✓	*		*	*	✓	✓		✓				✓	✓	*	*		✓		Costs: Tech studies: \$10,000 to \$50,000 CEQA/NEPA: \$10,000 to \$50,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 1 year	IS/EA. CEQA lead – LACoDPW NEPA lead – EPA or US Army Corps. If qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Spreading Grounds Extraction Well(s) – assumed site at Highland Oaks Park / Elementary School. Considerations include alignment for pipeline connection to City distribution system.		✓		*		*							*	*	✓			✓					✓						Costs: Tech studies: \$5,000 to \$20,000 CEQA/NEPA: \$2,500 Permits: \$1,000 Overall schedule: 3 to 6 months	CE/CatEx. CEQA lead – City of Arcadia NEPA lead – US EPA, if federal funding Does this project have independent utility from the spreading grounds improvements? If not, would be treated as part of either of the above options for spreading grounds enhancement

Alternative	Technical Studies/ Surveys Needed								Agencies Involved										Permits Needed					Estimated Cost and Schedule	Notes					
	Biology	Cultural	Air	Noise	Hydrology	Water Quality	Traffic	Phase I/ Sediment Sampling	Aesthetics	US Army Corps	USFWS	US Forest Service	EPA (US and/or Cal)	SWRCB	LARWQCB	CDFG	DSOD	LACoDPW	Other Cities	MWD	Other	404	401/WDRs			Section 7	Section 106	US Forest Service	1602	Sediment Removal
Santa Anita Diversion Pipeline Rehabilitation (liner) – considerations include ability to use existing manholes versus need to establish new access points, and access and staging requirements along segment between diversion structure and turnout at Santa Anita spreading grounds.	*	*	*	*			*			*	*		*	*	*	*		✓		*		*	*	*	*		*		Costs: Tech studies: \$0 to \$30,000 CEQA/NEPA: \$10,000 to \$25,000 Permits: \$0 to \$50,000 Overall schedule: 6 months to 1 year	IS/EA. MWD Upper Feeder in proximity CEQA lead – City of Sierra Madre NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Santa Anita Diversion Pipeline Replacement - considerations include access and staging requirements along segment between diversion structure and turnout at Santa Anita spreading grounds.	*	*	✓	✓			✓			*	*		*	*	*	*		✓		*		*	*	*	*		*		Costs: Tech studies: \$10 to \$50,000 CEQA/NEPA: \$10,000 to \$50,000 Permits: \$0 to \$50,000 Overall schedule: 6 months to 1 year	IS/EA. CEQA lead – City of Sierra Madre NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Sierra Madre Diversion Structure Improvements – modification of existing facilities on Sierra Madre Wash channel in vicinity of Camillo Street bridge and reconstruction of the inlet flume at the Sierra Madre spreading grounds. Considerations include construction access and staging within Sierra Madre channel.				*						*			*	*	*	*		*				*						Costs: Tech studies: \$0 to \$20,000 CEQA/NEPA: \$2,500 to \$50,000 Permits: \$0 to \$10,000 Overall schedule: 1 month to 1 year	CE/CatEx or IS/EA. Improvement location does not appear to be sensitive or to trigger any special studies/permit requirements. May need to reevaluate depending upon construction access/staging details for work in Sierra Madre Channel and further detail as to proposed improvements and existing conditions at the spreading grounds inlet flume CEQA lead – City of Sierra Madre NEPA lead – EPA or US Army Corps. If Corps permit is required, should qualify NWP covered by programmatic EA. If a US EPA funding aspect proceeds first, EPA may take lead	
Sierra Madre Spreading Grounds Basin Bottom Modifications –add sand to accommodate mechanical cleaning once a year. Considerations include construction material hauling and modification of vegetation conditions within maintained basins.	*		✓	*			*	*		*	*		*	*	*			✓				*	*	*		*	*	Costs: Tech studies: \$10,000 to \$50,000 CEQA/NEPA: \$10,000 to \$50,000 Permits: \$0 to \$30,000 Overall schedule: 6 months to 1 year	IS/EA. CEQA lead – City of Sierra Madre NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead	

