Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

For U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Sacramento, CA 95814

☒ County Clerk

County of: Orange

Address: 24031 El Toro Road, Suite 150, Laguna Hills, CA 92653

From:

Public Agency: Applicant: Irvine Ranch Water District

Address: 15600 Sand Canyon Avenue, Irvine, CA 92618-3102

Contact: Christian Kessler

Phone: 949-453-5441

Lead Agency (if different from above):

Address:

Contact:

Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2010111005

Project Title: MWRP Department 50 Storage Building

Project Location (include county): 3512 Michelson Drive, Irvine, County of Orange

Project Description:

The proposed project includes demolition and removal of approximately 12,000 square feet of an existing 33,000 square foot surface parking lot, and construction of a new 4,571 square foot one-story pre-engineered storage building. The project would displace 15 of the existing 57 parking spaces within the existing parking lot. The storage building would be approximately 24 feet tall and would be used for storage of materials and equipment used for maintenance activities at the Michelson Water Recycling Plant.

This is to advise that the Irvine Ranch Water District ☒ Lead Agency or ☐ Responsible Agency has approved the above described project on December 13, 2010 (Date) and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☐ was ☒ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

FILED

DEC 15 2010

TOM DALY, CLERK-RECORDER

By _____ DEPUTY

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: Irvine Ranch Water District 15600 Sand Canyon Ave. Irvine, CA 92618

Signature (Public Agency) Christie Kost Title Engineering Tech II

Date 12/15/10 POSTED

Date Received for filing at OPR

DEC 15 2010

TOM DALY, CLERK-RECORDER

By _____ DEPUTY

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Recorded in Official Records, Orange County
Tom Daly, County Recorder
2010.25
201085001500 2:37 pm 12/15/10
227 SC2 Z03
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

MICHELSON WATER RECYCLING PLANT DEPARTMENT 50 STORAGE BUILDING FINAL INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

PREPARED FOR:

Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618
Contact: Christian Kessler
949/453-5441

PREPARED BY:

ICF International
1 Ada, Suite 100
Irvine, CA 92618
Contact: Aaron Carter
949/333-6600

December 2010

ICF INTERNATIONAL

ICF International. 2010. Michelson Water Recycling Plant Department 50 Storage Building. Final Initial Study/ Mitigated Negative Declaration. December. (ICF 00550.09.) Irvine, CA. Prepared for Irvine Ranch Water District, Irvine, CA

Contents

Tables

Figures

Acronyms and Abbreviations

AELUP	Airport Environment Land Use Plan
AQMP	SCAQMD's Air Quality Management Plan
Basin	South Coast Air Basin
BAU	Business As Usual
BMPs	Best Management Practices
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CO2e	carbon dioxide equivalent
CEQA	California Environmental Quality Act
CNEL	community noise equivalent level
CSS	coastal sage scrub
DAMP	Drainage Area Management Plan
dB	decibels
dBA	decibels in the A-weighted scale
EIR	Environmental Impact Report
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FIRMs	Fire Insurance Rate Maps
GHG	greenhouse gas
IRWD	Irvine Ranch Water District
IS/MND	Initial Study/Draft Mitigated Negative Declaration
Leq	equivalent continuous sound pressure level
LOS	level of service
LST	Localized Significance Threshold
MWRP	Michelson Water Recycling Plant
NCCP/HCP	Natural Communities Conservation Program/Habitat Conservation Plan
NPDES	National Pollutant Discharge Elimination System
OCPW	Orange County Public Works, Flood Control Division
PCC	Portland Cement Concrete
RCPG	Regional Comprehensive Plan and Guide
SAMP	Special Area Management Plan
SARWQCB	Santa Ana Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SRA	Seismic Response Areas
SWPPP	Stormwater Pollution and Prevention Program
USACE	United States Army Corps of Engineers

Chapter 1
Introduction

Overview

Irvine Ranch Water District (IRWD) has prepared this Final Initial Study/ Mitigated Negative Declaration (IS/MND) to evaluate the potential environmental consequences associated with the development of a new 4,571-square-foot one-story storage building and parking lot (proposed project)at the Michelson Water Recycling Plant (MWRP) in the City of Irvine (City). Prior to consideration of the project by the Board of Directors, the proposed project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA).

Authority

The preparation of this IS/MND is governed by two principal sets of documents: CEQA (Public Resources Code Section 21000 *et seq.)* and the State CEQA Guidelines (California Code of Regulations Section 15000 *et seq.*).

One of the main objectives of CEQA is to disclose to the public and decision makers the potential environmental impacts of proposed activities. CEQA requires that the lead agency determine whether a project is subject to CEQA review or exempt under statutory exemptions (CEQA Guidelines, Article 18, Sections 15260 *et seq*.) or categorical exemptions (CEQA Guidelines, Article 19, Section 15300 *et seq*.). IRWD determined that the proposed project is not exempt from CEQA and therefore proceeded with the preparation of an IS to determine whether an environmental impact report, a negative declaration, or an MND is appropriate. IRWD is the lead agency for the proposed project under CEQA.

The preparation of an IS is guided by Section 15063 of the State CEQA Guidelines, and Sections 15070–15075 of Article 6 guide the process for the preparation of an MND. Where appropriate and supportive to an understanding of the issues, reference will be made to the statute, the State CEQA Guidelines, or appropriate case law.

This IS/MND meets CEQA content requirements by including a project description; a description of the environmental setting, potential environmental impacts, and mitigation measures for any significant impacts; discussion of consistency with plans and policies; and names of preparers.

Scope of the Initial Study/Mitigated Negative Declaration

This IS/MND evaluates the proposed project's impacts on the following resource topics:

- Aesthetics
- Agriculture and Forest 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

Impact Terminology

The following terminology is used to describe the level of significance of impacts.

- A finding of *no impact* is appropriate if the analysis concludes that the proposed project would not affect the particular resource in any way.
- An impact is considered *less than significant* if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.
- An impact is considered *potentially significant* if the analysis concludes that it could have a substantial adverse impact on the environment.

Organization of the Initial Study/Mitigated Negative Declaration

The content and format of this report are designed to meet the requirements of CEQA. The report contains the following sections.

- Chapter 1, "Introduction," identifies the purpose and scope of this IS/MND and the terminology used in the report.

- Chapter 2, “Project Description and Environmental Setting,” identifies the location, setting description, background, and planning objectives of the proposed project and describes the proposed project in detail.
- Chapter 3, “Environmental Checklist,” presents the CEQA environmental checklist and responses for each resource topic in the checklist. This section includes a brief setting section for each resource topic and identifies the impacts of implementing the proposed project.
- Chapter 4, “References,” identifies all printed and Internet references and individuals cited in this IS/MND.
- Chapter 5, “List of Preparers,” identifies the individuals who prepared this report and their roles in the proposed project.

Chapter 2

Project Description and Environmental Setting

Introduction and Overview

The proposed project involves development of a new 4,571 square foot pre-fabricated one-story metal storage building and new parking lot on a portion of an existing surface parking lot at the Michelson Water Recycling Plant (MWRP). Details regarding the project objectives, location, environmental setting, and construction and operation of the proposed project are included in this chapter.

Project Location

The project site is located within the boundaries of the MWRP located at 3512 Michelson Drive in the City of Irvine. The Irvine Ranch Water District (IRWD) property, containing the MWRP site, the San Joaquin Marsh and San Joaquin Marsh Campus, is bounded by Michelson Drive, the San Diego Creek Channel, Campus Drive, and Carlson Avenue. Figures 2-1 and 2-2 depict the regional location and local vicinity of the project area, respectively. Other land uses in the general vicinity of the project site include John Wayne Airport, Rancho San Joaquin Golf Course, University of California Irvine, commercial, high-rise office buildings, and residential.

The MWRP contains office buildings, vehicle garages, and other structures including treatment plant operational facilities, as well as parking lots and water treatment facilities. The San Joaquin Marsh contains wetland habitats, riparian habitats, open water areas, meeting rooms, and a private residence. Between the MWRP, Campus Drive, and the riparian habitat, are former duck ponds which are now operated and maintained by IRWD as natural treatment water quality ponds. Southwest of the plant and within the marsh is the San Joaquin Marsh Campus, an interpretive/learning center, a portion of which is operated by the Sea and Sage Audubon Society.

The project site is located at the western edge of the existing MWRP facilities. Figure 2-3 depicts the project site in relation to the surrounding MWRP facilities.

Existing Conditions

The proposed project would be located on a currently developed parking lot. The lot totals approximately 33,000 square feet and currently accommodates surface parking for up to 57 vehicles. The project site would encompass approximately 12,000 square feet of the existing parking lot, and would displace 15 parking spaces. The proposed project would be located between MWRP operations and office buildings to the east and south, and the San Joaquin Marsh to the west. Undeveloped MWRP property is located to the north. The existing parking lot is void of vegetation with the exception of a small amount of ornamental landscaping.

