RAYMOND BASIN
SALT AND NUTRIENT MANAGEMENT PLAN

FINAL SUBSTITUTE ENVIRONMENTAL DOCUMENT

RAYMOND BASIN MANAGEMENT BOARD

MAY 2016

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SECTION I INTRODUCTION

I.1 BACKGROUND

In February 2009, the State Water Resources Control Board of the State of California (State Water Board or SWRCB) approved the Resolution No. 2009-0011 to adopt the Recycled Water Policy (Policy) to encourage the use of recycled water from municipal wastewater sources as a safe alternative source of water supply while complying with the Resolution No. 68-16 to *"achieve highest water quality consistent with maximum benefit to the people of the State."* The goal of this Policy is to increase the use of recycled water over 2002 levels by at least one million acre-feet per year (af/yr) by 2020 and at least two million af/yr by 2030. Recognizing that some groundwater basins in the state contain salt and nutrients that exceed or threaten to exceed water quality objectives established in the Water Quality Control Plans (Basin Plans), and that not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt and nutrients, the State Water Board determined the appropriate way to address salt and nutrient issues is through the development of regional or sub-regional salt and nutrient management plans (SNMPs) rather than through imposing requirements solely on individual recycled water projects.

This Substitute Environmental Document (SED) is prepared to satisfy the California Environmental Quality Act (CEQA) requirements for the Raymond Basin SNMP. The SED evaluates potential cumulative impacts to groundwater quality due to the implementation of proposed projects and programs developed and presented in the Salt and Nutrient Management Plan to manage salt and nutrients on a sustainable basis. The SED will be considered by the Regional Water Quality Control Board - Los Angeles Region (RWQCB or LARWQCB) as part of the adoption of the implementation provisions contained in the SNMP. The Raymond Basin SNMP was developed by the Raymond Basin Management Board (RBMB) in conjunction with primary stakeholders consisting of the Metropolitan Water District of Southern California (MWD) and the Los Angeles County Department of Public Works (LACDPW).

Section 6(b) of the Recycled Water Policy notes SNMPs are to comply with CEQA. The basin planning process is certified by the Secretary for Natural Resources as a regulatory program exempt from the requirements to prepare an Environmental Impact Report, Negative Declaration, and Initial Study (Title 14, California Code of Regulations (CCR), Section 15241(g)). However, a certified program is subject to other provisions in CEQA (Pub. Resources Code, Section 21000 et seq.), such as the requirement to avoid significant adverse effects to the environment where feasible. The RWQCB is required to comply with

State Water Board regulations set forth in California Code of Regulations, Title 23, sections 3775 et. seq, and Public Resources Code section 21159.

The SED is organized as follow:

- Section I - Introduction
- Section II – Regulatory Requirements
- Section III – Environmental Setting
- Section IV – Implementation Measures
- Section V – Program Alternatives
- Section VI – Environmental Analysis
- Section VII – Determination
- Section VIII – References

I.2 PROJECT DESCRIPTION

The proposed Raymond Basin SNMP, covering the regions of the Raymond Groundwater Basin, as identified in the Raymond Basin Judgment, is intended to fulfill the requirements of the Recycled Water Policy in order to establish a framework for the management of salts and nutrients in the Basin, including those resulting from increased recycled water use. Likewise, the purpose of this SED is to satisfy the CEQA requirements for the Raymond Basin SNMP. CEQA requirement are discussed further in Section II.5.

I.2.1 Lead Agency

The CEQA lead agency is the RWQCB, Los Angeles Region, who has worked in conjunction with RBMB, who represents the stakeholders in the Raymond Basin.

Address:
Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

I.2.2 Program Stakeholders

In addition to the RBMB (and the groundwater producers it represents), the primary program stakeholders are those entities that may contribute to salt and nutrient loading and unloading within the Raymond Basin. The stakeholders are as follows:

- Metropolitan Water District of Southern California
- Los Angeles County Department of Public Works

RBMB has represented the stakeholders for the SNMP and CEQA processes.

I.2.3 Salt and Nutrient Management Plan Characteristics

The Main Basin SNMP contains the following plan characteristics as required by the Policy. The reports sections in the SNMP where these characteristics can be found are included after each.

- Basin Wide Monitoring Plan (Chapter V)
- Monitoring of Constituents of Emergency Concern (Chapter V)
- Source Identification/Source Loading and Assimilative Capacity Estimates (Chapter III.5)
- Consideration of Water Recycling/Stormwater Recharge/Use (Chapter III.5.3)
- Implementation Measures (Chapter III.6)
- Anti-Degradation Analyses (Chapter IV)

I.3 PROGRAM OBJECTIVES

The primary goal of the Raymond Basin SNMP is to assist RBMB and participating/potential stakeholders to comply with the Policy regarding the use of the recycled water from municipal wastewater treatment facilities as a safe source of water supply, while maintaining the water quality objectives for salt and nutrients in the Basin Plan established by the LARWQCB. The primary objective of the Raymond Basin SNMP is to comply with the specific requirements described in the Policy, as discussed in Section IV.1.3. The objective of this SED is to fulfill the CEQA requirements for the implementation of the SNMP.

SECTION II REGULATORY REQUIREMENTS

The Raymond Basin SNMP is required to be in compliance with CEQA guidelines to determine the potential environmental impacts and potential mitigation measures to reduce impacts. The California Secretary for Natural Resource has specifically exempted SNMPs from certain CEQA requirements including the preparation of an initial study and the preparation of a negative declaration or Environmental Impact Report (EIR). However, a SED involves program level analysis and must include an alternatives analysis, identification of mitigation measures, and an environmental checklist.

This section presents the regulatory requirements for assessing the potential environmental impacts associated with the proposed implementation measures and major recycled water projects identified in the Raymond Basin SNMP.

II.1 RECYCLED WATER POLICY

The SWRCB adopted Resolution No. 2009-0011, *Policy for Water Quality Control for Recycled Water* (Recycled Water Policy) in February 2009. The Recycled Water Policy was amended to include the monitoring requirements for priority pollutants and Constituents of Emerging Concern (CECs), by Resolution No. 2013-0003, which was adopted by the SWRCB on January 22, 2013, and became effective on April 25, 2013. The Recycled Water Policy, as amended, is included as Attachment A.

The goals of the Recycled Water Policy are to increase the use of recycled water over 2002 levels by at least one million acre-feet per year (AFY) by 2020, and at least two million AFY by 2030. Recognizing some groundwater basins in the State of California contain salt and nutrients which exceed or threaten to exceed water quality objectives established in Water Quality Control Plans (Basin Plans), and that not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt and nutrients, the State Water Board determined the appropriate way to address salt and nutrient issues is through the development of regional or sub-regional SNMPs, rather than through imposing requirements solely on individual recycled water projects.

The RWQCBs act as an overseer and facilitator of the SNMP development process. LARWQCB staff have attended stakeholder meetings for various groundwater basin/sub-basin groups to provide support and information. In the Raymond Basin, the RBMB is the lead agency for the development of the SNMP for the Basin (Raymond Basin SNMP). Participating and potential stakeholders may include the Los Angeles County Department of Public Works and Metropolitan Water District of Southern California.

RBMB staff has coordinated closely with the RWQCB staff on the development progress and the contents of the Raymond Basin SNMP.

II.2 LARWQCB GUIDANCE

The development of the Raymond Basin SNMP and this SED considers the document entitled "*Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region*" (Guidance). The final Guidance, which was dated June 28, 2012, is included as Attachment B. The purpose of the Guidance is to provide information and guidance to assist with aspects of the SNMP development ensure the final product is compliant with the specific requirements of the Recycled Water Policy as well as state and federal water quality laws. The Guidance also outlines the CEQA requirements for LARWQCB adoption of an implementation plan, included in the Raymond Basin SNMP, into its Basin Plan.

II.3 CEQA

In compliance with CEQA, the potential significant environmental impacts of proposed projects and respective measures to avoid or mitigate these impacts where feasible are identified. Section 3 of the Policy states, *"the State Water Board finds that the use of recycled water in accordance with this Policy, that is, which supports the sustainable use of groundwater and/or surface water, which is sufficiently treated so as not to adversely impact public health or the environment and which ideally substitutes for use of potable water, is presumed to have a beneficial impact. Other public agencies are encouraged to use this presumption in evaluating the impacts of recycled water projects on the environment as required by [CEQA]."*

The basic purposes of CEQA, as outlined in the Guidance, are the following:

(1) Inform decision makers and public about the potential significant environmental effects of a proposed project;

(2) Identify ways that environmental damage may be mitigated;

(3) Prevent significant, avoidable damage to the environment by requiring changes in projects, through the selection of alternative projects or the use of mitigation measures when feasible; and

(4) Disclose to the public why an agency approved a project if significant effects are involved (CCR Title 14, Section 15002(a)).

As stated in the Guidance, the California Secretary for Natural Resources has certified the State and RWQCB's basin planning process ("Certified Regulatory Program") as exempt from certain CEQA requirements, specifically the preparation of an initial study, negative declaration, and environmental impact report (CCR Title 14, Section 15251(g)). However, a Certified Regulatory Program remains subject to other CEQA provisions, such as the requirement to avoid significant adverse effects to the environment where feasible.

II.4 EXEMPTION FROM CERTAIN CEQA REQUIREMENTS

A proposed amendment to the Basin Plan is part of the basin planning process of the Water Boards, i.e. both SWRCB and RWQCBs. The California Secretary for Natural Resources had certified that the basin planning process is exempt from certain CEQA requirements, including preparation of an initial study, negative declaration, or environmental impact report (CCR, Title 14, Section 15251(g)). However, as a Certified Regulatory Program, the basin planning process remains subject to other provisions of CEQA, such as the requirement to avoid significant adverse effects on the environment where feasible (CCR, Title 14, Section 15250). This SED is the substitute for the initial study, negative declaration, and environmental impact report and, as required, includes a description of the proposed activity, identification of potentially significant effects on the environment (if any), and identification of alternatives to the activity or mitigation measure to avoid or reduce potentially significant effects on the environment (CCR, Title 23, Section 3777(a)). The LARWQCB is required to comply with the SWRCB regulations set forth in CCR, Title 23, Sections 3775 et. seq., and California Public Resources Code (PRC) Section 21159.

II.5 CALIFORNIA CODE OF REGULATIONS, AND PUBLIC RESOURCES CODE REQUIREMENTS

II.5.1 California Code of Regulations

Title 23, Section 3777(a) requires a written report detailing the proposed activity, analysis of reasonable alternatives, and identification of mitigation measures to minimize any significant adverse environmental impacts for a "Certified Regulatory Program". Section 3777(a) also requires completion of an Environmental Checklist. The LARWQCB is required to comply with the SWRCB regulations set forth in CCR Title 23, Sections 3775 et. Seq,

As defined in CCR Title 40, Sections 130.2(k) and 130.6, an SED must be prepared for any water quality control plan, state policy for water quality control, or any other components of the state's water quality management plan proposed for RWQCB approval or adoption, and supported by substantial evidence in the administrative record. An SED may be comprised of a single document or a compilation of documents. The SED must be circulated prior to RWQCB approval or adoption of a project as specified in CCR Title 23, Sections 3778 and 3779. An SED is a written report containing an environmental analysis of the proposed project, a completed environmental checklist, and other documentation the RWQCB deems necessary. A SED must include the following information:

- Brief Description of the proposed project;
- Identification of any significant or potentially significant adverse environmental impacts of the proposed project;
- Analysis of reasonable alternatives to the project and mitigation measures to avoid or reduce any significant or potentially significant adverse environmental impacts; and
- Environmental analysis of the reasonably foreseeable methods of compliance with the project.

II.5.2 Environmental Analysis

The environmental analysis is to include, at a minimum, the following:

- An identification of the reasonably foreseeable methods of compliance with the project;
- An analysis of any reasonably foreseeable significant adverse environmental impacts associated with those methods of compliance;
- An analysis of reasonably foreseeable alternative methods of compliance that would have less significant adverse environmental impacts; and
- An analysis of reasonably foreseeable mitigation measures that would minimize any unavoidable significant adverse environmental impacts of the reasonably foreseeable methods of compliance.