Alternative	Technical Studies/ Surveys Needed									Agencies Involved										Permits Needed						Estimated Cost and Schedule	Notes			
	Biology	Cultural	Air	Noise	Hydrology	Water Quality	Traffic	Phase I/ Sediment Sampling	Aesthetics	US Army Corps	USFWS	US Forest Service	EPA (US and/or Cal)	SWRCB	LARWQCB	CDFG	DSOD	LACoDPW	Other Cities	MWD	Other	404	401/WDRs	Section 7	Section 106			US Forest Service	1602	Sediment Removal
Sierra Madre Spreading Grounds Overflow Relief – establish standpipe or weir in lower end of spreading grounds discharging to gravity flow subsurface pipe. Considerations include overflow line alignment and outlet location.		*				*						*	*	*			*	✓											Costs: Tech studies: \$0 to \$15,000 CEQA/NEPA: \$2,500 Permits: \$0 to \$10,000 Overall schedule: 1 to 3 months	CE/CatEx. Indirect route on City property and streets does not appear to involve sensitive locations/resources, or to trigger permits. Excavation for pipeline may require cultural resources study CEQA lead – City of Sierra Madre NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
SGVMWD Pipeline Extension (including Alostia Connection) involves approximately 10 miles of pipeline, new booster station, and interconnections between SGVMWD and MWD facilities (Alostia connection). Considerations include crossing of San Gabriel River, work in San Dimas Wash, and introduction/expansion of SWP water in local basin.	✓	✓	✓	✓	✓	✓			✓	*		*	*	✓	✓		✓	✓	✓	✓	✓	✓	*	*		✓		Costs: Tech studies: \$50,000 to \$250,000 CEQA/NEPA: \$10,000 to \$250,000 Permits: \$20,000 to \$50,000 Overall schedule: 6 months to 2 years	IS/EA or EIR/EA or EIR/EIS CEQA lead –intertie operator NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead	
SWP Supply from Upper Feeder – [Need to clarify relationship to ERB program (see page 31 of 6/3/05 GeoScience report)]. Considerations include connection location, conveyance facility alignment, and introduction/expansion of SWP water in local basin.	*	*	*	*	*	*			*	*		*	*	*	*		*	*	✓	*	*	*	*	*	*	*	*		Costs: Tech studies: \$0 to \$250,000 CEQA/NEPA: \$10,000 to \$250,000 Permits: \$0 to \$50,000 Overall schedule: 6 months to 2 years	IS/EA or EIR/EA or EIR/EIS CEQA lead – City of Sierra Madre, or MWD NEPA lead – EPA or US Army Corps. If Corps permit is required and qualifies for NWP, will be covered by programmatic EA. If requires IP – Corps staff prefers to prepare EA. If a US EPA funding aspect proceeds first, EPA may take lead
Establishment of Public Recreation Uses – project proponents/facility operators are contemplating establishing such uses at reservoirs/debris basins in response to public demand and/or as way to offset costs.	*	*	*	*	*	*		*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*		Costs: Tech studies: TBD CEQA/NEPA: TBD Permits: TBD Overall schedule: TBD Required studies, level of documentation and required permits may vary widely depending upon facilities are involved project combinations, activities proposed, and/or treatment concurrent with water conservation aspects.	IS/EA or EIR/EA or EIR/EIS Ramifications in terms of supporting technical study needs, CEQA/NEPA documentation requirements and regulatory permit requirements may vary widely depending upon facility and extent/nature/intensity of proposed uses. For example, establishment of active use areas or lighting in proximity to sensitive species habitat could create conflicts and trigger compliance requirements. CEQA lead – facility operator NEPA lead –EPA, Corps or Forest Service could be lead depending upon facility and relative timing of any federal permitting/funding components.

✓ indicates study or process reasonably certain to be required based upon current level of information.

* indicates study or process that may be required depending upon further evaluation and field reconnaissance.

EPA and SWRCB potential involvement across projects is related to potential funding opportunities. These agencies may also have approval authority for some alternatives