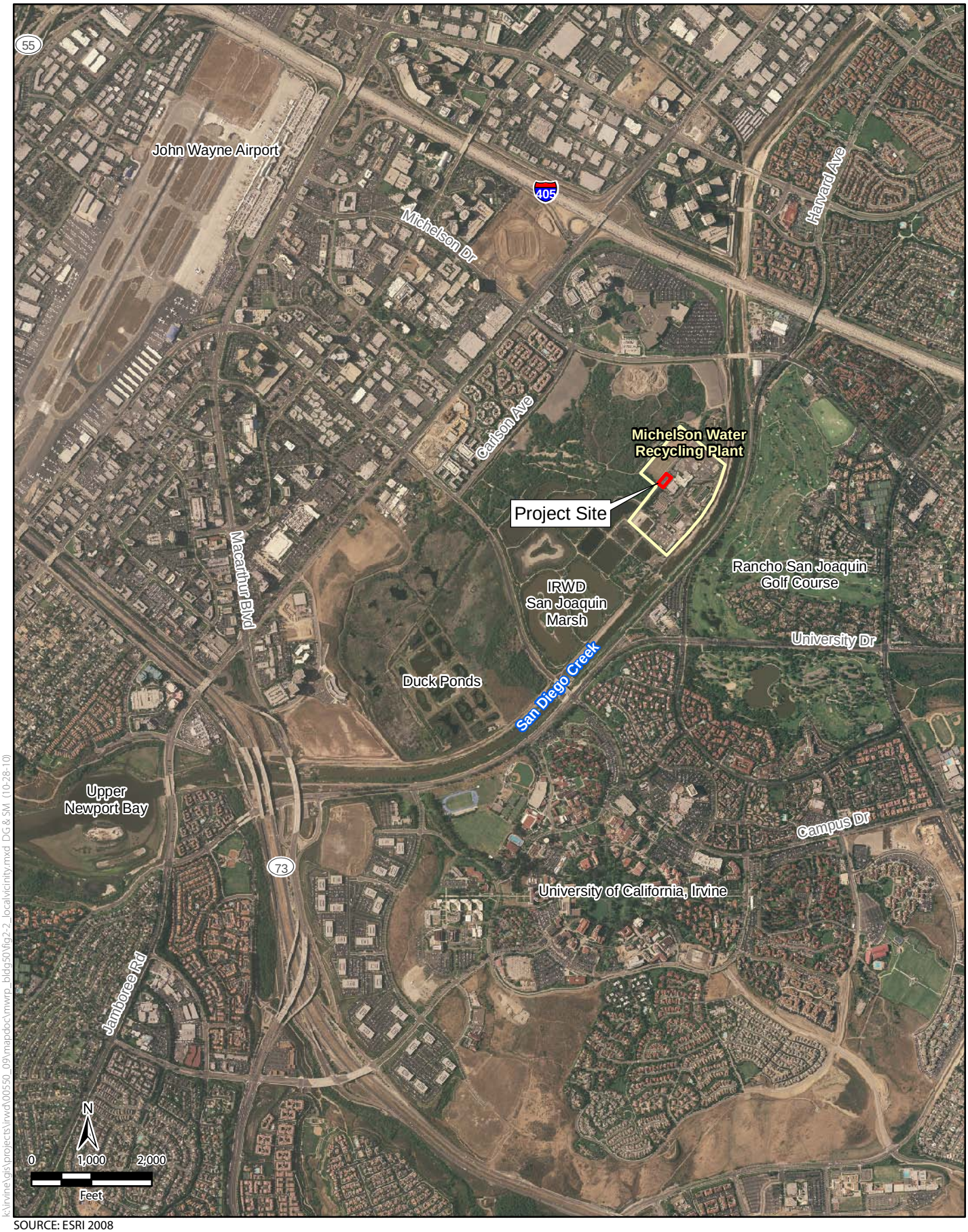
Land uses surrounding the MWRP are preservation and recreation while land uses around the project site include buildings, secondary clarifier, parking lot and undeveloped land.

k:\irvine\gis\projects\irwd\00550_09\mapdoc\mwrp_bldg50\fig2-1_regionallocation.mxd DG & SM (10-26-10)

SOURCE: ESRI 2008

ICF INTERNATIONAL

Figure 2-1
Regional Location



k:\irvine\gis\projects\irwd\00550_09\mapdoc\mwrp_bldg50\fig2-2_localvicinity.mxd DG & SM (10-28-10)

SOURCE: ESRI 2008

ICF INTERNATIONAL

Figure 2-2
Local Vicinity

k:\irvine\gis\projects\irwd\00550_09\mapdoc\mwrp_bldg50\fig2-3_localvicinity.mxd DG & SM (10-28-10)

SOURCE: ESRI 2008

ICF INTERNATIONAL

Figure 2-3
Project Site

Proposed Project

Project Objectives

CEQA Guidelines (Section 15124[b]) require that the project description contain a statement of objectives, including the underlying purpose of the proposed project. The objective for the proposed project includes accommodating the need for additional on-site storage at the MWRP related to ongoing expansion of MWRP operations.

Project Description

The proposed project includes demolition and removal of approximately 12,000 square feet of an existing 33,000 square foot surface parking lot, and construction of a new 4,571 square foot one-story pre-engineered storage building. The project would displace 15 of the existing 57 parking spaces within the existing parking lot. Primary project elements include:

- demolition and removal of asphalt pavement, curb and gutter, landscaping, etc., in an approximately 60-foot by 200-foot area of existing parking lot;
- construction of a 24-foot by 163-foot metal frame storage building with metal siding, roof and 6-inch Portland cement concrete (PCC) slab-on-grade;
- construction of perimeter supports for the building which would be provided by a combination of column footings, turned down slab edges, grade beams, and masonry wall footings all 16 to 24 inches below finished grade;
- construction of 4-foot-high masonry retaining walls at the base of the west and north walls since the new building pad would cut into an existing small slope that descends from the adjacent road;
- waterproofed retaining walls without subdrains;
- pouring of new asphalt concrete (AC) paving consisting of 4 inches of AC over 8 inches of aggregate base (AB) around the new building;
- construction of a concrete v-gutter for surface drainage; and
- installation of electrical lines.

The storage building would be approximately 24 feet tall and would be used for storage of materials and equipment used for maintenance activities at the MWRP. The materials to be stored within the building would be relocated from other existing storage buildings currently located elsewhere within the MWRP site.

Construction Activities

Construction of the proposed storage building would begin in January 2011 and last approximately 6 months. Construction activities would include demolition, on-site improvements, site preparation, paving, and modifications to an existing culvert and drainage. The building would be constructed using pre-manufactured metal panels that would be transported to the project site. Access to the project site would be provided via Riparian View, IRWD's private road accessed from of Michelson Drive.

Since the site is already developed and the topography is flat, there would be minimal soil disturbance during construction. Import and export of soil may be necessary in the event that the grading contractor finds that some excavated soil is not suitable for reuse. Soil would be disturbed to a depth of approximately 5 feet to prepare for the building foundations and electrical utilities.

All construction would comply with all applicable building and construction codes, including those related to seismic activity. Construction crews would work no more than 8 hours per day and would restrict their activities to between 7:00 a.m. and 6:00 p.m. on non-federal-holiday weekdays and between 8:00 a.m. and 5:00 p.m. on Saturdays.

Regulatory Setting

City of Irvine General Plan

The City of Irvine approved the General Plan in June 2006 (City of Irvine 2006). The General Plan consists of thirteen elements, including Land Use, Circulation, Housing, Seismic, Cultural Resources, Noise, Public Facilities and Services, Integrated Waste Management, Energy, Safety, Parks and Recreation, Conservation and Open Space, and Growth Management. The General Plan and each of these elements present the long-range vision of the City and development and preservation policies to implement that vision.

The project site is located in the San Joaquin Marsh planning area in the southwest portion of the City of Irvine. The San Joaquin Marsh planning area encompasses the MWRP facilities, San Joaquin Marsh, Mariposa Villa, and Bethel Korean Church. The area is bounded by Michelson Drive, University Drive, Harvard Avenue, Campus Drive, and Carlson Avenue.

The project site is designated as Public Facilities (PF) per the General Plan Land Use Element. The PF designation includes government, public, quasi-public, and community owned facilities. It also includes uses that may be privately owned, but are nonprofit and generally open to the public. The properties surrounding the project site have the land use designations of Preservation, Recreation, Public Facilities, Commercial Recreation, and High Density residential (City of Irvine 2006).

City of Irvine Zoning Code

The City of Irvine zoning code is intended to carry out the policies of the City of Irvine General Plan. It is the intent of the zoning code to protect, promote, and enhance the public health, safety, and general welfare; ensure consistency between the zoning district and the general plan land use diagram; and promote compatibility between the natural and built environment. The project site is currently zoned 6.1 (Institutional). The Institutional designation includes a nonprofit or quasipublic use such as a church, library, public or private school, hospital, or municipally owned or operated building, structure, or land used for public purpose or not-for-profit housing.

Airport Land Use Plan

The project site is located in the Orange County Airport Environment Land Use Plan (AELUP) for John Wayne Airport, which is administered by the Airport Land Use Commission. The project site is within the height restriction zone for the John Wayne (Orange County) Airport and the notification area of the Federal Aviation Regulation (FAR) Part 77 imaginary surfaces aeronautical obstruction

area. Section 77.13 of the FAR requires the notification of the Federal Aviation Administration (FAA) for any construction or alteration to buildings meeting specific criteria, including structures with heights greater than 200 feet above ground level.