In preparation of the environmental analysis, the LARWQCB may utilize numerical ranges or averages where specific data are not available. The environmental analysis is to take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites, but the LARWQCB is not be required to conduct a site-specific project level analysis of the methods of compliance, which CEQA may otherwise require of those agencies who are responsible for complying with the plan or policy, when they determine the manner in which they will comply.

As to each environmental impact, the SED is to contain findings as described in State CEQA Guidelines (CCR Title 14, Section 15091, and if applicable, a statement of overriding considerations as described in CCR Title 14, Section 15093. If the LARWQCB determines no fair argument exists that a

proposed program alternative could result in any foreseeable significant adverse environmental impacts, the SED is to include a finding to that effect in lieu of the analysis of alternatives and mitigation measures.

II.5.3 California Public Resources Code (PRC)

PRC Section 21159 requires an environmental analysis take into account a reasonable range of environmental, economic, and technical factors; population and geographic areas; and specific sites. PRC Section 21159(d) states that the LARWQCB is not required to conduct a "project level analysis"; however, a project-level analysis must be performed by the local agencies that will implement the strategies and projects identified in the SNMP (PRC Section 21159.2). LARWQCB is prohibited from specifying the manner of compliance with its regulations (California Water Code Section 13360), and accordingly, the actual environmental impacts will necessarily depend upon the compliance strategy selected by the local agencies and other permittees.

II.5.4 CEQA Scoping Meeting

Both the RWQCB staff and stakeholder groups were involved in the environmental analysis for the Raymond Basin SNMP. The table below lists the different aspects of the CEQA process and identifies the roles of each party.

TASK	LARWQCB	STAKEHOLDERS
Lead Agency	Lead	
CEQA Scoping Meeting	Co-Lead	Co-Lead
Environmental Analysis	Oversight	Lead
SED Development	Oversight	Lead
Document Review	Lead	
Response to Comments	Lead – Regulatory	Lead – Technical
Revisions	Oversight/Review	Lead
Public Hearing	Lead	
Project Level EIR		Lead

Source: Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region

The CEQA scoping meeting was held jointly by the LARWQCB staff and stakeholder groups on March 8, 2016, while the environmental analysis was conducted primarily by the stakeholder groups with oversight and review by the LARWQCB. LARWQCB had the lead in responding to the regulatory comments, while stakeholders had the lead for responding to technical comments.

SECTION III ENVIRONMENTAL SETTING

III.1 INTRODUCTION

The primary goal of the Raymond Basin SNMP is to assist RBMB and participating/potential stakeholders to comply with the Policy regarding the use of the recycled water from municipal wastewater treatment facilities as a safe source of water supply, while maintaining the water quality objectives (WQOs) for salt and nutrients in the Basin Plan established by the LARWQCB.

Specific requirements described in the Policy that are addressed in the SNMP include (1) characterization of the Basin, (2) identification of sources of salt, nutrients, and constituents of emerging concern (CECs) (if necessary) and their fate and transport, (3) estimation of salt, nutrients, and CECs (if necessary) loadings and assimilative capacities, (4) identification of water recycling and stormwater recharge/use goals and objectives, (5) verification of compliance with Resolution No. 68-16 through anti-degradation analyses, and (6) development of a monitoring plan to verify compliance with the Basin water quality objectives. Throughout this SED these are references to Tables, Plates, and Appendices from the Raymond Basin SNMP and they are included in this SED by reference.

III.2 LAND USE

The Raymond Basin underlies the northwesterly portion of the San Gabriel Valley and is located in Los Angeles County about 10 miles northeasterly of downtown Los Angeles (Plate III.1). Raymond Basin is a wedge in the northwestern portion of the San Gabriel Valley and is bounded on the north by the San Gabriel Mountains, on the west by the San Rafael Hills, and is separated from the Main San Gabriel Basin on the southeast by the Raymond Fault. The Raymond Basin is divided into an eastern unit, the Santa Anita Subarea, a central unit, the Pasadena Subarea, and a western unit, the Monk Hill Subarea (Plate III.2). The surface area of Raymond Basin is about 40.9 square miles. Within the Raymond Basin, the Monk Hill Subarea underlies the City of La Canada - Flintridge and the northwesterly portion of the City of Pasadena. The larger Pasadena Subarea underlies most of the City of Pasadena and the unincorporated area of Altadena. The Santa Anita Subarea underlies the Cities of Arcadia and Sierra Madre. The San Gabriel Valley overlying the Raymond Basin is largely urbanized with little agricultural lands.

III.3 CLIMATE AND PRECIPITATION

The Raymond Basin is located within a region of both semiarid and Mediterranean climate, with warm, dry summers and mild winters with intermittent rain. The majority of the annual rainfall occurs between December and March. Precipitation in the Raymond Basin area has been monitored by a network of precipitation stations operated by Los Angeles County, Department of Public Works (LACDPW). For the purposes of the Raymond Basin SNMP, stations with the longest continuous records (1924-25 to 2011-12 fiscal years) were used (Plates III.6). The annual precipitation at the selected stations was obtained from LACDPW (Appendix C). Station Nos. 63, 175, 235, and 338, all of which are outside Raymond Basin, were used to calculate the mean annual precipitation for the mountain watershed, as shown on Plate III.7a. Station Nos. 167, 176, 591, and 610 were used to calculate the mean annual precipitation of the valley floor as shown on Plate III.7b. Annual precipitation within the Raymond Basin is more variable in the mountain watershed than in the valley floor. The mountain watershed (28.40 inches) averages about 7 inches more annual precipitation than the valley floor (21.33 inches).

III.4 MANAGEMENT OF THE GROUNDWATER BASIN

The Raymond has been adjudicated and management of the local water resources within the Raymond Basin is based on that adjudication. The following sections provide a description of the Raymond Basin Judgment.

III.4.1 Raymond Basin Judgment

In 1937, the City of Pasadena filed suit to adjudicate water rights of the Raymond Basin. A copy of the Raymond Basin adjudication is located in Appendix M. The DWR was retained to prepare a Report of Referee which described the geology and hydrogeology of the Raymond Basin and identified the Safe Yield of the Raymond Basin as 21,900 acre-feet. In 1950, the City of Pasadena requested the Safe Yield of the Raymond Basin to be re-determined. Subsequently, the Court issued a Modification of Judgment on April 29, 1955 increasing the Safe Yield of the Raymond Basin to 30,622 acre-feet. This is referred to as the "Decreed Right of 1955" and water rights for all parties are shown in Appendix M. On January 17, 1974, the second modification of the Raymond Basin Judgment was signed allowing Parties credit for spreading of canyon diversions in spreading grounds in the vicinity of the Arroyo Seco, Eaton Wash and Santa Anita Creek Canyon. On March 26, 1984, the third modification of the Raymond Basin Judgment was signed establishing the Raymond Basin Management Board as the Watermaster for the Raymond Basin.

The Raymond Basin Judgment adjudicated groundwater rights based on a long-term average yield of the Raymond Basin. In January 2008, the RBMB adopted a resolution which puts in place a self-imposed pumping reduction of 30 percent implemented over five years in the Pasadena Subarea. The goals of this resolution is to 1) reduce the total 1955 Decreed Rights from 17,843 AFY to 12,943 AFY in the Pasadena Subarea, 2) terminate the remaining Long-term Storage accounts in the Pasadena Subarea and 3) increase groundwater levels. In order to meet these goals, water production reductions were implemented incrementally at a rate of 1,070 AFY for five years until a 30 percent reduction is achieved. Implementation of this resolution began July 1, 2009 and has reached 30 percent in fiscal year 2013-14. SGCWD's Decreed Right is 1,091.0 AFY. The current reduction in fiscal year 2014-15 is 30 percent in the Pasadena Subarea, making SGCWD's Decreed Rights 763.7 AFY. The tabulation below provides annual Decreed Right including reductions during fiscal years 2009-10 through 2014-15, carryover, lease, and allowable groundwater extraction data for SGCWD.

III.5 GROUNDWATER BASIN OVERVIEW

The Raymond Basin SNMP includes only the portion of the Raymond Basin included in the Basin Judgment.

III.5.1 Geography

The Raymond Basin underlies the northwesterly portion of the San Gabriel Valley and is located in Los Angeles County about 10 miles northeasterly of downtown Los Angeles (Plate III.1). Raymond Basin is a wedge in the northwestern portion of the San Gabriel Valley and is bounded on the north by the San Gabriel Mountains, on the west by the San Rafael Hills, and is separated from the Main San Gabriel Basin on the southeast by the Raymond Fault. The Raymond Basin is divided into an eastern unit, the Santa Anita Subarea, a central unit, the Pasadena Subarea, and a western unit, the Monk Hill Subarea (Plate III.2). The surface area of Raymond Basin is about 40.9 square miles. Within the Raymond Basin, the Monk Hill Subarea underlies the City of La Canada - Flintridge and the northwesterly portion of the City of Pasadena. The larger Pasadena Subarea underlies most of the City of Pasadena and the unincorporated area of Altadena. The Santa Anita Subarea underlies the Cities of Arcadia and Sierra Madre.

The principal streams in the Raymond Basin are the Arroyo Seco, which drains the Monk Hill Subarea to the Los Angeles River, the Eaton Wash which drains the Pasadena Subarea and flows to the Rio Hondo, a distributary of the San Gabriel River, and the Santa Anita Wash which drains the Santa Anita Subarea and flows to the Rio Hondo, as shown on Plate III.2.

III.5.2 Geology

The geology of the Raymond Basin is described in detail in the "Report of Referee" prepared in 1943 by the State of California, Division of Water Resources, and the geology is summarized below.

The Raymond Basin is roughly triangular in shape. Its northerly boundary, about twelve miles in length, is formed by a portion of the southern front of the San Gabriel Mountains. The western boundary of the Raymond Basin is about eight miles long and is composed chiefly of the same Basement Complex rocks which form the mountains, and which are continuous at depth, together with a small area of marine Tertiary sediment at the southern end. Raymond Fault, the southern boundary of the triangle, crosses the San Gabriel Valley floor for a distance of about nine miles, connecting a granitic spur from the San Gabriel Mountains at the eastern end of the Raymond Basin with Tertiary sediments outcropping in its southwestern corner. The Raymond Fault separates the Raymond Basin from the Main San Gabriel Basin in the vicinity of the southeasterly boundary. The fault zone is not impervious and groundwater can flow across this boundary into the Main Basin. The source of natural groundwater supply to the Raymond Basin is direct rainfall, percolation from surface runoff from the northern and western sides, underflow from the Verdugo Basin, and possibly some underground percolation of water from the mountain mass to the alluvium. The general geology of the Basin is shown on Plate III.3.

*III.5.2.1 **Nonwater-Bearing Formations***

The nonwater-bearing formations include the Basement Complex rocks and Tertiary sediments of the Topanga, Modelo and Puente formations (Plate III.3). The nonwater-bearing formations do not absorb, transmit or yield water readily. The Basement Complex is comprised of old pre-Cretaceous series of crystalline rocks that comprise the basal formation of the region. These are chiefly igneous plutonic rocks of granitic type, together with their metamorphic phases, such as schists, gneisses, and also various intrusive dikes. The Basement Complex comprises the majority of San Gabriel Range to the north and the San Rafael Hills to the west. The Basement Complex protrudes above the alluvium at Monk Hill and near the head of Eaton Wash demonstrating that it is continuous beneath the area. The Topanga formation is of Tertiary age. In Raymond Basin, it is represented by fairly well bedded shales, sandstones, and conglomerates that are well consolidated and practically impervious. The exposed Topanga beds are limited to the southwesterly corner of the area along a fault block where the formation is exposed for a mile in the channel of Arroyo Seco just northerly of the Raymond Fault and for about one and one-quarter miles easterly from the Arroyo Seco to Raymond Hill.

III.5.2.2 ***Water-Bearing Formations***

The CDWR Bulletin No. 45 characterized the water-bearing formations of the Raymond Basin as alluvial fill having characteristics of the coarse deposits found in the small basins near the mountain margins. The deposits are coarsest at the base of the mountains where they contain boulders several feet in diameter, but even in the southerly part of the basin, cobbles, stones, and boulders are not uncommon. There are practically no true sand beds in the northerly part of Raymond Basin. The average sand content in the basin sediments as determined from well logs is only 2.8 percent. The deposits are characterized throughout by an abundance of weathered material. Decomposed yellowish gravels, clayey yellow and red gravels, and red or brown residual soil clays are the typical deposits (Plate III.3).