Central and Coastal Subregion, Parts I and II Natural Communities Conservation Program/Habitat Conservation Plan (NCCP/HCP)

The purposes of the Central and Coastal Subregion, Parts I and II Natural Communities Conservation Program/Habitat Conservation Plan (NCCP/HCP) focus on creating a multiple-species, multiple-habitat subregional Reserve System and implementing a long-term "adaptive management" program that will protect coastal sage scrub (CSS) and other habitats and species located within the CSS habitat mosaic, while providing for economic uses that will meet the social and economic needs of the people of the subregion. The primary goal of the NCCP/HCP is to protect and manage habitat supporting a broad range of plant and animal populations that now are found within the Central and Coastal Subregion. To accomplish this goal, the NCCP/HCP creates a subregional habitat Reserve System and implements a coordinated program to manage biological resources within the habitat reserve. The San Joaquin Marsh, which surrounds the MWRP, is designated as "Non-Reserve Open Space." However, the MWRP and the project site are not identified as any reserve type by the NCCP/HCP. The Non-Reserve Public Open Space contains 3,831 acres of permanent, dedicated public open space located outside the reserve. These public open space areas were not considered suitable for inclusion in the CSS management program due to a lack of significant CSS habitat, the absence of "Target Species," and/or a location which did not contribute directly to enhanced biological connectivity within the subregion. Areas such as the San Joaquin Marsh contain significant biological resources but do not contribute to the function of the Reserve System established by this NCCP/HCP. It is expected that non-reserve public areas will continue to provide some habitat value (County of Orange 1996).

Discretionary Actions and Approvals

Under CEQA, the IRWD has the primary discretionary authority over the approval of the proposed project. The anticipated discretionary approvals required for IRWD to implement the proposed project include the following:

- Adoption of the MND;
- Adoption of a mitigation monitoring and reporting program; and
- Design and construction of the project.

Other public agencies may also have discretionary authority over the project, or aspects of the project, and are considered responsible agencies. The IS/MND can be used by the responsible agencies to comply with CEQA in connection with permitting or approval authority over the project.

Chapter 3
Environmental Checklist

1. **Project Title:** MWRP Department 50 Storage Building
2. **Lead Agency Name and Address:** Irvine Ranch Water District (IRWD)
   15600 Sand Canyon Avenue
   Irvine, CA 92618
3. **Contact Person and Phone Number:** Christian Kessler
   949-453-5441
4. **Project Location:** Michelson Water Recycling Plant (MWRP)
   3512 Michelson Drive
   Irvine, CA 92612
5. **Project Sponsor's Name and Address:** Irvine Ranch Water District
   15600 Sand Canyon Avenue
   Irvine, CA 92618
6. **General Plan Designation:** Public Facilities
7. **Zoning:** Institutional
8. **Description of Project:** See Chapter 2, Project Description.
9. **Surrounding Land Uses and Setting:** See Chapter 2, Project Description.
10. **Other Public Agencies Whose Approval is Required:**
    City of Irvine

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature	Date
Printed Name	For

Evaluation of Environmental Impacts

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

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 along a 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 daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

Would the project:

a. Have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The proposed project is located just north of a major view as depicted in the City of Irvine General Plan on Figure A-4, Scenic Highways. The major view is located at the intersection of Culver Drive and University Drive, less than 1 mile from the project site. University Drive is designated as a road with rural or natural character by the City of Irvine General Plan and runs along the other side of the San Diego Creek near the southern border of the MWRP boundary, approximately 0.5 mile from the project site. The San Diego Freeway (I-405) is designated as a freeway with urban character by the City of Irvine General Plan and is located just over 0.5 mile to the north of the project site. However, the project site is not identified as a public viewpoint, nor would the proposed 24-foot high storage building be visible from the intersection of Culver and University or obstruct views from any public viewpoints. The project site is located within the boundaries of the IRWD MWRP, is currently occupied by surface parking spaces, and is adjacent to existing two-story maintenance and office buildings. Therefore, as there are no scenic vistas on the project site and two-story maintenance and office buildings are located immediately adjacent, the proposed project would not substantially alter or introduce a visually obtrusive structure to the landscape. Impacts would be less than significant.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

No Impact. The project site and vicinity do not contain any rock outcroppings that are of significant visual quality. There are no historic buildings on site or in the project area that would be affected by the proposed project. Furthermore, there are no designated scenic

highways in the vicinity of the proposed project (California Department of Transportation 2010). Therefore, the proposed project would not damage a scenic resource, and there would be no impact.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. The proposed project would not adversely affect the existing visual character or quality of the site and its surroundings. The project site is located within the MWRP boundaries, currently occupied by surface parking spaces, and adjacent to existing two-story maintenance and office buildings. The proposed project would not degrade any scenic resources. The proposed project would blend in with the existing character of the MWRP facilities and adjacent buildings. Approximately 40% of the project site would consist of the 4,571 square foot one-story storage building and approximately 60% of the site would be paved and include the remaining 42 stalls of surface parking. The maximum height of the storage building would be approximately 24 feet above the original grade. Therefore, because the proposed project would be located within the boundaries of the MWRP facility and would blend in with the existing character of the facilities and adjacent buildings, impacts would be less than significant.

d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Less-than-Significant Impact. The project site is located within the boundaries of the existing MWRP which includes a mix of office buildings and water treatment facilities. The existing parking lot is lighted for safety purposes. Lighting associated with the proposed project would be similar to the existing lighting in the area, and would not substantially increase the amount of lighting in the area. Impacts would be less than significant.

II. Agriculture and Forest Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on 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 the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. 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))?	☐	☐	☐	☒
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 that, 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?	☐	☐	☐	☒

Discussion

Would the project:

a. Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resource Agency, to non-agricultural use?

No Impact. The proposed project would not convert any farmland to a non-agricultural use. The project site is not designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance (California Department of Conservation 2009). The project site and the surrounding land are identified as "urban and built-up land" and "other land" respectively by the California Department of Conservation's Farmland Mapping and Monitoring Program. Furthermore, the project site is located within the boundaries of an existing developed water treatment facility with no agricultural uses on or surrounding the site. Therefore, there would be no impact.

b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?

No Impact. The proposed project would not conflict with existing zoning or agriculture use. The project site is currently zoned Institutional, which does not allow agricultural uses. The Williamson Act applies to parcels consisting of at least 20 acres of Prime Farmland or at least 40 acres of farmland not designated as Prime Farmland. The project site is not located within a Prime Farmland designation, nor does it consist of more than 40 acres of farmland. Therefore, the site is not eligible to be placed under a Williamson Act contract. Therefore, there would be no impact.

c. 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))?

No Impact. The proposed project would not conflict with existing zoning or cause rezoning of forest land. The project site is located in an urban area and does not contain any forest lands. Therefore, there would be no impact.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The proposed project would not result in the loss of forest land or conversion of forest land to a non-forest use. The project site is located in an urban area and does not contain any forest lands. Therefore, there would be no impact.

e. Involve other changes in the existing environment that, 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?

No Impact. The proposed project would not result in the conversion of farmland to non-agricultural use, and would not result in the conversion of forest land to non-forest use. The project site is not currently used for agriculture and does not contain any forest land. The

project site is not located near or adjacent to any areas that are actively farmed or used for forest land. Therefore, the proposed project would not disrupt or damage the operation or productivity of any areas designated as farmland or forest land, and no farmland or forest land would be affected by the proposed project. There would be no impact.

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. 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 a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Would the project:

a. Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The project site is located within the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is required, pursuant to the Federal Clean Air Act, to reduce emissions of criteria pollutants for which the Basin is in nonattainment (i.e., O_3, PM_{10} and $PM_{2.5}$). As such, the proposed project would be subject to the SCAQMD's Air Quality Management Plan (AQMP). The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by the Southern California Association of Governments (SCAG).

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG), which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the AQMP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP.

Both the RCPG and AQMP are based, in part, on projections originating with County and City General Plans.

The proposed project would involve the demolition and removal of an existing 37-stall surface parking lot to construct a new 4,571 square foot one-story pre-engineered storage building and a 16-stall surface parking lot. It would not result in either an increase in population or the number of new permanent employees in the area that would affect growth. Furthermore, the proposed project would be largely maintenance free, thereby resulting in no net increase in employment in the region. The proposed project is consistent with both the County of Orange General Plan designation and zoning.

Because the proposed project is consistent with the local general plan and the regional growth management plan, pursuant to SCAQMD guidelines, the proposed project is considered consistent with the region's AQMP. Therefore, there would be no impact.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact. As discussed in Response III(a), the project site is located within the Basin. State and federal air quality standards are often exceeded in many parts of the Basin. A discussion of the proposed project's potential short term construction-period and long term operational-period air quality impacts are provided below.

Regional Construction Impacts

The SCAQMD has established methodologies to quantify air emissions associated with construction activities, such as air pollutant emissions generated by operation of onsite construction equipment, fugitive dust emissions related trenching and earthwork activities, and mobile (tailpipe) emissions from construction worker vehicles and haul/delivery truck trips. Emissions would vary from day to day, depending on the level of activity, the specific type of construction activity occurring, and, for fugitive dust, prevailing weather conditions.

A construction-period mass emissions inventory was compiled based on an estimate of construction equipment as well as scheduling and phasing assumptions. More specifically, the mass emissions analysis takes into account the following:

- combustion emissions from operating onsite construction equipment,
- fugitive dust emissions from the placement of fill material, and
- mobile-source combustion emissions from worker commute travel.

For the purpose of estimating emissions associated with construction activities, a proposed project timeframe of January 2011 through June 2011 was applied to the analysis. Emissions were calculated using the URBEMIS2007 emissions inventory model. A conservative estimate of the proposed project's regional mass emissions during construction is presented in the Table 3-1. As shown, all criteria pollutant emissions would remain below their respective thresholds. Thus, impacts would be less than significant.

Table 3-1. Forecast of Regional Construction Emissions

	Criteria Pollutant Emissions (pounds per day)					
Construction Phase	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Demolition	1.5	12.0	7.4	<0.1	5.8	1.7
Site Prep	2.9	24.3	13.2	<0.1	2.1	1.3
Building Erection	3.1	20.5	14.1	<0.1	1.6	1.4
Maximum Regional Project Emissions	**3**	**24**	**14**	**<1**	**6**	**2**
SCAQMD Regional Emissions Threshold (lbs/day)	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

URBEMIS 2007 outputs are provided in Appendix A. Air Quality Calculations.

Localized Construction Impacts

When quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Consistent with SCAQMD Localized Significance Threshold (LST) methodology guidelines, emissions related to offsite delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. As shown in Table 3-2, localized emissions for all criteria pollutants would remain below their respective SCAQMD LST significance threshold. As such, localized impacts that may result from construction-period air pollutant emissions would be less than significant.

Table 3-2. Forecast of Localized Construction Emissions

	Criteria Pollutant Emissions (pounds per day)					
Construction Phase	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Demolition	1.1	7.2	4.6	<0.1	5.6	1.6
Site Prep	2.8	23.4	12.0	<0.1	2.0	1.3
Building Erection	3.0	19.8	11.6	<0.1	1.5	1.4
Worst Case On-Site Total	**3**	**23**	**12**	**<1**	**6**	**2**
SCAQMD Localized Significance Threshold (lbs/day)[a]	--	123	2,109	--	60	22
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

[a] These localized thresholds were taken from tables provided in the SCAQMD Localized Significance Thresholds Methodology guidance document based on the following: 1) The proposed project site is located in SCAQMD Source Receptor Area No. 20, 2) sensitive receptors located within 200 meters of construction activity, and 3) the maximum site area disturbed is less than 1 acre.

URBEMIS 2007 outputs are provided in Appendix A. Air Quality Calculations.

Regional and Localized Operations Impacts

Because the proposed project is a storage building, operations period emissions are not expected to increase substantially. Potential impacts would be less than significant.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

Less-than-Significant Impact. SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed earlier in Response III(a), the proposed project would be consistent with the AQMP, which is intended to bring the Basin into attainment for all criteria pollutants.[1] In addition, the mass regional emissions calculated for the proposed project (Forecast of Regional Construction Emissions) are lower than the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable state and national ambient air quality standards. As such, cumulative impacts would be less than significant.

d. Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. As described in Response III(b), construction of the proposed project would not result in any substantial localized or regional air pollution impacts and therefore would not expose any nearby sensitive receptors to substantial pollutant concentrations. As such, the proposed project would have a less than significant impact in regards to substantial pollutant concentrations.

e. Create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact. According to the SCAQMD *CEQA Air Quality Handbook* (South Coast Air Quality Management District 1993), land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors and therefore would not produce objectionable odors. As such, the proposed project would have a less than significant impact in regards to objectionable odors.

[1] CEQA Guidelines Section 15064(h)(3) states "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g. water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency."

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

Would the project:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant with Mitigation Incorporated. The proposed project would involve construction activities on an existing parking lot. The proposed project would be located between the MWRP operations and office buildings to the east and south and the

San Joaquin Marsh to the west. The existing project site is devoid of vegetation with the exception of ornamental landscaping. Planted ornamental trees were observed on-site and could provide potential habitat for raptors that have some potential to occur in the project vicinity. However, these raptor species would be more likely to utilize areas of dense riparian forest associated with the San Joaquin Marsh and not the developed areas of the project site located at the MWRP. No direct impacts are anticipated to local raptors or any other avian species protected by the Migratory Bird Treaty Act or state species of special concern.

Least Bell's vireo have been observed in the San Joaquin Marsh and southwestern willow flycatcher has a moderate potential to occur in the marsh as well (Dudek 2005). Portions of the project site are located within approximately 50 feet from the western boundary of the MWRP, which is adjacent to the San Joaquin Marsh. As such, suitable habitat for these species is assumed to occur adjacent to the MWRP boundary and therefore, as near as 50 feet from the project site. Indirect noise impacts from construction activities may occur that could affect potentially occurring state- and federally-listed endangered least Bell's vireo and state- and federally-listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*) associated with the riparian habitats of San Joaquin Marsh. If construction during least Bell's vireo and southwestern willow flycatcher nesting season (March 15 through September 15) cannot be avoided, implementation of **Mitigation Measure BIO-1** would reduce potential noise impacts to these species to a less-than-significant level.

Mitigation Measure BIO-1: Conduct Biological Surveys. Should construction occur during the nesting season (February 15 through August 15) , IRWD will retain a qualified biologist to conduct avian surveys in accordance with USFWS protocols to determine the presence or absence of nesting birds within 500 feet of the project area. If active nests are found, the biologist shall determine whether construction activities have the potential to disturb the nest, and if so then determine appropriate construction limitations which may include, but are not limited to, erection of sound barriers, full-time monitoring by a qualified biologist, or establishment of no-construction buffers usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species. In addition the biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure no inadvertent impacts to the nest will occur.

With implementation of **Mitigation Measure BIO-1**, the proposed project would not have a substantial adverse effect, through direct impact or through habitat modification, on any identified candidate, sensitive, or special-status species. Thus, impacts would be considered less than significant after mitigation.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. Several sensitive communities, including mulefat scrub, willow scrub, willow riparian forest habitats, and coastal freshwater marsh occur in the project area in association with San Joaquin Marsh. Portions of the project site are located within approximately 50 feet from the western boundary of the MWRP, which is adjacent to

the San Joaquin Marsh. As such, these communities are assumed to occur adjacent to the MWRP boundary and therefore, as near as 50 feet from the project site. However, construction activities for the proposed project would be confined to the limits of an existing parking lot at the MWRP. No direct impacts to freshwater marsh or riparian habitats or any sensitive natural communities would occur as a result of project construction.

Short-term indirect impacts to vegetation communities that could potentially result from the proposed project include dust that could affect plant growth in adjacent habitats, erosion and resulting sedimentation in adjacent wetland areas that would affect water quality and habitat function in the San Joaquin Marsh, and pollutant run-off associated with the use and maintenance of construction vehicles and machinery.

Because stormwater at the MWRP is pumped into the plant headworks and treated as part of the recycled water process, the potential for increased storm water runoff and resulting erosion and sedimentation and subsequent damage to adjacent wetland habitats is limited (Dudek 2005). In addition, Best Management Practices (BMPs) have been developed for the MWRP and would be implemented for the proposed project to limit dust pollution and to further avoid the release of toxic chemicals into the San Joaquin Marsh. As a result, no substantial adverse effects to riparian or any other sensitive natural communities would result from construction of the proposed project. Furthermore, the proposed project would be confined to the limits of the existing parking lot, which is located amongst developed facilities comprising the MWRP. Impacts would be less than significant.

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

No Impact. Because all construction activities associated with the proposed project would occur on an existing parking lot, no impacts to the adjacent San Joaquin Marsh would occur. All soil disturbance and removal would occur within the boundaries of the existing parking lot. No soil removal, filling, hydrological interruption or other disturbance to the marsh would result from proposed construction activities. Furthermore, as described in Response IV(b), no additional run off into wetlands is anticipated from the proposed project because all storm water would be collected and pumped back into the recycling plant itself. As a result, the proposed project would not have direct or indirect impacts on federally protected wetlands, and therefore, there would be no impact.

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?

No Impact. The proposed project would not result in direct impacts to any portion of the San Joaquin Marsh. No fish or wildlife nursery sites occur on the existing parking lot, and construction activities are not expected to impact adjacent marsh areas where these biological resources could occur. As a result, implementation of the proposed project would

not impact either the movement of native resident or migratory fish species and would not impede the use of established native wildlife nursery sites.

Furthermore, the proposed project would not interfere with established native resident or migratory wildlife corridors. Construction activities on the existing parking lot would not preclude wildlife movement through the habitats associated with the San Joaquin Marsh. The scale and height of the storage building would be the same as or similar to the existing buildings within the MWRP, and would be located within the immediate vicinity of other structures at the MWRP. Thus, the proposed project is not expected to interfere with avian flight patterns. Vegetation associated with the marsh, including riparian and marsh habitats, would remain unaffected and available for use by migratory birds and small mammal species moving through the region. Construction would occur between the hours of 7:00 a.m. and 6:00 p.m. on non-federal-holiday weekdays and between 8:00 a.m. and 5:00 p.m. on Saturdays. Project construction would not interfere with the movement of nocturnal species because construction crews would restrict their activities to primarily daylight hours. Therefore, the proposed project would not interfere 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. There would be no impact.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No impact. As stated previously in Response IV(a), the proposed project would be located on an existing parking lot. With the exception of ornamental landscaping, the project site supports no vegetation; therefore, development of this area would not conflict with any local policies or ordinances protecting biological resources. There would be 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?

No Impact. Because the project site does not support any sensitive coastal sage scrub habitat or associated target species, it is not considered part of the "reserve" established by the Orange County Natural Communities Conservation Program/Habitat Conservation Plan (NCCP/HCP). Furthermore, the project site does not contribute to biological connectivity between areas of habitats targeted for conservation by the NCCP/HCP (R. J. Meade Consulting 1996). The discussion below describes three planning documents that address the biological resources of the project vicinity and evaluates the proposed project relative to these regional conservation efforts.