The older alluvium found within the area is practically continuous along the entire southerly flank of San Gabriel Range with little change in composition or structure. Within the Raymond Basin, it constitutes practically all of the water-bearing series and is not only dominant at the surface but appears to continue with depth to bedrock, although at depth, it may be in contact with some of the late Tertiary sediments. No attempt to differentiate these sediments has been attempted because of the similarity of material recorded in well logs. The older alluvial fill consists of a small portion of sand and almost equal proportions of gravel and clay. Older alluvial fill is of great thickness and its deposition has occurred through a long period. Weathering, disintegration, and cementation have been continuous and the results have varied with local conditions and there is considerable spatial variation in the water yielding characteristics of this formation.

Recent alluvium occupies channels, washes, and flood plains of Arroyo Seco, Eaton Creek, and Big and Little Santa Anita Creeks, and to a lesser extent, exists as veneers scattered along the slope of the valley resulting from flood discharges of ephemeral streams (Plate III.3). For the most part, the recent alluvium is believed to be shallow, but in the upper portions of Little Santa Anita Wash, the indications are that the recent alluvium may extend to a depth of about 150 feet. These sediments are similar to those found in the older alluvium but contain a much smaller proportion of clay and are unconsolidated.

III.5.2.3 ***Geological Features and Faults***

According to the Report of Referee, the geologic structure of Raymond Basin is complicated. The rough surface topography of the Basement Complex outside the area indicates that the bedrock floor beneath the alluvium undulates, although the present mountain block undoubtedly exhibits a more rugged topography due to its recent rejuvenation with accompanying accentuation of erosive forces, then the old

erosion surface was buried and protected by alluvial deposits of the area. However, within the area, except at the boundaries, and the granitic protrusions at Monk Hill and near the north end of Eaton Wash, there is no surface expression of undulations of bedrock which might indicate possible impediments to groundwater movement.

The San Gabriel Fault cuts through the central portion of San Gabriel Mountains and has an east-west trend. It is one of the main faults in the mountain block but is so distant that its effect upon the Raymond Basin area is only indirect.

The Sierra Madre Fault system is a broad zone of faulting with an east-west trend roughly parallel to the southern edge of the San Gabriel Mountains, swinging to the northwest in the vicinity of Sierra Madre. The main trace of this zone leaves the southern edge of the foothills at a point west of the mouth of Eaton Wash, penetrating the mountain block in a north-westerly direction for some distance before it again swings to the west. The bedrock contours as a result of the geophysical survey indicate a uniform northerly slope of the buried bedrock surface from San Rafael Hills.

The Raymond fault forms the boundary between the Raymond Basin and the Main San Gabriel Basin from the City of South Pasadena on the west to the City of Monrovia on the east. It is likely a thin, impervious gouge formed in alluvium because it creates a several hundred foot difference in water level elevation in approximately 2,700 feet between Del Mar Well of California American Water Company (CAWC) and Well No. 3 of San Gabriel County Water District (Plate III.4). In addition to the difference in water level elevation, the barrier effect of the Raymond fault is indicated by the presence of artesian conditions during periods of high water levels, and by the creation of ponds and swampy areas north of the fault line. As shown on semi-annual groundwater contour maps generated by the RBMB (Plate III.5), the Raymond fault appears to impede groundwater movement southward from the Raymond Basin into the Main San Gabriel Basin.

III.5.3 Hydrogeology

The Raymond Basin is a structural basin filled with permeable alluvial deposits, which is underlain and surrounded by relatively impermeable rock. It forms an aquifer, i.e. *"a geologic unit that can store and transmit water at rates fast enough to supply reasonable amounts to wells"*. The Basin aquifer is stratified in some areas by confining or semi-confining layers consisting of impermeable or less-permeable materials such as clay or silt. In these areas, the Basin aquifer is an aquifer system that may include an unconfined or water-table aquifer overlying individual confined or artesian aquifers separated by semi-

confining or confining layers. Groundwater in the confined aquifers is normally under pressure; therefore, water will rise in a well drilled to these aquifers to a level above their overlying confining layer, which is called the potentiometric surface. In general, the Basin aquifer is classified as an unconfined to semi-confined aquifer system because the semi-confining or confining layers are not continuous across the Basin. The base of the water bearing zones is considered bedrock with elevations ranging from approximately 500 feet below sea level to 2,000 feet above mean sea level. Depth to bedrock ranges from 450 to 750 feet below ground surface (bgs) in the Monk Hill and Santa Anita subareas to more than 1,200 feet bgs in the Pasadena subarea. The total storage capacity of the Raymond Basin is estimated to be approximately 1.37 million AF [7]. The amount of water in storage in 2003 was approximately 800,000 AF, with an unused storage space of about 570,000 [12].

III.5.4 Groundwater Storage Capacity and Groundwater in Storage

The CDWR defines groundwater storage capacity of an individual basin as the product of the total volume of that basin (from ground surface to the base) and its average specific yield. The storage capacity is constant and is dependent on the geometry and hydrogeologic characteristics of the aquifer(s) [15]. As a result, the storage capacity defined by the CDWR is the amount of groundwater that can be drained by gravity from the completely saturated basin, i.e. the amount of groundwater that can be extracted from the basin. The CDWR groundwater storage capacity does not include the amount of groundwater that is retained in small pore spaces due to surface retention. The CDWR further defines groundwater in storage as the amount of groundwater that can be drained (or extracted) from a basin between the water table and its base.

According to CDWR Bulletin 104-6, the total storage capacity of the Raymond Basin was calculated at 1,450,000 acre-feet applying specific yield values ranging from 3 to 35 percent to all aquifer material from 20 feet below the surface to the base of sediments. This value is consistent with an area of 26,200 acres, an average thickness of about 550 feet, and an average specific yield of about 10 percent. CDWR estimated the available stored water to be 1,000,000 acre-feet in 1970, leaving about 450,000 acre-feet of storage space available. In the Baseline Ground Water Assessment of the Raymond Basin – Final Report, prepared by Geoscience, the Raymond Basin storage capacity was estimated at 1,370,000 acre-feet with an estimated stored water of 800,000 acre-feet, leaving about 570,000 acre-feet of storage space available. For the basin characterization for this salt and nutrient management plan, it was assumed that the water-bearing zones were uniform across the basin. Therefore, the volume of groundwater in storage for

each subarea was determined as a percentage of the surface area, using 800,000 AF as the base water volume (Table III.2).

III.5.5 Water Production

Raymond Basin water supply is from groundwater extracted from the Raymond Basin, treated surface water diversion of runoff from the San Gabriel Mountains, and treated imported from the Weymouth Treatment Planted operated by MWD. A portion of the Raymond Basin groundwater production is also exported by producers for use in the Main San Gabriel Basin (Appendix E).

The following provides a summary of production in these subareas:

Monk Hill Subarea

Water production in the Monk Hill Subarea includes groundwater pumping, purchases of treated imported water and a minor amount of treated water from local surface water diversions. Groundwater production has ranged from 3870 acre-feet to 12,970 acre-feet during the period 1994-95 to 2011-12 and has averaged 6,990 acre-feet, as shown on Plate III.8a. Treated imported water which comes from MWD's Weymouth Treatment Plant, is used in the Monk Hill subarea to augment local groundwater production. Treated imported water purchases have ranged from approximately 5,300 acre-feet to 25,200 acre-feet during the period 1994-95 to 2011-12 (Appendix F).

Pasadena Subarea

Water production in the Pasadena Subarea includes groundwater pumping, purchases of treated imported water and a minor amount of treated water from local surface water diversions. Groundwater production has ranged from 10,930 acre-feet to 21,120 acre-feet during the period 1994-95 to 2011-12 and has averaged 17,750 acre-feet, as shown on Plate III.8b. Treated imported water which comes from MWD's Weymouth Treatment Plant, is used in the Pasadena subarea to augment local groundwater production. Treated imported water purchases have ranged from approximately 1,200 acre-feet to 28,800 acre-feet during the period 1994-95 to 2011-12 (Appendix F).

Santa Anita Subarea

Water production in the Santa Anita Subarea includes groundwater pumping, purchases of treated imported water and a minor amount of treated water from local surface water diversions. Groundwater production has ranged from 5,320 acre-feet to 8,510 acre-feet during the period 1994-95 to 2011-12 and has averaged 6,330 acre-feet, as shown on Plate III.8c. Treated imported water which comes from MWD's Weymouth Treatment Plant, is used in the Santa Anita subarea to augment local groundwater production. Treated imported water purchases have ranged from approximately 0 acre-feet to 800 acre-feet during the period 1994-95 to 2011-12 (Appendix F).

III.6 GROUNDWATER QUALITY

Since fiscal year 1985-1986, RBMB has organized the collection of water quality data from producers within the Raymond Basin.

As required by the Policy, the SNMP includes the identification of salt and nutrient sources, calculations of assimilative capacity, and loading estimates, and a description of the fate and transport of salt and nutrients in the groundwater. The following sections summarizes the indicator constituents for salt and nutrients that were identified in the SNMP, discusses the fate and transport of these constituents in groundwater, and provide a summary of the existing groundwater quality that was determined from the SNMP analysis.

III.6.1 Indicator Constituents for Salt and Nutrients

The primary natural source for salts and nutrients in the groundwater is the weathering of Raymond Basin's rocks and minerals. The most common salts in the Raymond Basin's soils include chlorides, sulfates, and carbonates of calcium, magnesium, potassium, and sodium.

Anthropogenic sources of salts and nutrients in the Raymond Basin groundwater contribute salts to the environment. These include household sources such as detergents, water softeners, swimming pool treatment chemicals, runoff from washing cars, use of treated municipal drinking water or gray-water reuse in residential irrigation systems, and on-site wastewater treatment facilities, as well as centralized wastewater treatment facilities, and many industrial processes.

As described in the SNMP, constituents of concern in the Basin evaluated were chloride, sulfate, nitrate, and TDS. Below are descriptions of each constituent.

- **Chloride** – Chloride is an inorganic salt that is naturally-occurring in groundwater. The primary natural source for chloride in Basin groundwater is the weathering of rock and minerals, and varies in concentration due to the mineralogy present in the area.

- **Sulfate** – Sulfate is an inorganic salt that is naturally-occurring in groundwater. Like chloride, the primary natural source for sulfate in Basin groundwater is the weathering of rock formations.

- **Nitrate** – Nitrate is an inorganic nutrient that can be found naturally in the environment. High levels of nitrate in groundwater are typically due to anthropogenic sources, such as agriculture, septic systems, landscape fertilization, and wastewater treatment facilities. Atmospheric deposition of nitrogen-based compounds from anthropogenic sources also contributes to nitrate formation in the soil, which can perchlorate down to the groundwater.

- **TDS** – TDS is a measure of the total salts dissolved in water. TDS concentrations can be impacted by the natural rock formation of the aquifer, as wells as anthropogenic sources.

III.6.2 Existing Groundwater Quality for Indicator Constituents

Groundwater quality is described for each subarea of the Raymond Basin and addresses Nitrate, Chloride, Sulfate, and Total Dissolved Solids (TDS). Nitrate, Chloride, Sulfate, and TDS are typically sampled as part of the Division of Drinking Water (DDW) "General Mineral" compliance sampling, which typically occurs once every three years.

There is considerable annual variation in water quality for each constituent. The water quality concentrations vary with many factors, including the volume of groundwater in storage. The water quality concentrations tend to be inversely related to groundwater in storage, increasing as groundwater levels decrease, and vice versa. Water quality data were presented as means for subareas.

III.6.2.1 ***Monk Hill Subarea***

Generally, the water quality in the Monk Hill subarea has degraded since 1984-1985, with almost 200 percent increase in Sulfate and 40 percent increase in TDS concentrations, as discussed below. The

sources of the salts likely come from the use of imported water to supplement groundwater production to meet demands.