<u>County of Orange Natural Communities Conservation Program/Habitat Conservation Plan</u>

The San Joaquin Marsh, which surrounds the MWRP, is designated as "Non-Reserve Open Space." However, the MWRP and the project site are not identified as any reserve type by the NCCP/HCP. The San Joaquin Marsh is considered to have significant biological resources and habitat value (R. J. Meade Consulting 1996). It is not subject to the provisions of the NCCP/HCP because the preservation of marsh habitat does not directly address the issue of

regional CSS conservation that is the objective of the NCCP reserve system (R. J. Meade Consulting 1996). As a result, the proposed project would not conflict with the provisions of the NCCP/HCP.

City of Irvine General Plan

Management of the San Joaquin Marsh is addressed in the City of Irvine General Plan (2006). Based on this plan, portions of the marsh not subject to the Habitat Enhancement and Wetlands Program dedicated to the University of California Natural Reserve System may be used as a mitigation bank for development in areas adjacent to the marsh throughout the City of Irvine. The general plan also requires that significant riparian areas be maintained as natural corridors, that humans use be located away from rare or endangered species, and that enhancement be allowed as mitigation for development impacts (City of Irvine 2006).

The proposed project would not preclude the use of the San Joaquin Marsh as a potential mitigation area or the enhancement of marsh areas to mitigate for development impacts associated with other projects in the City of Irvine. In addition, no significant, unmitigatable direct or indirect impacts to riparian areas, potential wildlife corridors, or rare and endangered species are anticipated from construction of the proposed project. Therefore, the proposed project would not conflict with the provisions of the City of Irvine general plan.

San Diego Creek Special Area Management Plan

The San Joaquin Marsh is included in the Special Area Management Plan (SAMP) developed for the San Diego Creek watershed. The SAMP is an interagency collaboration by the United States Army Corps of Engineers (USACE) and the California Department of Fish and Game. The plan was established "to provide for a watershed-based approach to issuing Corps permits" (USACE 2008). In particular, the SAMP identifies measures to protect, improve, and monitor watershed conditions and provides options for complying with Section 404 and streambed alteration regulations (ICF Jones & Stokes 2009). The tenets of the SAMP are to

a. Cause no-net-loss of acreage and functions of waters of the United States;

b. Maintain/restore hydrologic, water quality, and habitat integrity;

c. Protect headwaters;

d. Maintain/protect/restore diverse and continuous riparian corridors;

e. Maintain or restore floodplain connection;

f. Maintain and/or restore sediment and transport equilibrium;

g. Maintain adequate buffer for the protected riparian corridors; and

h. Protect riparian areas and associated habitats supporting federally and state-listed sensitive species and their critical habitat

Because construction activities would result in direct impacts to only the existing parking lot, the proposed project would result in no-net-loss of acreage and functions of waters of the United States, headwaters would remain undisturbed, riparian corridors and floodplain connection would be maintained, sediment and transport equilibrium would be maintained, and riparian areas and associated habitats that potentially support federally- and state-listed sensitive species would not be disturbed. Indirect impacts to water quality and habitat integrity would be accomplished through the collection and treatment of stormwater runoff to avoid contamination of the San Joaquin Marsh with chemical pollutants.

In order to fully conform to the tenets of the SAMP, water quality, habitat integrity and riparian corridors also would be protected by maintaining adequate buffers between wetland areas and the proposed project (USACE 2008). These buffers would ensure that the riparian ecosystems would be sustainable over time (USACE 2008). The proposed project would be constructed entirely within the existing parking lot and Mitigation Measure BIO-1 would be implemented, if necessary. Therefore, buffers previously established between the current development and adjacent habitat areas provide adequate protection to native vegetation and wildlife from edge effects as well as indirect noise and pollution impacts to wildlife. Therefore, the proposed project would not conflict with the provisions of the SAMP.

The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. There would be no impact.

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 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?	☐	☐	☒	☐

Discussion

Would the project:

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact. The project site currently consists of a parking lot with no structures present. Modern buildings are adjacent to the project site to the northeast and southeast. The nearest known historical resource is the first home of Jose Sepulveda, an existing City of Irvine historical/archaeological landmark. According to figure E-1 of the City of Irvine General Plan, Jose Sepulveda's first home is located in the upper San Joaquin Marsh along the west bank of the San Diego Creek, north of the MWRP. The landmark is located adjacent to the MWRP, with another MWRP parking lot and landscaping separating the landmark from the project site. The project would not impact any existing structures, and would not affect the Jose Sepulveda first home landmark. Therefore, the proposed project would not cause a substantial change in the significance of a historical resource. There would be no impact.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant Impact with Mitigation Incorporated. Since there would be no surface exposure at the project site, no archaeological resources survey was performed for this project. A record search indicates that there are three recorded archaeological resources within a half mile of the project area, CA-ORA-111 east of the San Diego Creek, and CA-ORA-196/H and CA-ORA-197 west of the San Diego Creek. However, none of these sites are within proximity of the project area. The MWRP parcel has undergone grading for construction of the existing parking lot. Ground disturbances from this previous development likely would have inadvertently destroyed any unknown archeological

resources present. Furthermore, a geotechnical report prepared for the proposed project indicated that the site is underlain by approximately 3 to 6 feet of sandy fill (Appendix B - NMG Geotechnical, Inc. 2010). Construction of the proposed project would involve limited surface soil disturbance and grading to an approximate depth of five feet to prepare for the building foundations. Therefore, it is highly unlikely the proposed project would disturb any unknown archaeological resources. Impacts would be less than significant.

However, because significant buried cultural resources may exist within the project area, and it is possible these archaeological materials could be unearthed during project excavation activities, **Mitigation Measure CR-1** has been included to further minimize the potential for impacts associated with the proposed project.

Mitigation Measure CR-1: Project plans will specify that in the event that cultural resources are discovered in the project area during ground-disturbing activities, work will stop in that area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures typically include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. If during cultural resources monitoring the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact. The City of Irvine General Plan identifies the MWRP as an area with low paleontological sensitivity. Only a limited area would be disturbed with minimal ground surface grading. The proposed project would be located entirely within the existing treatment plant property on an existing surface parking which has been previously graded. A geotechnical report prepared for the proposed project indicated that the site is underlain by approximately 3 to 6 feet of sandy fill (Appendix B - NMG Geotechnical, Inc. 2010). Therefore, the potential for encountering unique paleontological resources or unique geologic features is low and impacts would be less than significant.

d. Disturb any human remains, including those interred outside of formal cemeteries?

Less-than-Significant Impact. The project site is not a formal cemetery and is not adjacent to a formal cemetery. The project site is not known to contain human remains interred outside formal cemeteries, nor is it known to be located on a burial ground. The proposed project would involve limited grading to a depth of approximately 5 feet to prepare for the building foundations. A geotechnical report prepared for the proposed project indicated that the site is underlain by approximately 3 to 6 feet of sandy fill (Appendix B - NMG Geotechnical, Inc. 2010). Therefore, it is highly unlikely that construction of the proposed project would disturb human remains.

If human remains were found, they would be treated as specified by state law. State Health and Safety Code Section 7050.5 states that no further disturbance will occur until the

County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, excavation or construction will halt in the area of the discovery, the area will be protected, and consultation and treatment will occur as prescribed by law. If the Coroner recognizes the remains to be Native American, he or she will contact the Native American Heritage Commission, who will appoint the Most Likely Descendent. Additionally, if the bones are determined to be Native American, a plan will be developed regarding the treatment of human remains and associated burial objects, and the plan will be implemented under the direction of the Most Likely Descendent. Therefore, impacts would be less than significant.

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☐	☒	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
4. 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 an onsite or offsite 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?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

Would the project:

Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

a1. 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?

No Impact. The project area has been previously evaluated for soils, geology, and seismicity in three separate reports (Dudek & Associates 2006). No known faulting exists within or adjacent to the MWRP site and the site is not located in a delineated earthquake zone on an Alquist-Priolo Earthquake Fault Map (California Department of Conservation 1999). Therefore, no impacts would occur.

a2. Strong seismic ground shaking?

Less-than-Significant Impact. All of southern California, including the City of Irvine, is located in a seismically active area and is subject to strong seismic groundshaking. The City of Irvine and its sphere of influence are affected by both local and regional active faults. These include the Norwalk, Newport-Inglewood, Whittier-Elsinore, San Andreas, and San Jacinto faults. There are also a number of inactive faults which have been identified in the City (City of Irvine 2006). The proposed project would be designed and built in accordance with seismic design provisions in the Uniform Building Code and City of Irvine General Plan. Furthermore, all facets of excavation, construction, and facility design would meet the standards established for previous development at the MWRP site. Specifically, this would include measures such as the over-excavation of unsuitable base soils and geologic units, the proper composition, placement, and compaction of all construction fill, the use of additional foundation design techniques as necessary, and the utilization of appropriate construction materials and methods (Dudek & Associates 2006). Implementation of these design measures would minimize the potential for adverse effects caused by seismic and geologic hazards such as strong seismic groundshaking. Impacts would be less than significant.

a3. Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. The City of Irvine General Plan Seismic Element identifies five general types of geologic conditions called Seismic Response Areas (SRA). SRAs describe the different types and magnitudes of potential seismic hazards. The project site is located in an area designated as SRA1 and is described as having the potential for soft or loose soils and high ground water. This area is considered to have a relatively high potential for ground failure in the form of liquefaction. However, liquefaction is not expected to occur for all earthquakes, or over the entire SRA1 (City of Irvine 2006). The project site is underlain with 3 to 6 feet of sandy fill. The fill layer is thicker at the west end of the site on which the project site is located. Immediately below the fill are layers of highly plastic, organic clays with peat. These organic clays had very high moisture contents and are highly compressible (Appendix B – NMG Geotech Report). The liquefaction potential of these soils is estimated to be low (Dudek 2006). Therefore, impacts related to seismic-related ground failure, including liquefaction, are considered to be less than significant.

a4. Landslides?

No Impact. Landslides are associated with steep slopes or areas adjacent to variable topography. The project site is located on a level mesa and is not adjacent to any significant slopes. Therefore, there would be no impact.

b. Result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. The project site does not contain substantial amounts of topsoil. The project site currently consists of a paved parking lot with some landscaped areas. Small amounts of exposed on-site soils would be prone to soil erosion during the construction phase of the proposed project. Construction plans and activities would include erosion control measures to minimize runoff during construction. Upon completion of construction activities the project site would be covered with impermeable surface or with landscaping, serving to limit the amount of topsoil loss or potential erosion from the site as under existing conditions. Therefore, impacts would be less than significant.

c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. As discussed in Response VI(a3), the project site is underlain by organic clays of very high moisture content and are highly compressible. The liquefaction potential of the project site is estimated to be low because of the presence of dense to very dense sands and clayey sands at the MWRP (Dudek 2006). Therefore, impacts would be less than significant.

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?

Less-than-Significant Impact. See Responses VI(a3) and VI(c) for additional details regarding soils at the project site. Soil samples taken in the general vicinity of the MWRP indicated that the soils have little or no expansion potential (Dudek 2006). Therefore, no impacts from expansive soils are anticipated and impacts would be less than significant.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

No Impact. No septic tanks or alternative wastewater disposal systems are included as part of the proposed project. Impacts would not occur.

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☒	☐

Discussion

Would the project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Table 3-3 presents an estimate of proposed project-related greenhouse gas (GHG) emissions of CO_2, CH_4, and N_2O in terms of CO_2e (carbon dioxide equivalent). Because quantitative GHG guidelines, including thresholds, have not officially been developed by the SCAQMD, these emissions have been compared to both official and interim thresholds set by other agencies, and are provided for information and discussion purposes only.

Table 3-3. Estimate of Proposed Project-Related Greenhouse Gas Emissions

	Annual CO2e (metric tons)
Proposed Project Emissions	
Construction-Period Emissions	
2011	86
CAPCOA Significance Threshold	900
BAAQMD Significance Threshold	1,100
SCAQMD Significance Threshold	3,000
Exceed Threshold?	No

Source: ICF 2010. URBEMIS 2007 outputs are provided in Air Quality Appendix A.

As shown above, the quantity of proposed project-related GHG emissions falls below all suggested GHG thresholds. As such, the proposed project's amount of emissions, without considering other cumulative global emissions, would be insufficient to cause global climate change. Thus, proposed project emissions, in isolation, are considered less than significant. However, climate change is a global cumulative impact, and thus the proper context for

analysis of this issue is not a project's emissions in isolation, but rather as a contribution to cumulative GHG emissions.

With regard to climate change and GHG emissions, the amounts of GHG emissions that would result from development of the proposed project are negligible. Total construction emissions would total approximately 86 metric tons CO2e. These amounts of CO2e are far below the preliminary threshold that is currently being contemplated by the SCAQMD's GHG Significance Thresholds Working Group of 3,000 metric tons CO2e per year. Additionally, proposed project related emissions are below the much stricter thresholds set by the California Air Pollution Control Officers Association and the Bay Area Air Quality Management District. As such, it is concluded that proposed project-related GHG emissions would be less than significant.

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. AB 32 identified the acceptable level of GHG emissions in California in 2020 as 427 MMT of CO_2e, which is the same as the 1990 GHG emissions level, is approximately 10% less than the current level (474 MMT CO_2e in 2008), and is approximately 28.5% less than 2020 Business As Usual (BAU) conditions (596 MMT CO_2e). To achieve these GHG reductions, there will have to be widespread reductions of GHG emissions across California. Some of those reductions will need to come in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing facilities, as well as other measures. The remainder of the necessary GHG reductions will need to come from requiring new facility development to have lower carbon intensity than BAU conditions. Therefore, this analysis uses a threshold of significance that is in conformance with the state's goals.

Operation of the proposed project is expected to result in increased emissions of GHGs due to energy consumption from the new lighting required for the storage building. Increased emissions of GHGs would contribute to global warming and the adverse global environmental effects thereof. Increased GHG emissions could also potentially conflict with the requirement of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

On December 12, 2008, CARB approved the Assembly Bill 32 Scoping Plan, which contains emission reduction measures targeting sources of GHG emissions called for in AB 32. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market based mechanisms such as a cap-and-trade system, and an AB32 cost of implementation fee regulation to fund the program.

Proposed project operational GHG emissions would result from onsite electricity consumption. In their AB32 Scoping Plan, CARB has set in place aggressive energy efficiency measures requiring that 33% of all energy consumed in California will come from renewable sources by 2020. Assuming conformity with CARB standards, GHG emissions in 2020 associated with operation of the proposed project are expected to be 33% less than under BAU conditions. As such, the proposed project would result in less than significant impacts.

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the 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 involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. 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?	☐	☐	☒	☐

Discussion

Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No Impact. Development of the proposed project would require the demolition of a portion of an existing parking lot. It is likely that most of the asphalt, which is not considered a

hazardous material, would be recycled. The proposed project would operate as a storage building that would not contain hazardous materials. Routine transport, use, or disposal of hazardous materials would not be associated with the proposed project. Therefore, there would be no impact.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact. Construction and operation of the proposed project would not result in the reasonably foreseeable upset or release of any hazardous materials. Construction equipment that would be used to build the proposed project has the potential to release oils, greases, solvents, and other finishing materials through accidental spills. Spill or upset of these materials would have the potential to affect surrounding land uses. However, the consequences of construction-related spills are generally reduced in comparison to other accidental spills and releases because the amount of hazardous material released during a construction-related spill is small because the volume in any single piece of construction equipment is generally less than 50 gallons. Construction-related spills of hazardous materials are not uncommon, but the enforcement of construction and demolition standards, including BMPs by appropriate local and state agencies, would minimize the potential for an accidental release of petroleum products and/or hazardous materials or explosions during construction. Federal, state, and local controls have been enacted to reduce the effects of potential hazardous materials spills.

The Orange County Fire Authority provides regional fire and public safety services for 22 cities in Orange County, including the City of Irvine, and enforces city, state, and federal hazardous materials regulations. It has the resources to respond and provide services to all types of emergencies, including fires, medical emergencies, rescue, hazardous materials incidents, and wildland and wildland-urban interface fires (Orange County Fire Authority 2010a, 2010b). City regulations include Title 4 Division 17 Hazardous Materials of the Irvine Municipal Code and implementation of the California Accidental Release Prevention Program. Compliance with these requirements is mandatory as standard permitting conditions, and would minimize the potential for the accidental release or upset of hazardous materials, helping to ensure public safety.

The proposed project would not use or store large amounts of hazardous substances and an upset of those types of materials would not be reasonably foreseeable. The construction and operation of the proposed project would not 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. Therefore, impacts would be less than significant.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The proposed project includes the construction and operation of a storage building at the MWRP. The nearest school is the KinderCare Learning Center located at

3661 Michelson Drive, approximately 0.6 mile from the project site. The University of California Irvine and University of California Irvine Child Development Center are located within 1 mile of the project site. No schools are within 0.25 mile of the proposed project. Furthermore, the proposed project would not emit hazardous emissions or require handling hazardous or acutely hazardous materials, substances, or waste. Therefore, there would be no impact.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less-than-Significant Impact. The project site is located at 3512 Michelson Drive and, although it is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, plant operations does require handling and storing hazardous materials. A search of 3512 Michelson Drive in the California Environmental Protection Agency (CalEPA) Cortese List as a Department of Toxic Substances and Control Hazardous Waste site did not yield any results, and the proposed project site address is not in the EnviroStor data base of hazardous substances release sites (CalEPA 2010a, 2010b). Geotracker, the California database of leaking underground storage tanks, lists two incidents that were remediated in 1995 and 2000. The potential contaminants of concern were diesel and gasoline, and the potential media affected were soil and groundwater uses other than drinking water. The database does not report any current leaking underground storage tanks at the project site or in the vicinity of the project site (Geotracker 2010). Finally, there are no active Cease and Desist Orders or Clean Up and Abatement Order for hazardous materials/facilities in the project vicinity or at the project site (CalEPA 2010c). Therefore, the proposed project would not create a significant hazard to the public or the environment, and impacts would be less than significant.

e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?

Less-than-Significant Impact. The closest airport is John Wayne (Orange County) Airport, approximately 2 miles northwest of the project site. The project site is located within the boundaries of the Airport Environs Land Use Plan (AELUP) for John Wayne Airport. The project site is within the notification area of the Federal Aviation Regulation (FAR) Part 77 for instrument approach for the John Wayne Airport, and the FAA Notice Criteria Tool indicates that the FAA requests that notification of the proposed project be filed (Federal Aviation Administration 2010).