The mean nitrate concentrations from 1986-87 to 2011-12 in the production wells (excluding those of the Valley Water Company[1]) in the Monk Hill subarea varied from 14 mg/L to 35 mg/L, with an overall average of 27 mg/L, as shown in Table III.4a. The mean chloride concentrations from 1986-87 to 2011-12 in the production wells (excluding those of the Valley Water Company) in the Monk Hill subarea varied from 13 18 mg/L to 54 64 mg/L, with an overall average of 35 mg/L, as shown on Table III.4b. The mean sulfate concentrations from 1986-87 to 2011-12 in the production wells (excluding those of the VCW) in the Monk Hill subarea varied from 17 23 mg/L to 77 78 mg/L, with an overall average of 51 50 mg/L, as shown on Table III.4c. The mean TDS concentrations from 1986-87 to 2011-12 in the production wells (excluding those of the Valley Water Company) in the Monk Hill subarea varied from 267 231 mg/L to 468 426 mg/L, with an overall average of 347 342 mg/L, as shown on Table III.4d.

III.6.2.2 ***Pasadena Subarea***

The mean nitrate concentrations from 1986-87 to 2011-12 in the production wells in the Pasadena subarea varied from 13 mg/L to 37 mg/L, with an overall average of 30 mg/L, as shown in Table III.4a. The mean chloride concentrations from 1986-87 to 2011-12 in the production wells in the Pasadena subarea varied from 18 mg/L to 57 mg/L, with an overall average of 34 mg/L, as shown in Table III.4b. The mean sulfate concentrations from 1986-87 to 2011-12 in the production wells in the Pasadena subarea varied from 43 mg/L to 80 mg/L, with an overall average of 64 mg/L, as shown in Table III.4c. The mean TDS concentrations from 1986-87 to 2011-12 in the production wells in the Pasadena subarea varied from 302 mg/L to 400 mg/L, with an overall average of 350 mg/L, as shown in Table III.4d.

III.6.2.3 ***Santa Anita Subarea***

The mean nitrate concentrations from 1986-87 to 2011-12 in the production wells in the Santa Anita subarea varied from 14 mg/L to 37 mg/L, with an overall average of 22 mg/L, as shown in Table III.4a. The mean chloride concentrations from 1986-87 to 2011-12 in the production wells in the Santa Anita

1 The Valley Water Company has historically maintained an injection program whereby treated imported water from MWD's Weymouth Treatment Plant was injected into the Monk Hill Subarea in the winter and extracted during the summer. Consequently, some of the water quality data from the Monk Hill Subarea may have been influenced by this injection program and the water quality data set may not have been indicative of solely groundwater quality.

subarea varied from 8 mg/L to 25 mg/L, with an overall average of 16 mg/L, as shown in Table III.4b. The mean sulfate concentrations from 1986-87 to 2011-12 in the production wells in the Santa Anita subarea varied from 29 mg/L to 45 mg/L, with an overall average of 37 mg/L, as shown in Table III.4c. The mean TDS concentrations from 1986-87 to 2011-12 in the production wells in the Santa Anita subarea varied from 230 mg/L to 305 mg/L, with an overall average of 273 mg/L, as shown in Table III.4c4d.

III.6.3 Fate and Transport

III.6.3.1 ***Salt***

Once salts are in the soil and vadose zone, there are three possible fates: remain where they are, wick upward to the surface with water, leach downward with water. For simplicity in the following discussion, all references to soil apply equally to the vadose zone (unsaturated zone between the soil and groundwater). On a landscape scale, salts remain in the soil, or they move to surface waters, or to aquifers.

Salts will remain at the same relative depth if the balance of water applied plus precipitation approximately equals atmospheric demand through evaporation from soil surfaces and transpiration from plant leaves.

Salts will move downward if the balance of water applied plus precipitation exceeds atmospheric demand through evaporation from soil surfaces and transpiration from plant leaves.

Salts will move upward if the balance of water applied plus precipitation approximately is less than atmospheric demand through evaporation from soil surfaces and transpiration from plant leaves. This situation is enhanced in the case of water tables within 4 to 6 feet of the soil surface, depending upon texture of the soils. Finer-textured soils (silts, loams, and clays) promote upward capillary movement of water in greater quantity, and from greater depths, resulting in greater salt accumulation at the surface than occurs on coarse-textured soils (sands and sandy loams).

If sufficient water is added to the surface (precipitation and/or irrigation and/or water spreading) to move water through the soil to the groundwater table and aquifer, the salts reach the groundwater and aquifer, as well. Once in the aquifer, the salts remain there unless removed from the aquifer through groundwater pumping or outflow from one basin to another, if a hydraulic connection between aquifers exists.

III.6.3.2 ***Nutrients***

Nutrients in the soil have been classified historically as mobile or immobile, referring to their solubility and tendency to move within the soil. Mobile nutrients have long been recognized as those with the potential to leach below the root zone. However, even "immobile" nutrients may be leached from the soil if sufficient water moves through the soil. Though initially high in calcium and other cations, soils in humid regions often have little calcium remaining because centuries of leaching have washed it out of the soil. More recently, ideas about other immobile nutrients, such as phosphorus, are being revisited as more is learned about the fixation (holding) capacity of soils for a given nutrient. Once the fixation capacity is reached, the nutrient becomes mobile and may leach into groundwater.

Nitrogen is involved in a complex, natural biochemical nutrient cycle, passing through inorganic solid and gas phases, and solid organic compounds through living organisms and decomposition products of dead organisms and waste products. There are no naturally-occurring soil minerals that contain nitrogen. Nitrogen in the soil is most commonly found in organic compounds, and as ammonium, and nitrate. Nitrite is seldom present in large concentrations in soil, except in anaerobic conditions. Naturally-occurring soil organisms readily convert ammonium to nitrite, and nitrite to nitrate, a process called nitrification. Other organisms decompose proteins in organic materials to release ammonium, which then undergoes nitrification. The abundance of these organisms decreases with soil depth, and so does the conversion of nitrogen from one form to another.

III.6.4 Basin Plan Water Quality Objectives

The Raymond Basin is one of 24 groundwater basins located within the Los Angeles Region under jurisdiction of the LARWQCB, extending from Rincon Point (on the coast of western Ventura County) to the eastern Los Angeles County line, as shown on Plate III.1. The LARWQCB adopts and implements the Basin Plan that serves as a basis for its regulatory program. The current Basin Plan, as amended through 1994, combines and replaces the earlier plans: the *Water Quality Control Plan: Santa Clara River Basin and* the *Water Quality Control Plan: Los Angeles River Basin*.

The Basin Plan establishes water quality standards for the surface and ground waters of the Los Angeles Region based upon designated beneficial uses of water and numerical water quality objectives that must be maintained or attained to protect those uses. Beneficial uses for regional groundwater basins generally include:

- Municipal and Domestic Supply (MUN) for community, military, or individual water supply systems including, but not limited to, drinking water supply;
- Industrial Service Supply (IND) for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, geothermal energy production, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization;
- Industrial Process Supply (PROC) for industrial activities that depend primarily on water quality;
- Agricultural Supply (AGR) for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, and support of vegetation for grazing stock; and
- Aquaculture Supply (AQUA) for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, and harvesting of aquatic plants and animals for human consumption or bait purposes.

The Basin designated beneficial uses (Table 2-2 of the Basin Plan) include MUN, IND,] PROC, and AGR. The Basin groundwater is subject to the following objectives (Referenced tables in italics are included in the Basin Plan.):

Bacteria, Coliform

In ground waters designated as MUN, the concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.

Chemical Constituents and Radioactivity

Ground waters designated as MUN shall not contain concentrations of chemical constituents and radionuclides in excess of the limits specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into this plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), and Table 4 of Section 64443 (Radioactivity). This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Tables 3-5, 3-6, 3-7, and 3-9.)

Ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial uses.

Mineral Quality

Numerical mineral quality objectives for individual groundwater basins are contained in Table 3-10.

Nitrogen (Nitrate, Nitrite)

Ground waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO_3-N + NO_2-N), 45 mg/L as nitrate (NO_3), 10 mg/L as nitrate-nitrogen (NO_3-N), or 1 mg/L as nitrite-nitrogen (NO_2-N).

Taste and Odor

Ground waters shall not contain taste and odor or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses.

The numerical water quality objectives for the Basin groundwater, which are based on the June 21, 2012 update of Title 22 of the California Code of Regulations (CCRs), are summarized in Table III.1. Neither the Basin Plan nor Title 22 of the CCRs has established the numerical water quality objectives for taste and odor.

The LARWQCB also implements State and federal antidegradation policies to maintain high quality of both surface and ground waters in California (Resolution No. 68-16 and 40 CFR 131.12). Under the State Nondegradation Objective, whenever the existing quality of water is better than that needed to protect all existing and probable future beneficial uses, the existing high quality shall be maintained until or unless it has been demonstrated to the State that any change in water quality will be consistent with the maximum benefit of the people of the State, and will not unreasonably affect present and probable future beneficial uses of such water. Therefore, unless conditions are met, background water quality concentrations (the concentrations of substances in natural waters which are unaffected by waste management practices or contamination incidents) are appropriate water quality goals to be maintained. If it is determined that some degradation is in the best interest of the people of California, some increase in pollutant level may be appropriate. However, in no case may such increases cause adverse impacts to existing or probable future beneficial uses of waters of the State.

SECTION IV IMPLEMENTATION MEASURES

This section summarizes the implementation measures and recycled water projects developed by the Basin stakeholders, and discussed in the Raymond Basin SNMP, to manage salt and nutrient loading. The implementation measures serve as the basis for the program alternatives, which are described in Section V.

IV.1 IMPLEMENTATION MEASURES

The Raymond Basin has been managed for many decades to control salt and nutrient loading to preserve the high quality groundwater supplies. Existing programs include support of stormwater runoff replenishment conducted by LACDPW and a water quality monitoring program conducted by area water purveyors. Raymond Basin management is conducted by the RBMB in conjunction with other stakeholders including LACDPW and MWD. As a result, replenishment of the subareas with high quality (low TDS) water may actually result in an estimated net loading of the Raymond Basin during high storm runoff. However, the additional groundwater volume from such replenishment dilutes the groundwater TDS concentration in the long-term.

The Raymond Basin has experienced unprecedented drought conditions since calendar year 2006. As a result, the groundwater elevation in the three subareas has decreased, as shown on Plates III.9a, III.9b, and III.9C since 1943, when the Raymond Basin was adjudicated, to present, the RBMB (and its predecessor prior to 1984) has actively managed water quality through existing implementation measures (described in greater detail below).

Section 6.b (3)(e) of the Recycled Water Policy states in part that a SNMP shall include "…implementation measures to manage salt and nutrient loading on a sustainable basis…" in the Basin.

Implementation measures to reduce salt and nutrient loading may have two types of impacts to a groundwater basin. Those impacts consist of 1) loading as the result of additional water replenished in the groundwater basin and 2) change to the concentration of salts and nutrients that are included in the water that is replenished. The following sections address existing and potential implementation measures that may impact salt and nutrient loading. Those implementation measures are summarized on Table III.21 and are briefly described below.

IV.1.1 Existing Implementation Measures

IV.1.1.1 ***Groundwater Replenishment***

LACDPW maintains a complex system of dams, retention basins, storm channels and off-stream spreading grounds to control stormwater runoff and to maximize replenishment of the stormwater flow. The existing spreading grounds are operated to enable stormwater run-off to be replenished into each of the subareas in an efficient and effective manner. A lesser source of replenishment is injection of treated imported water into the Monk Hill subarea. Local stormwater replenished in these facilities typically has the lowest concentrations of TDS, Nitrate, Sulfate, and Chloride of the various sources contributing to loading. As shown on Appendices P, Q, R, S, T, U, V, W, X, Y, Z, and AA the concentration of the TDS, chloride, nitrate, and sulfate in local stormwater is lower than the quality of the groundwater extracted. Consequently, the quality of the Raymond Basin will be maintained over time assuming replenishment is greater than or equal to extractions. During drought conditions with little stormwater runoff, this may not be the case.

Maintain Spreading Grounds – Artificial recharge of stormwater runoff occurs in off-stream spreading grounds located off the Arroyo Seco, Eaton Wash, and Santa Anita Wash. The stormwater augments naturally occurring groundwater replenishment from precipitation. Replenishment of high quality stormwater contributes to the long-term enhancement of groundwater quality.