Section 77.13 of the FAR requires the notification of the Federal Aviation Administration (FAA) for any construction or alteration which:

- exceeds 200 feet in height above the ground level at its site;
- exceeds a height greater than an imaginary surface extending outward and upward at specific slope characteristics at 20,000 feet, 10,000 feet, and 5,000 feet from the nearest point of the airport runway;
- is a highway with specific characteristics;
- would be in an instrument approach area and construction or alteration is more than 200 feet above the surface level of the site or an FAA regional office advises that submission of notification is required, and/or,
- occurs at an airport.

However, Section 77.15 of the FAR does not require notification of construction or alteration for any of the following:

- Any object that would be shielded by existing structures or a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement which it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation.
- Any antenna structure 20 feet or less in height except one that would increase the height of another antenna structure.
- Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device, or a type approved by the Administrator, or an appropriate military service on military airports, the location and height of which is fixed by its functional purpose.
- Any construction or alteration for which notice is required by any other FAA regulation.

The proposed project would construct a single-story storage building with a maximum height of 24 feet. The project site is approximately 67 feet above mean sea level (RRM Design Group 2010). Since the proposed project would be located amongst existing MWRP operations and office buildings and the surrounding area includes development and structures of equal or greater height, the proposed project would be shielded by existing structures of a permanent and substantial character and would not adversely affect safety in air navigation. Therefore, the proposed project would meet FAA exemption criteria 77.15(a) for filing a construction or alteration notice.

Although the proposed project is located within 2 miles of a public airport and within the Airport Environs Land Use Plan planning area for John Wayne Airport, it would not result in a safety hazard for people residing or working in the project area. Furthermore, the proposed project would be located in an urban and developed area amongst structures of equal and greater height and not require filing notification with the FAA. Impacts would be less than significant.

f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?

No Impact. The proposed project is not located within the vicinity of a private airstrip. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area and there would be no impact.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed project would not involve expansion beyond the existing MWRP boundaries; therefore, conflicts with any emergency evacuation plan would not occur. Furthermore, the MWRP is not located along any of the major arterials that could serve as major evacuation routes. Therefore, implementation of the proposed project would not impair or physically interfere with any emergency plan and there would be no impact.

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?

Less-than-Significant Impact. Portions of the project area are included in or adjacent to open space with fire potential designated by the Orange County Fire Authority. The project site is within 2 miles of areas designated as having medium or high fire potential according to the Orange County Planning and Development Services Department (Dudek 2006). Construction of the proposed project would not involve any housing units, and the proposed storage building would be fabricated of non-combustible or fire-retardant materials. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires and impacts would be less than significant.

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

Discussion

Would the project:

a. Violate any water quality standards or waste discharge requirements?

Less-than-Significant Impact. The MWRP is located in the Santa Ana River hydrological unit, the lower Santa Ana River hydrologic area, and the East Coastal Plain hydrologic subarea (SARWQCB 1995). The MWRP is also contained within the San Diego Creek Watershed, which covers 112.2 square miles in central Orange County. The San Diego Creek Watershed includes portions of the cities of Costa Mesa, Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin. Its main tributary, San Diego Creek, drains into Upper Newport Bay. The watershed is under the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB) and subject to the objectives, water quality standards, and BMP requirements established in the Santa Ana River Basin Plan and Orange County Drainage Area Management Plan (DAMP). The EPA and Santa Ana Regional Water Quality Control Board have identified San Diego Creek as an impaired water body. Impairments are identified for metals, nutrients, pesticides, sediments and toxics (EPA 2010).

Under the provision of the City of Irvine Municipal Code Section 6-8-302, no person shall cause, facilitate, or contribute to a discharge into the stormwater drainage system, or into an area or in a manner that will result in a discharge into the stormwater drainage system of any substance causing or contributing to an exceedance of any water quality standard for surface water or groundwater. The proposed project would comply with all regional and local water quality standards and waste discharge requirements. Since the proposed activities do not involve the paving or disturbance of an area equal to or greater than 1 acre, a Storm Water Pollution Prevention Plan would not be required for the proposed project. Construction plans and activities would include erosion control measures to minimize runoff during construction. Furthermore, stormwater runoff at the MWRP is pumped into the plant headworks and treated as part of the recycled water process, therefore limiting the potential for erosion and sedimentation and subsequent damage to the San Joaquin Marsh and San Diego Creek.

Operation of the proposed project would not result in discharges of water. The proposed project would not violate water quality standards or waste discharge requirements. Therefore, impacts would be less than significant.

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

No Impact. The MWRP is located within the Irvine Management Zone for groundwater which is bounded by the San Joaquin Hills to the south and the foothills of the Santa Ana Mountains to the northeast. The management zone is made up of three groundwater basins, specifically the Irvine Forebay I, Irvine Forbay II, and Irvine Pressure areas.

Groundwater in the Irvine Management Zone flows westward from the forebay area into the pressure area. The MWRP is located in the pressure area, which is defined as the area where surface waters and near-surface groundwater are impeded from percolating in large quantities into the major producible aquifers by clay and silt layers at shallow depths. Generally, the majority of the recharge occurs in the unconfined forebay area, which is characterized by highly permeable sands and gravels with discontinuous clay and silt deposits. The Irvine Management Zone is divided into three groundwater aquifers referred to as the shallow, principal, and deep aquifers. The shallow aquifer is unconfined and is of poor quality and generally not used for municipal supply (Dudek 2006).

IRWD constructed a series of ponds as part of a constructed wetlands habitat in the San Joaquin Marsh. The ponds are located between the MWRP and Campus Drive. The ponds receive water via a pump station located approximately 500 feet downstream from the MWRP in San Diego Creek. The ponds are naturally lined with fine sediment, i.e., clay, peat, which was typically identified beneath the MWRP. It appears that some water infiltrates through the bottom of the ponds and recharges the shallow aquifer (Dudek 2006). However, as previously stated, the shallow aquifer is of poor quality and generally not used for municipal supply.

Because the project site is currently developed with an impermeable parking lot and is not considered a location of groundwater recharge, the proposed project would not interfere with groundwater recharge. Furthermore, the proposed project would not directly withdraw groundwater from beneath the site, thereby substantially depleting groundwater supplies. There would be no impact.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

Less-than-Significant Impact. The existing project area is in the San Diego Creek Watershed and adjacent to the San Diego Creek, its main tributary. The proposed project would not substantially alter the existing drainage pattern of the site or area, nor would it alter the course of a stream or river. Furthermore, the proposed project would not substantially increase the amount of stormwater runoff volumes and velocities. The proposed project would be developed on an existing impermeable 33,000 square foot surface parking lot. The proposed project would involve some grading and minor soil disturbance during construction. These activities would not alter the existing drainage pattern of the site. The proposed project would implement construction plans, activities and BMPs consistent with the DAMP in order to limit erosion during construction. Furthermore, stormwater runoff at the MWRP is pumped into the plant headworks and treated as part of the recycled water process, therefore limiting the potential for erosion and sedimentation and subsequent damage to the San Joaquin Marsh and San Diego Creek. Once operational, the project site would be covered with impermeable and landscaped surfaces. Impacts would be less than significant.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?

Less-than-Significant Impact. No streams or rivers are located on the project site; however, the San Diego Creek and San Joaquin Marsh are adjacent to the MWRP. Construction and operation of the proposed project would not directly affect the flow of a river or stream. Substantial amounts of stormwater are not readily absorbed into the soil because of the existing use of the project site as a surface parking lot.

During construction, runoff quantities and velocities from the project site would be minimized through implementation of construction plans, activities and BMPs consistent with the DAMP in order to limit flooding during construction. Furthermore, all surface runoff at the MWRP is pumped into the plant headworks and treated as part of the recycled water process, therefore limiting the potential for onsite and offsite flooding. As discussed above in Section IX(a) and (c), operation of the proposed project would not substantially alter the existing drainage pattern of the site and would not substantially increase the impervious area on the project site. Therefore, the proposed project would not substantially alter the existing drainage pattern of the project site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. Impacts would be less than significant.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact. As discussed in Responses IX(a) and IX(c), with the implementation of construction plans, activities and BMPs consistent with the DAMP, the proposed project would not substantially increase the volume or velocities of stormwater flow or contribute to substantial erosion or siltation onsite or offsite. Therefore, impacts would be less than significant.

f. Otherwise substantially degrade water quality?

Less-than-Significant Impact. The proposed project would not substantially degrade water quality. As outlined under Responses IX(a) and (c), the proposed project would not substantially increase surface runoff, would not substantially alter the drainage of the existing project site, and would otherwise have less than significant impacts on water quality with the incorporation of construction plans, activities and BMPs consistent with the DAMP. Impacts would be less than significant.

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?

No Impact. The proposed project does not include the construction of housing units. Therefore, the proposed project would not locate housing within a 100-year flood hazard area. There would be no impact.

h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?