Groundwater Replenishment Coordinating Group - Representatives from the RBMB, LACDPW, and MWD meet approximately every two months to coordinate the replenishment of local water and the availability of groundwater replenishment facilities. As the highest quality source of water, stormwater run-off is typically given the highest priority for replenishment activities.

IV.1.1.2 ***Institutional and Regulatory***

Raymond Basin Judgment – The Raymond Basin was adjudicated in 1944 and groundwater rights were assigned to producers. The RBMB was created by the Court in 1984 (as an amendment to the original Judgment) to administer the Raymond Basin Judgment. The RBMB maintains records of all groundwater

produced from the Raymond Basin, maintains a database of groundwater quality from all municipal water supply wells, and keeps track of all water entering and leaving the Raymond Basin.

Title 22 Water Quality Monitoring - All municipal water suppliers are required to adhere to the provisions of Title 22 regarding water quality monitoring of municipal water supply wells. In general TDS, chloride, and sulfate samples are collected once every three years and nitrate samples are collected annually. Based on water quality results, municipal water suppliers may need to construct groundwater treatment facilities and/or develop water quality blending plans to maintain production from wells. In those situations, DDW may require more frequent water quality monitoring than those noted above. The municipal water supply wells are distributed throughout the Raymond Basin and water quality data from Title 22 water quality sampling will be incorporated into the Basin-wide Salt and Nutrient Monitoring Program described in Chapter V.

IV.1.1.3 ***Imported Water***

Regional Salinity Control - The Raymond Basin Judgment limits groundwater production to the 1955 Decreed Rights. Demand in addition to groundwater supplies historically has been met through the purchase of treated imported water from MWD's Weymouth Treatment Plant (along with the groundwater impaction/withdrawal program historically conducted by VWC). Return flow from domestic water usage contributes to loading of salts in the Raymond Basin. (Historically, there has not been an imported water groundwater replenishment program.) Consequently, it is critical the treated imported water quality be managed.

The MWD is responsible for all treated imported water used in the Raymond Basin and that water is from the Weymouth Treatment Plant. MWD has a goal to maintain the TDS concentrations at or below 500 mg/l. This is done through blending SWP water with Colorado River water. The RBMB will continue to coordinate with MWD and those water companies which use treated imported water to maintain records of the water quality, particularly TDS, Chloride, and Sulfate.

IV.1.2 Potential Implementation Measures

IV.1.2.1 ***Groundwater Replenishment***

Develop New Spreading Facilities – The RBMB and LACDPW continually investigate opportunities to expand the network of spreading grounds. Potential new sites include debris basins.

IV.1.2.2 ***Stormwater Runoff***

Reduce Stormwater Runoff - Cities within the Raymond Basin are co-permittees for the new MS4 permit. As such, cities are directed to take proactive steps, both individually and collectively, to implement stormwater Best Management Practices (BMPs) to reduce or eliminate stormwater runoff from facilities and consequently reduce flow in storm channels. These practices may result in increased stormwater replenishment. As noted in Section III.6.1, stormwater runoff typically contains the highest (best) quality of water used to replenish the Basin. Increased replenishment of high quality will tend to improve Basin water quality over time.

IV.1.2.3 ***Institutional and Regulatory***

SNMP Monitoring Program - RBMB will implement a proposed monitoring plan as required by the Recycled Water Policy (See Section V.2). As required by the Recycled Water Policy Section 6.b(3)(a)(iii) water quality data will be reported to the LAWRWQCB at least every three years. The sampling frequency for salts and nutrients will be periodically evaluated and adjusted accordingly as necessary.

SECTION V PROGRAM ALTERNATIVES

In accordance with CEQA requirements, three program alternatives were developed that encompass reasonable and foreseeable actions within the jurisdiction of the implementing stakeholders. These program alternatives are as follows:

1. No Program (Current Implementation Measures)

2. Planned Recycled Water Projects

3. Planned and Potential Recycled Water Project and Potential Implementation Measures

These program alternatives are described in greater detail in the subsections below.

V.1 PROGRAM LEVEL ALTERNATIVES

V.1.1 Alternative 1: No Program

Alternative 1 is the no program alternative which assumes the RWQCB will not adopt the SNMP for the Raymond Basin. Alternative 1 considers current management conditions in the Raymond Basin and overlying San Gabriel Valley which include the following:

- Maintain spreading facilities
- Meet with Groundwater Replenishment Coordinating Group
- Maintain and coordinating salinity control
- Implement Raymond Basin Judgment provisions
- Conducting Title 22 water quality monitoring

This Program Alternative does not include adoption of a SNMP and consequently would be inconsistent with of the mandates of the State Recycled Water Policy which requires that a SNMP be adopted; therefore, the implementation of Alternative 1 is infeasible and not recommended. Alternative 1 was included in this analysis as a means to compare the impacts of implementing the Recommended Program Alternative with the current status quo.

V.1.2 Alternative 2: Planned Recycled Water Projects

Alternative 2 is the program alternative which assumes the RWQCB will adopt the SNMP for the Raymond Basin and planned and potential recycled water projects will be implemented.

Pasadena Water and Power has proposed the Pasadena Non-Potable Water Project which involves the installation of a new non-potable water distribution system to deliver recycled water and local stream water for direct use (irrigation, commercial, and industrial uses) to customers within the Monk Hill and Pasadena subareas.

V.1.3 Alternative 3: Planned and Potential Recycled Water Projects and Potential Implementation Measures

Alternative 3 is the program alternative which assumes the RWQCB will adopt the SNMP for the Raymond Basin. Likewise, the planned and potential recycled water projects and potential implementation measures will be implemented. The potential implementation measures include developing new spreading facilities for stormwater conservation, and potentially imported water and recycled water.

The Pasadena Power and Water project is the only recycled water project currently planned for the Raymond Basin, which utilizes recycled water for direct use (irrigation, commercial, and industrial purposes). In order to evaluate more direct water quality impacts to the Raymond Basin associated with groundwater recharge of recycled water, three hypothetical groundwater replenishment projects using recycled water were evaluated in the SNMP. The recycled water quality used in the evaluation of the scenarios has a typical water quality a potential future recycled water project would likely utilize. Therefore, the hypothetical projects can serve as surrogates for other potential recycled water projects in terms of evaluating potential environmental impacts. The recycled water quality used in these hypothetical scenarios is a conservative evaluation because imported water and stormwater is typically of higher quality than recycled water.

V.2 RECOMMENDED PROGRAM ALTERNATIVE

Alternative 3 (planned/potential recycled water projects and potential implementation measures) was selected as the program alternative that is most likely to be implemented, thus becoming the

Recommended Program Alternative. Alternative 1 is infeasible because it does not implement the SNMP and current projects. By selecting Alternative 3 as the Recommended Program Alternative, all of the potential impacts are associated with Alternative 2 are included, while conservatively considering and evaluating impacts of future recycled water projects and implementation measures. Alternative 3 best achieves the objectives of the Recycled Water Policy and SNMP of encouraging and promoting increased recycled water use by implementing environmentally reasonable implementation measures. Potential environmental impacts associated with implementation of Alternative 3 are discussed in Section VI.

V.3 PROJECT LEVEL ALTERNATIVES

The program alternatives discussed in Section V.1, present several alternatives for likely implementation of the SNMP, and does not require implementation of specific projects to allow the SNMP to be integrated into the Basin Plan. Although the Pasadena Water and Power project is named specifically as a planned recycled water project, the project, along with the hypothetical recharge projects, serves as surrogates for other potential recycled water projects. The proposed SNMP includes guidance on implementing salt and nutrient management measures, including the process for implementing planned and other future management measures in the context of the assimilative capacity and trend analysis.

The results of the anti-degradation analysis indicate there is available assimilative capacity for the constituents nitrate, salt, chloride, and TDS in the Raymond. Future implementation of recycled water projects could alter the analysis, and the SNMP would provide a mechanism to evaluate impact and implement management measures, if needed. The hypothetical groundwater replenishment projects analyzed as part of the anti-degradation analysis provide the maximum volume of recycled water, considering a particular quality, that can be replenished in the Raymond Basin without utilizing more than 10 percent of the available assimilative capacity. As individual management measures, including recycled water projects, are implemented in compliance with the SNMP, the project proponent would be required to complete a specific project-level CEQA analysis. The specific locations of the components assessed at a project level will be determined by implementing municipalities and agencies.

SECTION VI ENVIRONMENTAL ANALYSIS

VI.1 APPROACH TO ENVIRONMENTAL IMPACT ANALYSIS

A program-level environmental analysis of the Recommended Program Alternative described in Section V.2 was conducted and results are presented in this SED. Given that the CEQA analysis required for the SED is a program-level analysis, the environmental impacts and mitigation measures identified are broad and are not intended to represent a comprehensive or exhaustive list of impacts for potential projects implemented in the Raymond Basin. Parties responsible for implementing specific projects within the Raymond Basin will be required, as necessary, to conduct project-level environmental analyses, including CEQA analyses in order to identify specific impacts and mitigation measures.

The program-level environmental analysis presented in this SED assumes recycled water replenishment projects will be implemented; and stakeholders will design, construct, and maintain the potential implementation measures involving developing new spreading facilities for groundwater replenishment of stormwater, recycled water, and/or imported water, collectively referred to herein as "program facilities". It is also assumed the projects associated with the implementation of the program alternatives would be in compliance of all applicable laws, regulations, ordinances, and formally adopted municipal and/or agency codes, standards, and practices. The new facilities associated with the implementation measures include new pipelines and the development of new spreading facilities.

Potential reasonably foreseeable environmental impacts associated with the program facilities were evaluated with respect to the environmental resources categories listed in the CEQA checklist in Section VI.2. For each environmental resource, the potential environmental impacts were evaluated for significance with the following categories:

- Potentially Significant Impact – Substantial adverse impacts on the environment are identified that cannot be feasibly mitigated or avoided.
- Less Than Significant Impact with Mitigation Incorporated – Substantial adverse impact(s) on the environment are identified, but could be avoided or feasibly mitigated to a less than a significant level.
- Less Than Significant Impact – No substantial adverse effects on the environment are identified.
- No Impact – No adverse effects on the environment are expected.

Pursuant to Water Code Section 13360, the RWQCB cannot specify specific compliance and mitigation measures that responsible agencies and project proponents may choose to adopt to implement the SNMP. Project proponents are required to determine specific mitigation measures for actual

environmental impacts that are determined based on the compliance strategy that is implemented; these mitigation measures and potential impacts may vary from the reasonable foreseeable impacts and mitigation strategies presented in Section VI.2 and VI.3.

VI.2 CEQA ENVIRONMENTAL CHECKLIST – RECOMMENDED PROGRAM ALTERNATIVE

The following Environmental Checklist has been completed as per the requirements of California Code of Regulations Section 3777(a).

Issue	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?	☐	☐	☒	☐
b) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II) AGRICULTURAL AND FOREST RESOURCES: In determining whether impacts to 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				

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. – Would the project:				
a) Converts 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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 1220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations - Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a	☐	☒	☐	☐

Issue		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	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?				
b)	Have a substantial adverse effect on any riparian habitat or other community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
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?	☐	☒	☐	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of an historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
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:				

Issue		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
	ii) Strong seismic ground shaking?	☐	☐	☒	☐
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
	iv) Landslides?	☐	☐	☒	☐
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS - Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances,	☐	☒	☐	☐

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
or waste within one-quarter mile of an existing or proposed school?				
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two mile of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY - Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area, structures that would impede or redirect flood flows?	☐	☐	☒	☐
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
X. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐
XI. 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
XII. NOISE – Would the project result in:				
a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in	☐	☒	☐	☐

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
the project vicinity above existing without the project?				
e) For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES				

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provisions of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives for any of the public services:				
i) Fire Protection	☐	☐	☐	☒
ii) Police Protection	☐	☐	☐	☒
iii) Schools	☐	☐	☐	☒
v) Parks	☐	☐	☐	☒
vi) Other public facilities	☐	☐	☐	☒
XV. RECREATION –				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
have an adverse physical effect on the environment?				
XVI. TRANSPORTATION/TRAFFIC – Would the project?				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐
XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulation related to solid waste?	☐	☐	☐	☒
XVIII. 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?	☐	☒	☐	☐
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	☐	☐	☒	☐

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable futures projects)?				
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

VI.3 RESULTS OF ENVIRONMENT EVALUATION – RECOMMENDED PROGRAM ALTERNATIVE

VI.3.1 Aesthetics

Normal operations of program facilities are not likely to impact scenic vistas and local scenic resources because impacts to those facilities would be avoided. Landscaping and/or screening would be used to decrease visual impacts resulting from permanent program facilities. Construction activities have the potential to alter the visual environment within the vicinity of a project; however, construction would be encouraged in disturbed environments to decrease potential impacts of scenic resources and degradation to the existing visual character.

Construction of program facilities is anticipated to occur during daylight hours; therefore, additional artificial lighting would not be required during construction. In the unlikely event that emergency conditions require extended construction hours, artificial lighting could be temporarily required, resulting in potential short-term impacts that are anticipated to be considered less than significant. Any new permanent sources of lighting required for program operations would be shielded to reduce effects to neighboring development. Accordingly, adverse effects to day or nighttime views in the area are not anticipated and impacts associated with lighting and glare would be less than significant.

The following provides the significance determination of specific CEQA questions relating to aesthetics.

1a) Would the program have a substantial adverse effect on a scenic vista?

Significance Determination: Less Than Significant Impact

1b) Would the program substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Significance Determination: Less Than Significant Impact

1c) Would the program substantially degrade the existing visual character or quality of the site and its surroundings?

Significance Determination: Less Than Significant Impact

1d) Would the program create a new sources of substantial light of glare which would adversely affect day or nighttime view in the area?

Significance Determination: Less Than Significant Impact

VI.3.2 Agriculture Resources

The San Gabriel Valley is primarily urbanized and developed, although a small percentage is agricultural land. Accordingly, it is unlikely program facilities would conflict with existing agricultural use and farmland would not be converted to non-agricultural use. Likewise, no conversion of forest land would occur.

The following provides the significance determination of specific CEQA questions relating to agriculture resources.

2a) Would the program 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?

Significance Determination: No Impact

2b) Would the program conflict with existing zoning for agricultural use, or a Williamson Act contract?

Significance Determination: No Impact

2c) Would the program conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Significance Determination: No Impact

2d) Would the program result in the loss of forest land or conversion of forest land to non-forest use?

Significance Determination: No Impact

2e) Would the program involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to nonforest use?

Significance Determination: No Impact

VI.3.3 Air Quality

The Raymond Basin is located in Los Angeles County which lies within the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The USEPA and the California Air Resources Board (CARB) have classified air basins (or portions thereof) as being in "attainment," "nonattainment," or "unclassified" for each criteria air pollutant, based on whether or not air quality standards have been achieved. The Los Angeles County portion of the SCAB does not meet federal and/or state standards for Ozone, Lead, PM10, and PM2.5 and is therefore designated a nonattainment area for these pollutants. The Southern California Association of Governments (SCAG) is responsible for preparing the regional transportation strategy and control measures and an Air Quality Management Plan (AQMP), which addresses federal and state Clean Air Act requirements. SCAQMD is responsible for administering the AQMP, which includes programs for improving air quality and thresholds for daily operational emissions.

Project proponents are responsible for complying with all applicable air pollution requirements and laws and must conduct an air quality environmental review to demonstrate that the project's daily construction and operational emissions thresholds as established by SCAQMD would not be exceeded, nor would the number or severity of existing air quality violations be increased. The construction of new spreading facilities and recycled water replenishment projects would generate pollutant emissions during

construction with the following types of activities: grading, excavation, delivery, and hauling. The operations of the program facilities are anticipated to have less than a significant impact on air quality.

The following provides the significance determination of specific CEQA questions relating to air quality.

3a) Would the program conflict with or obstruct implementation of the applicable air quality plan?

Significance Determination: No Impact

3b) Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

3c) Would the program result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Significance Determination: Less Than Significant Impact

3d) Would the program expose sensitive receptors to substantial pollutant concentrations?

Significance Determination: Less Than Significant Impact

3e) Would the program create objectionable odors affecting a substantial number of people?

Significance Determination: Less Than Significant Impact

VI.3.4 Biological Resources

Los Angeles County has not designated any portion of the San Gabriel Valley overlying the Raymond Basin as a Significant Ecological Area with critical habitats. As described by the federal Endangered Species Act, critical habitat is the geographic area occupied by a threatened or endangered species essential to species conservation, and may also include areas not occupied by the species but rather are essential for species conservation. Project proponents would not to design and construct program facilities such that they do not conflict with adopted conservation plans. Some temporary disturbances, including the installation of an underground pipeline, may be compatible with conservation plans and be considered a reasonable use of the lands.

It could be necessary for project proponents to conduct biological surveys, including database searches in the California Natural Diversity Database, to determine specific species and habitats, including wetlands, that may be impacted by program facilities. The results of these studies and database searches would determine if additional mitigation measures may be necessary to reduce impacts to less than significant levels.

Project proponents would design and construct program facilities such that significant impacts to biological resources would not occur, and would not be in conflict with local polices and ordinances. By implementing construction Best Management Practices plus any project specific mitigation measures, potentially significant impacts to biologically resources would be mitigated to less than significant levels. These Best Management Practices could include, but are not limited to the following:

- Flagging and fencing the limits of construction adjacent to sensitive habitats
- Maintaining the project vicinity free of trash and debris which will not only keep the habitat clean but reduce the potential of attracting predator/scavenger species
- Locating staging and refueling areas sufficiently away from jurisdictional waters
- Employing appropriate standard spill prevention practices and clean-up materials
- Installing and maintaining sediment and erosion control measures in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP)
- Maintaining effective control of fugitive dust

The following provides the significance determination of specific CEQA questions relating to biological resources.

4a) Would the program 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?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

4b) Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

4c) Would the program have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

4d) Would the program 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?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

4e) Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Significance Determination: No Impact

4f) Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Significance Determination: No Impact

VI.3.5 Cultural Resources

Los Angeles County is within the traditional territory of the Tongva people (also known as Gabrielino or Gabrieleno, after Mission San Gabriel) until the Spanish invasion in the sixteenth century, when they were displaced and missionized. The earliest evidence of Tongva occupation, derived from linguistic, archaeological, and osteological evidence, suggests the area was inhabited as early as the ninth century Before Common Era (B.C.E.) The Tongva people inhabited not only Los Angeles County but also the majority of modern day Orange County and the islands of Santa Catalina, Santa Barbara, San Nicholas, and San Clemente. At the time of Spanish explorer Juan Rodriguez Cabrillo's entrance into Tongva territory, it is estimated that their population reached nearly 5,000 people. They were semi-nomadic and subsisted on a hunter-gatherer lifestyle in the rich landscape abundant in coastal resources, as well as acorns, pine nuts, and small game.

Construction activities could result in impacts to cultural resources, including those from the Tongva people. Project proponents could be required to prepare a cultural resources study prior to project

implementation to determine any potentially significant impacts to historical sites, or sites of paleontological significance. A cultural resources study may include, as specifically necessary, obtaining a record search from the South Central Coastal Information Center (SCCIC), contacting the Native American Heritage Commission (NAHC) for a Sacred Lands File search and a list of Native American contacts, outreach to the Native American contacts listed by the NAHC, reviewing previous reports for the project vicinity, and undertaking a field survey. Project proponents would implement appropriate mitigation measures, as determined by the cultural resources study.

The following provides the significance determination of specific CEQA questions relating to cultural resources.

5a) Would the program cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

Significance Determination: Less Than Significant Impact

5b) Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Significance Determination: Less Than Significant Impact

5c) Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Significance Determination: Less Than Significant Impact

5d) Would the program disturb any human remains, including those interred outside of formal cemeteries?

Significance Determination: Less Than Significant Impact

VI.3.6 Geology and Soils

The water bearing portions of the Raymond Basin consist of alluvial fill having characteristics of the coarse deposits found in the small basins near the mountain margins (see Section III.5.2). Prior to construction of new program facilities, it may be necessary for project proponents to complete a geotechnical investigation and evaluation to identify potential seismic-induced hazards and geologic hazards. Specific mitigation measures would be developed from the results of the geotechnical investigation. Program facilities would be designed in accordance with the potential seismicity of the region

in order to avoid potential effects resulting from ground shaking due to earthquakes; therefore, potential impacts associated with strong seismic ground shaking would be mitigated to less than significant levels. Likewise, geologic hazards including potential for landslides and liquefaction would be considered in the design of program facilities to reduce potential impacts to less than significant levels.

Construction of the program facilities, including pipelines, would result in earthwork excavation, removal of unsuitable soil materials, and placement of compacted fill (either local or imported). These activities would result in temporary impacts to the local topography and soils. All construction activities, including grading work, would be performed in accordance with approved construction standards and practices. Impacts would be minimized by proper siting, design, and construction practices.

As required under the National Pollutant Discharge Elimination System (NPDES), administered by the RWQCB, a SWPPP would be created for proposed projects. The plan would address erosion control measures that would be implemented to avoid erosion impacts to exposed soil associated with construction activities. The SWPPP would include a program of Best Management Practices to provide erosion and sediment control and reduce potential impacts to water quality that may result from construction activities, including but not limited to, the following:

- Protection of storm drain inlets located within the Project alignment and in downstream off-site areas with the use of BMPs acceptable to the Upper District, local jurisdictions, and the RWQCB.
- Sweeping of dirt and debris from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events.
- Proper storage, use, and disposal of construction materials.
- Removal of sediment from surface runoff before it leaves the Project site through use of silt fences or other similar devices around the laydown area perimeters.
- Protection of tracking soil off site through use of a gravel strip or wash facilities at exits from Project laydown areas.
- Protection or stabilization of stockpiled soils.

The following provides the significance determination of specific CEQA questions relating to geology and soils.

6a) Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

b) Strong seismic ground shaking?

c) Seismic-related ground failure, including liquefaction?

d) Landslides?

Significance Determination: Less Than Significant Impact

6b) Would the program result in substantial soil erosion or the loss of topsoil?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

6c) Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Significance Determination: Less Than Significant Impact

6d) Would the program be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Significance Determination: Less Than Significant Impact

6e) Would the program have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Significance Determination: No Impact

VI.3.7 Greenhouse Gas Emissions

The California Air Resources Board (CARB) maintains a statewide inventory for greenhouse gas (GHG) emissions that includes estimates for carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, and perfluorocarbons. Projects would have the potential of creating GHG emissions; therefore, project construction and operational GHG emissions estimates would be estimated prior to construction of program facilities to determine if emissions will be less than SCAQMD adopted significance thresholds for individual projects.

The following provides the significance determination of specific CEQA questions relating to GHG emissions.

7a) Would the program generate Greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Significance Determination: Less Than Significant Impact

7b) Would the program conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Significance Determination: Less Than Significant Impact

VI.3.8 Hazards and Hazardous Materials

Potential hazards associated with the implementation of program facilities during construction involves the use of hazardous substances used to operated construction equipment including fuel, lubricants, adhesives, solvents, and asphalt. These hazardous materials related to construction could potentially result in environmental impacts through accidental discharge. Project proponents and contractors would ensure the transport, use, and disposal of hazardous materials would be conducted in accordance with applicable federal and State laws.

Construction of program facilities would require conformance with the NPDES Construction General Permit, which would include a SWPPP and appropriate Best Management Practices to mitigate potential impacts, as discussed in Section VI.3.6. These Best Management Practices would include standard industry measures and guidelines contained in the NPDES Construction General Permit text. Implementation of these Best Management Practices would reduce potential impacts associated with construction related hazardous material to less than significant.

To assess the potential to encounter hazardous waste or contaminated soil during construction of program facilities, project proponents would need to consult the SWRCB's GeoTracker Database and the California Department of Toxic Substances Control (DTSC) EnviroStor database, which provide information on hazardous materials sites, including information on completed inspections, enforcement/corrective actions, and cleanup status. If construction of program facilities would occur on or near a hazardous materials site, project proponents should make contractors and workers aware of the presence or likely presence of hazardous materials. As applicable, the contractor should hold all necessary

licenses and certifications to perform the construction operations that may occur in the areas impacted with hazardous materials. During excavation and construction activities, soil would be monitored for the presence of discolored or odorous soil. In the event that contaminated soil is contaminated, the following additional mitigation measures would be implemented to ensure that impacts would be less than significant:

- The site shall be evaluated by a qualified hazardous materials professional and handled in accordance with applicable environmental laws and regulations.
- Impacted soil shall be exported to an approved off-site disposal or recycling facility, unless evaluated and approved by a local regulatory agency for use as backfill.
- Appropriate dewatering methods shall be implemented, which may require a groundwater treatment system if in areas with hazardous materials.

The use of recycled water for groundwater recharge is regulated by the State Water Resources Control Board Division of Drinking Water (DDW) and the RWQCB. Several safety measures are required in order to protect public drinking sources from receiving high concentrations of recycled water. In addition, all recycled water pipelines would be constructed according to regulatory requirements to prevent potential cross contamination with potable water supplies and pipelines, including proper vertical and horizontal separation with potable water pipelines. Potential impacts to water quality are discussed further in Section IV.3.9.

The following provides the significance determination of specific CEQA questions relating to hazards and hazardous materials.

8a) Would the program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Significance Determination: Less Than Significant Impact

8b) Would the program 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?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

8c) Would the program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

8d) Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Significance Determination: Less Than Significant Impact

8e) Would the program for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Significance Determination: No Impact

8f) Would the program for a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Significance Determination: No Impact

8g) Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Significance Determination: No Impact

8h) Would the program 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?

Significance Determination: No Impact

VI.3.9 Hydrology and Water Quality

The entire Raymond Basin area lies within the watershed of the Los Angeles River, and surface runoff from the San Gabriel Mountains enters the area through numerous streams, principally the Arroyo Seco, Eaton Wash, and Santa Anita Wash. Groundwater is a significant source of potable water supply in the Raymond Basin.

The RWQCB and the DDW regulate groundwater replenishment projects using recycled water under numerous state laws and regulations, including the Water Quality Control Plan, Los Angeles Region (Basin Plan) and SWRCB Policies. The Basin Plan has specified that one of the beneficial uses of the Main Basin underlying the SFSG is for municipal and domestic water supply (MUN). Consequently, the RWQCB

has established narrative and numeric Water Quality Objectives that must be attained or maintained to protect these beneficial uses. Based on the MUN beneficial use designation, the Basin Plan includes groundwater objectives based on the State Primary and Secondary maximum contaminant levels (MCLs), a numeric objective for coliform organisms, a narrative objective to prevent taste and odor issues, and basin-specific mineral objectives. Recycled water used for groundwater replenishment has the potential to impact water quality in the Raymond Basin.

The quality of the recycled water to be utilized for the Pasadena Water and Power project and the hypothetical replenishment projects exceed the mineral RWQCB Water Quality Objective for total dissolved solids (TDS) (450 mg/L), sulfate (100 mg/L), and chloride (100 mg/L) at 720 mg/L, 210 mg/L, and 163 mg/L, respectively. The nitrate concentration is 26 mg/L, which is below the RWQCB Water Quality Objectives of 45 mg/L. Accordingly, implementation of the recycled water projects may result in a net increase in the overall Raymond Basin constituent concentrations for TDS, chloride, and sulfate.

The Recycled Water Policy sets an interim goal that no single project is to use more than 10 percent of the available assimilative capacity, or combination of projects to use more than 20 percent of the available assimilative capacity. Consequently, as part of the SNMP, the antidegradation analysis calculated the collective amount of water from potential future projects that could be replenished in the Raymond Basin without exceeding the very conservative value of 10 percent of the available assimilative capacity.

Using the assigned water quality for new water used for replenishment, the antidegradation analysis demonstrates that TDS will be the limiting mineral constituent controlling the use of new water for recharging the aquifer in the Monk Hill subarea, as shown in Table III.18. Assuming 190,400 ac-ft of groundwater in storage and 13,300 ac-ft of groundwater recharge and removal, 10 percent of the TDS assimilative capacity of the groundwater in the subarea will be utilized after 225 ac-ft of recharge with new water annually. The utilization of the assimilative capacity for nitrate chloride, and sulfate is less than TDS, and therefore, these constituents are not limiting. If water of a different quality is used, TDS will remain the limiting factor until the ratio of TDS to sulfate (TDS concentration divided by sulfate concentration) is less than 3.0, at which time sulfate will become the limiting factor.

Using the assigned water quality for new water used for replenishment, the antidegradation analysis demonstrates that sulfate will be the limiting mineral constituent controlling the use of new water for recharging the aquifer in the Pasadena subarea, as shown in Table III.19. Assuming 536,800 ac-ft of groundwater in storage and 19,700 ac-ft of groundwater recharge and removal, 10 percent of the sulfate assimilative capacity of the groundwater in the subarea will be utilized after 405 ac-ft of recharge with new water annually. The utilization of the assimilative capacity for nitrate chloride, and TDS is less than sulfate,

and therefore, these constituents are not limiting. If water of a different quality is used, sulfate will remain the limiting factor until the ratio of TDS to sulfate (TDS concentration divided by sulfate concentration) is greater than 4.0, at which time TDS will become the limiting factor.

Using the assigned water quality for new water used for replenishment, the antidegradation analysis demonstrates that sulfate will be the limiting mineral constituent controlling the use of new water for recharging the aquifer in the Santa Anita subarea, as shown in Table III.20. Assuming 72,800 ac-ft of groundwater in storage and 6,200 ac-ft of groundwater recharge and removal, 10 percent of the sulfate assimilative capacity of the groundwater in the subarea will be utilized after 245 ac-ft of recharge with new water annually. The utilization of the assimilative capacity for nitrate chloride, and TDS is less than sulfate, and therefore, these constituents are not limiting. If water of a different quality is used, sulfate will remain the limiting factor until the ratio of TDS to sulfate (TDS concentration divided by sulfate concentration) is less than 2.7, at which time sulfate will become the limiting factor.

The antidegradation analysis is extremely conservative, as it assumes no additional constituent removal beyond historical amounts. Additionally, the analysis only considers direct spreading where 100 percent of the water is assumed to reach the groundwater. A recycled water project utilizing direct use, for example the Pasadena Water and Power project, would only result in a fraction of the recharge water reaching the groundwater; therefore, a significantly greater volume of replenishment water could be used before utilizing 10 percent of the assimilative capacity. Recycled water quality in the Raymond Basin could potentially have a higher water quality than the assigned quality used in the antidegradation analysis, if, for example, a higher level a treatment is utilized, which would allow for a greater volume of water to be used for replenishment before exceeding 10 percent of the assimilative capacity. In addition, local stormwater is of generally good quality; therefore, an increased use of local stormwater for groundwater replenishment could improve quality in the Raymond Basin.

Maintaining compliance with the applicable DDW Groundwater Replenishment Regulations and the SWRCB Recycled Water Policy will help maintain the quality of the Raymond Basin. According to the Groundwater Replenishment Regulations, the following regulatory requirements would be required to protect potable production wells:

- A potable well control zone will be established to allow for sufficient underground recycled water retention time for pathogen reduction, emergency response time, and adequate mixing with diluent water to ensure the percentage of recycled water does not exceed the maximum allowed. Watermaster will not approve applications for new wells to be drilled within this potable well control zone.
- Potable wells will not be located within 1,000 feet of the SFSG.

- A monitoring program will be established.
- Employees will receive proper training.

There may be minor localized modifications to existing drainage during trench work for the pipeline, which would be considered less than significant.

The following provides the significance determination of specific CEQA questions relating to hydrology and water quality.

9a) Would the program violate any water quality standards or waste discharge requirements?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

9b) Would the program substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Significance Determination: No Impact

9c) Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Significance Determination: Less Than Significant Impact

9d) Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Significance Determination: Less Than Significant Impact

9e) Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Significance Determination: No Impact

9f) Would the program otherwise substantially degrade water quality?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

9g) Would the program 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?

Significance Determination: No Impact

9h) Would the program place within a 100-year flood hazard area structures which would impede or reirect flood flows?

Significance Determination: Less Than Significant Impact

9i) Would the program 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?

Significance Determination: No Impact

9j) Would the program inundation by seiche, tsunami, or mudflow?

Significance Determination: No Impact

VI.3.10 Land Use/Planning

Construction of program facilities would not physically divide an established community. During construction, community access may be temporarily and minimally restricted (see Section VI.3.16); however, once construction is completed, program facilities would not interfere with community access. Program facilities would be designed such that they were compatible with General Plans and planned land use for Los Angeles County and local impacted cities; therefore, impacts to land use and planning would be considered less than significant.

The following provides the significance determination of specific CEQA questions relating to land use and planning.

10a) Would the program physically divide an established community?

Significance Determination: Less Than Significant Impact

10b) Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Significance Determination: Less Than Significant Impact

10c) Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?

Significance Determination: Less Than Significant Impact

VI.3.11 Mineral Resources

Mineral resources, including mineral and aggregate deposits, are present in the washes along the southerly foothills of Los Angeles County. The California Geological Survey has classified Los Angeles County into Mineral Resource Zones (MRZs). Portions of the San Gabriel Valley overlying the Raymond Basin are designated as MRZ-2, indicating existence of mineral deposits that meet certain criteria for value and marketability; however, the California Geological Survey has not identified any active aggregates mines in the region so it is unlikely program facilities would impact mineral resources. If pits previously used for the mining of mineral resources are converted to spreading facilities, project proponents would need to evaluate specific potential impacts to mineral resources.

The following provides the significance determination of specific CEQA questions relating to mineral resources.

11a) Would the program 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?

Significance Determination: Less Than Significant Impact

11b) Would the program 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?

Significance Determination: Less Than Significant Impact

VI.3.12 Noise

During construction and operation of program facilities, noise environments along pipeline corridors and near spreading facilities may potentially be impacted. The program facilities are not expected to result in a significant impact related to ambient noise levels. Sensitive noise receptors that would need to be evaluated for project-specific noise impacts include local schools and hospitals. Implementation of the following mitigation measures will reduce noise impacts to less than significant:

- Construction noise must comply with jurisdictional noise ordinances, and as such will be conducted between 7:00 AM and 7:00 PM, Monday through Friday with the exception of holidays.

- All equipment will have proper mufflers equal or superior to noise attenuation provided by the manufacturer of the equipment.

If sensitive species exist near the program facilities, additional mitigation measures may be required to reduce construction related noise levels to acceptable measures.

The following provides the significance determination of specific CEQA questions relating to noise.

12a) Would the program exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Significance Determination: Less Than Significant Impact

12b) Would the program exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Significance Determination: Less Than Significant Impact

12c) Would the program a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Significance Determination: No Impact

12d) Would the program a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

12e) Would the program for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Significance Determination: No Impact

12f) Would the program for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Significance Determination: No Impact

VI.3.13 Population and Housing

No proposed program facilities involve new housing or business developments; therefore, program facilities would not directly induce population growth. No housing or people would be displaced resulting from the program facilities.

Indirect population growth would not likely result from the construction of program facilities because new services and infrastructure would not be extended to new areas such that would allow for the development of land. However, there is a potential for indirect population growth to occur resulting from increased economic opportunities, including job opportunities created by the program. By increasing the reliability of local water supplies, a natural obstacle to population growth would be reduced. These potential population increases are anticipated to be able to be absorbed by the community.

The following provides the significance determination of specific CEQA questions relating to population and housing.

13a) Would the program induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Significance Determination: Less Than Significant Impact

13b) Would the program displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Significance Determination: No Impact

13c) Would the program displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Significance Determination: No Impact

VI.3.14 Public Services

Implementation of program facilities would not result in the need for new or physically altered governmental facilities including fire protection, police protection, schools, parks, or other public facilities.

There is a low probability that police of fire protection may be required during construction or operation of program facilities; however, these impacts would be considered less than significant and would not impact response times. As discussed in Section VI.3.16, emergency vehicle access will be maintained at all times. As discussed in Section VI.3.13, program facilities do not include new housing or development projects that would increase the demand for schools, parks, or other parks of public facilities; therefore, no impact would occur.

The following provides the significance determination of specific CEQA questions relating to public services.

14a) Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire Protection?

Police Protection?

Schools?

Parks?

Other public facilities?

Significance Determination: No Impact

VI.3.15 Recreation

Program facilities would not cause an increase in the use of existing neighborhood and regional parks or other recreational facilities; thus, no physical deterioration would occur resulting from program facilities. Construction of program facilities may result in minor, temporary impacts to recreationists resulting from noise, dust, and road closures for vehicles, bicyclists, and/or pedestrians. Once operational, program facilities would not result in changes to the population requiring additional new or expanded recreational opportunities.

The following provides the significance determination of specific CEQA questions relating to recreation.

15a) Would the program 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?

Significance Determination: No Impact

16a) Does the program include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Significance Determination: No Impact

VI.3.16 Transportation/Traffic

During operations of the program facilities, increased traffic would result from infrequent maintenance, inspection, or emergency repair activities, which would have sparse and minimal impacts to transportation and traffic. Program facilities would not impact existing performance of the highway and roadway system governed by the Los Angeles County Metropolitan Transit Authority's 2010 Congestion Management Plan. Construction of program facilities could occur in roads and paths which would result in temporary impacts to transportation and traffic that would require mitigation. Traffic congestion during construction would likely increase and could impact emergency access unless mitigation is incorporated. Routine mitigation measures are required to reduce traffic impacts during construction so as not to conflict with any applicable plan, ordinance, policy, or program. These measures include the following:

- Access to properties along the construction work zone will be maintained.
- Emergency vehicle access will be maintained at all times.
- All cuts to roadways will be covered with "plates", when appropriate, during non-working hours.
- Appropriate signage will be posted informing the public of construction activities, work zone areas, road closures, and detour routes, as applicable.
- A traffic management plan will be developed by the contractor and approved by the appropriate jurisdiction prior to commencing construction.
- Haul trucks will be directed via the shortest routes on arterial streets, avoiding impacts to residential streets.

Program facilities would not include aviation components or structures where height would be an aviation concern; therefore, air traffic patterns would not be impacted. Program facilities would not include design features that would affect traffic safety, such as sharp curves or dangerous intersections, nor would it cause incompatible uses, such as farm equipment, on local roads. The temporary increase in traffic due to construction is a compatible use that would not pose a hazard to traffic on the affected roads.

The following provides the significance determination of specific CEQA questions relating to transportation and traffic.

16a) Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

16b) Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Significance Determination: Less Than Significant Impact

16c) Would the program 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?

Significance Determination: No Impact

16d) Would the program substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Significance Determination: No Impact

16e) Would the program result in inadequate emergency access?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

16f) Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

VI.3.17 Utilities and Service Systems

Program facilities would not require the construction or expansion of wastewater facilities or exceed applicable wastewater treatment requirements because no facility will be constructed that would

generate sewage. Program facilities could require the construction or expansion of new storm water drainage facilities in order to divert stormwater to spreading facilities for groundwater replenishment which would require mitigation measures to implemented on an individual project basis to reduce environmental impacts.

No new potable water or wastewater treatment facilities or expansion of existing facilities would be required. The operation of program facilities would result in a beneficial impact to regional water supply by utilizing and optimizing recycled water and stormwater for groundwater replenishment which would otherwise be wasted, resulting in a decreased need for imported water.

Construction of the program facilities is not anticipated to generate substantial volumes of solid waste, as excavated materials would be reused as backfill, where possible. Solid waste debris would be disposed of at a permitted landfill within the capacity of the landfills serving the region. Operations of the program facilities would not generate solid waste or affect landfill capacity, and would comply with federal, state, and local statues and regulations related to solid waste; therefore, not impact would occur.

The following provides the significance determination of specific CEQA questions relating to utilities and service systems.

17a) Would the program exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Significance Determination: No Impact

17b) Would the program 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?

Significance Determination: No Impact

17c) Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

17d) Would the program have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Significance Determination: No Impact

17e) Would the program result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Significance Determination: No Impact

17f) Would the program be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Significance Determination: No Impact

17g) Would the program comply with federal, state, and local statutes and regulations related to solid waste?

Significance Determination: No Impact

VI.3.18 Mandatory Findings of Significance

The implementation of program facilities would potentially result in significant environmental impacts, unless mitigation is incorporated. The following provides the significance determination of the mandatory findings of significance.

18a) Would the program 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?

Significance Determination: Less Than Significant Impact with Mitigation Incorporated

Implementation of the program facilities would potentially have adverse impacts on biological resources. In addition, the Recommended Program Alternative may potentially result in impacts to unknown buried cultural resources and/or paleontological resources. The potential to degrade environmental quality would be reduced to below a level of significance through implementation of mitigation measures specified in Sections VI.3.4 and VI.3.5, plus any project specific mitigation measures. See Sections VI.3.4 and VI.3.5 for further discussion of these issue areas.

18b) Would the program 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)?

Significance Determination: Less Than Significant Impact

Cumulative impacts are those impacts which, in conjunction with impacts due to other projects in the vicinity or with similar characteristics, would potentially result in adverse effects on the environment greater in significance than just impacts from a single project alone. Therefore, a cumulative impact may be considered less than significant when evaluated in isolation, but could become significant when evaluated along with other projects.

Implementation of the program facilities would not result in impacts that are individually insignificant, but cumulatively considerable and will not cause significant degradation to the environment. The implementation of program facilities would result in greater management of salt and nutrient loadings while still allowing for the increased responsible use of recycled water and local water.

18c) Would the program have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Significance Determination: Less Than Significant Impact

Implementation of program facilities would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. Adherence to regulatory codes, ordinances, regulations, standards, and guidelines, in conjunction with program and project-specific mitigation measures including, but not limited to, those related to air, hazardous materials, water quality, noise, and transportation (see Sections VI.3.3, VI.3.8, VI.3.9, VI.3.12, and IV.3.16) would ensure that construction and operation of the program facilities would not result in substantial adverse direct or indirect effects on human beings. In addition, all resource topics associated with the program have been analyzed in accordance with State CEQA Guidelines and found to pose no impact, less than significant impact, or less than significant impact with mitigation. Hence, further environmental analysis is not required.

VI.3.19 Other Considerations

Energy Requirements

Implementation of program facilities to increase the use of recycled water and local stormwater will likely require significantly less energy per foot for conveyance within the Raymond Basin compared to importing water from the State Water Project for direct use in the Monk Hill and Pasadena subareas; thus, the Recommended Program Alternative results in a beneficial impact with regards to energy consumption and efficiency.

Irreversible and Unavoidable Impacts

CEQA Guidelines (California Code of Regulations, Section 15126.2(c)) requires identification of potential significant, irreversible environmental changes that could result from the implementation of the Recommended Program Alternative. Examples of such irreversible changes include the commitment of nonrenewable resources to uses that future generations will not be able to reverse, irreversible damage that may result from accidents associated with a project, or irretrievable commitment of resources. Implementation of the Recommended Program Alterative and construction of program facilities would irreversibly require construction materials and non-renewable energy resources by way of materials, labor, and energy. These materials and resources could include, but are not limited to, lumber and other forest products; sand and gravel; asphalt; petrochemical construction materials; steel; copper; lead and other metals, water; etc. Although the Recommended Program Alternative would require materials, labor, and energy, these non-renewable resources do not represent a substantial irreversible commitment of resources.

In accordance with the Policy and the Governor's recent drought proclamations, implementation the Recommended Program Alternative is both necessary and beneficial because it reduces reliance on groundwater supplies and imported water supplies by increasing the use of recycled water and other local water sources. In addition, recycled water is a renewable resource, and therefore, the increased use resulting from the Recommended Program Alternative would not result in an irretrievable commitment of nonrenewable resources.

VI.3.20 Environmental Analysis of Other Alternatives

Alternative 1: No Project

As discussed in Section V.1.1, this Program Alternative does not include adoption of a SNMP and consequently would be inconsistent with of the mandates of the State Recycled Water Policy which requires

that a SNMP be adopted; therefore, the implementation of Alternative 1 is infeasible and not recommended. Alternative 1 was included in this analysis as a means to compare the impacts of implementing the Recommended Program Alternative with the current status quo.

Because Alternative 1 does not involve the implementation of new recycled water projects or new spreading facilities for stormwater and/or imported water, Alternative 1 would have no impact on the following resource categories:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

Alternative 1 would not provide the benefit of having more reliable and secure local water sources that results from increased use of recycled water and stormwater. Without having a framework for long-term management of salts and nutrients provided in the SNMP, individual projects would have a greater potential of causing cumulative adverse effects on the Raymond Basin.

Alternative 2: Planned Recycled Water Projects

Alternative 2 is the program alternative which assumes the RWQCB will adopt the SNMP for the Raymond Basin and the planned recycled water project will be implemented. All of the potential impacts of Alternative 2 have been evaluated within the evaluation of the Recommended Program Alternative. Alternative 2 only includes the implementation of the Pasadena Water and Power project and does not

include implementation of expanded spreading facilities and potential recycled water projects. Because both Alternative 2 and the Recommended Program Alternative involve installing pipeline, several of the potential environmental impacts are the same. The additional impacts associated with implementing multiple recycled water, stormwater, and imported water projects, as proposed in the Recommended Program Alternative have been evaluated and determined to not have a significant impact on the environment.

SECTION VII FINDINGS AND DETERMINATION

The RWQCB, with assistance from RBMB representing Raymond Basin stakeholders, has balanced the economic, legal, social, technological, and other benefits of the Recommended Program Alternative of the Raymond Basin SNMP against the potential, unavoidable, and inherent environmental risks identified in this SED. The program-level environmental analysis included in this SED identifies reasonably foreseeable impacts associated with the implementation of the Recommended Program Alternative and provides mitigation measures that can be applied to individual projects implemented as part of the program in order to reduce impacts below significance thresholds. The recommended Program Alternative allows for flexibility for stakeholders and project proponents to determine the most feasible and environmentally safe manner of implementation. The RWQCB has determined that the identified potential environmental impacts associated with each resource category can be mitigated such that the impacts can be reduced to less than significant thresholds.

Potential impacts must also be mitigated at the project level because particular designs and sites are not specified in the SNMP. At the program level, a more specific conclusion would be speculative. Project proponents would be responsible for implementing the mitigation measures identified in this SED conjointly, as applicable, with project-specific mitigation measures identified in project level CEQA analyses and related environmental studies conducted.

Per Water Code Section 13360, the RWQCB does not have legal authority to specify the manner of compliance with its orders or regulations, and therefore, cannot dictate that an appropriate location be selected for any particular project, that it be designed consistent with standard industry practices, or that routine and ordinary mitigation measures be employed. Project proponents have the jurisdiction and authority to determine these measures and should employ alternatives and mitigation measures to reduce any impacts to the extent feasible (California Code of Regulations, Title 14, Section 15091(a)(2)).

The implementation of the SNMP will satisfy the requirements of the Policy by providing a framework for the long-term management of salts and nutrients in the Raymond Basin, while encouraging and allowing for increased use of recycled water areas where salt and nutrient concentrations would exceed the water quality objectives for groundwater established in the Basin Plan. The adoption of this SED will fulfill the CEQA requirements for the implementation of the SNMP.

The SNMP is both necessary and beneficial. The implementation of the SNMP, and management strategies contained therein, will fulfill the requirements of the Policy and provide the framework for the environmentally safe long-term management of salts and nutrients in the Raymond Basin. To the extent

that the alternatives, mitigation measures, or both, that are examined in this analysis are not deemed feasible by the stakeholders and local agencies, the necessity of complying with the Policy and implementing the required SNMP remains.

DETERMINATION

On the basis of this initial evaluation for the Raymond Basin Salt and Nutrient Management Plan, which collectively provide the required information:

☐ The Recommended Alternative COULD NOT have a significant effect on the environment, and, therefore no alternatives or mitigation measures are proposed.

☒ The Recommended Alternative MAY have a significant or potentially significant effect on the environment, and, therefore alternatives and mitigation measures have been evaluated.

_____ _____

Signature Date

_____ _____

Printed Name Agency

Note: Authority Cited Sections 21083 and 21087, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21082.1, 21083.3, 21093, 21094, 21151, Public Resources Code.

SECTION VIII REFERENCES

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