Less-than-Significant Impact. The MWRP is located along the westerly bank of the San Diego Creek and is protected from flooding by the San Diego Creek Channel. The San Diego Creek Channel is a 100-year flood control facility under the maintenance of the Orange County Public Works, Flood Control Division (OCPW) and is the primary regional flood control facility serving the San Diego Creek Watershed. Federal Emergency Management Agency (FEMA) Fire Insurance Rate Maps (FIRMs) identify flood zones and areas that are susceptible to 100-year and 500-year floods. The MWRP and the majority of the land bordering the San Diego Creek are not in the 100-year to 500-year flood plain according to FEMA FIRMs (Dudek 2006). However, the San Diego Creek itself is identified as a flood hazard area (City of Irvine 2006). The proposed project does not involve the construction of structures that impede or redirect flows in the San Diego Creek Channel. However, the San Diego Creek Channel between Jamboree Road and the I-405 freeway was determined to be deficient in its ability to convey 100-year storm flows due to extensive vegetation growth on the north/east side of the channel. The OCPW has proposed a project to restore the channel to its as-built condition by removing the vegetation along the north/east side except for a 40-foot wide buffer (OCPW 2010). Therefore, until the San Diego Creek Channel baseline condition as a 100-year flood control facility is re-established, there will remain a potential for flooding at the project site. For the purposes of this IS/MND, it is expected that OCPW will restore the 100-year flood capacity of the channel. Regardless, the proposed project would not increase the potential for flooding and would not impede flood flows. Therefore, impacts would be less than significant.

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?

Less-than-Significant Impact. The proposed project would not involve introduction of structures in a dam inundation zone. As discussed in Response IX(h), the proposed project is not located in a flood hazard area; however, the adjacent San Diego Creek is identified as a flood hazard area. For the purposes of this IS/MND, it is expected that OCPW will restore the 100-year flood capacity of the channel, and impacts would be less than significant.

j. Contribute to inundation by seiche, tsunami, or mudflow?

No Impact. Hydrologic and topographic conditions of the project site and surrounding area do not lend themselves to these conditions. The project site is not near any water body that would potentially be affected by a seiche, tsunami, or mudflow (Dudek 2006). Therefore, the proposed project would not contribute to inundation by seiche, tsunami, or mudflow and there would be no impact.

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

Would the project:

a. Physically divide an established community?

No Impact. The proposed project would be located entirely within the existing MWRP boundaries. Therefore, the proposed project would not physically divide an established community, and there would be no impact.

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

No Impact. The project site is designated "Public Facilities" by the City of Irvine General Plan, and "Institutional" by the City of Irvine Zoning Code. These designations include the MWRP as an allowable use. The proposed project would not create any new uses that do not already exist within the facility boundary and would not conflict with general plan or zoning designations. The proposed project represents an ancillary facility for continued operations of the existing use as a water recycling facility. Therefore, the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; and there would be no impact.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. See Response IV(f). The proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan. There would be no impact.

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☐	☒

Discussion

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?

No Impact. Mineral extraction activities are not conducted on site and the MWRP is not located in area of known mineral resources. Therefore, the proposed project would not result in the loss of availability of a known mineral resource and there would be no impact.

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?

No Impact. See Response XI(a). There would be no impact.

XII. Noise		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Would the project:

a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Less-than-Significant Impact. Project-related noise would be created as a result of construction and operational noise, as well as project-related traffic noise. The proposed project is located in the City of Irvine, which regulates noise through the Noise Element of the General Plan and the Municipal Code. The relevant portions of these noise regulations are summarized below:

City of Irvine Noise Element

The noise standards specified in the City's Noise Element (City of Irvine 2006) are summarized in Table 3-4. The City uses 65 decibels in the A-weighted scale (dBA) community noise equivalent level (CNEL) as the critical criterion for assessing the compatibility of residential land uses with noise sources. The City requires that the exterior

living areas (backyards and patios) for new residential land uses not exceed 65 dBA CNEL. In addition, the City of Irvine requires that both single-family and multifamily developments achieve an indoor noise standard of 45 dBA CNEL. Other short-term noise impacts, such as construction activities, are regulated by the noise ordinance.

Noise Ordinance

The City's Noise Ordinance [Irvine, City of. 2005. *Code of Ordinances, Title 6 – Public Works, Division 8 – Pollution, Chapter 2 – Noise*. Irvine, CA.] establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Ordinance (adopted in 1975 and revised in 1984) establishes noise level standards for various land use categories affected by stationary noise sources.

For residential uses, the exterior noise level shall not exceed 55 dBA during daytime hours (7:00 a.m.–10:00 p.m.) or 50 dBA during the nighttime hours (10:00 p.m.–7:00 a.m.) for more than 30 minutes in any hour. For events occurring within shorter periods of time, these noise levels are adjusted upward accordingly.

Table 3-4. Interior and Exterior Noise Standards, Energy Average (CNEL), City of Irvine

Land Use Categories		**Energy Average (CNEL)**	
Category	**Use**	**Interior[a]**	**Exterior[b]**
Residential	Single-Family and Multifamily	45[c] 55[d]	65[e]
	Mobile Home	--	65[f]
Commercial/ Industrial/ Institutional	Hotel, Motel, Transient Lodging	45	65
	Commercial, Retail, Bank, Restaurant	55	--
	Office building, Professional Office, Research and Development	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose)	50	--
	Health Clubs	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theater	45	--
Institutional	Hospital, School Classroom	45	65
	Church, Library	45	--
Open space	Parks	--	65[g]

Source: City of Irvine Noise Element, updated 2006.

[a] Interior environment, excluding bathrooms, toilets, closets, and corridors.

[b] Outdoor environment limited to private yard of single-family or multifamily residences; private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.

[c] Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.

[d] Noise level requirement with open windows, if they are used to meet natural ventilation requirement.

[e] Multifamily developments with balconies that do not meet the 65 dBA CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.
[f] Exterior noise level shall be such that interior noise level will not exceed 45 dBA CNEL.
[g] Except those areas affected by aircraft noise.
CNEL = community noise equivalent level

The Noise Ordinance regulates the timing of construction activities and includes special provisions for sensitive land uses. Construction activities shall occur only between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m.–6:00 p.m. on Saturdays. No construction is permitted outside of these hours or on Sundays and federal holidays.

Noise-Sensitive Land Uses. The nearest noise-sensitive land uses consist of residences located approximately 2,100 feet southeast of the project site. A church is also located approximately 2,100 feet to the south. The view of the project site to the residences and to the church is shielded by existing Irvine Ranch Water District buildings. The nearest noise-sensitive land uses with an unobstructed view are residences located approximately 2,400 feet to the northwest.

Construction Noise. Noise from construction activities could temporarily increase noise levels at nearby noise-sensitive land uses. The duration of construction is estimated to be approximately 6 months. Construction activities would include demolition of an existing parking lots, on-site improvements, site preparation, paving, and modifications to an existing culvert and drainage. Access to the project site would be provided through Riparian View, IRWD's private road off of Michelson Drive.

Because the site is already developed and the topography is flat, there would be minimal soil disturbance during construction. Import and export of soil may be necessary in the event that the grading contractor finds that some excavated soil is not suitable for reuse. Soil would be disturbed to an approximately depth of 5 feet to prepare for the building foundations. The building would be constructed using pre-manufactured metal panels that would be transported to the project site.

All construction would comply with applicable codes. Construction crews would work no more than 8 hours per day and would restrict their activities to between 7:00 a.m. and 6:00 p.m. on non-federal-holiday weekdays and between 8:00 a.m. and 5:00 p.m. on Saturdays. No special construction methods such as blasting or pile-driving would be used.

Noise from construction activity is generated by the broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools to bulldozers, dump trucks, and front loaders. The exact complement of noise-producing equipment that would be in use during any particular period has not yet been determined. However, the noise levels from construction activity during various phases of a typical construction project have been evaluated, and their use provides an acceptable prediction of a project's potential noise impacts.

In order to assess the potential noise effects of construction, this noise analysis used data from an extensive field study of various types of industrial and commercial construction

projects (U.S. Environmental Protection Agency 1971). Noise levels associated with various construction phases where all pertinent equipment is present and operating, at a reference distance of 50 feet, are shown in Table 3-5. Because of vehicle technology improvements and stricter noise regulations since the field study was published, this analysis used the average noise levels shown in Table3-5 for the loudest construction phase. This information indicates that the overall average noise level generated on a construction site could be 89 dBA at a distance of 50 feet during excavation and finishing phases. The noise levels presented are value ranges; the magnitude of construction noise emission typically varies over time because construction activity is intermittent and the power demands on construction equipment (and the resulting noise output) are cyclical.

Table 3-5. Typical Noise Levels from Construction Activities for Public Works Projects

Construction Activity	Average Sound Level at 50 feet (dBA Leq)[a]	Standard Deviation (dB)
Ground Clearing	84	7
Excavation	89	6
Foundations	78	3
Erection	87	6
Finishing	89	7

[a] Sound level with all pertinent equipment operating.
Source: U.S. Environmental Protection Agency 1971.

Noise levels generated by construction equipment (or by any point source) decrease at a rate of approximately 6 dBA per doubling of distance from the source (Harris 1979). Therefore, if a particular construction activity generated average noise levels of 89 dBA at 50 feet, the L_{eq} would be 83 dBA at 100 feet, 77 dBA at 200 feet, 71 dBA at 400 feet, and so on. This calculated reduction in noise level is based on the loss of energy resulting from the geometric spreading of the sound wave as it leaves the source and travels outward. Intervening structures that block the line of sight, such as buildings, would further decrease the resultant noise level by a minimum of 5 dBA. The effects of molecular air absorption and anomalous excess attenuation would reduce the noise level from construction activities at more distant locations at the rates of 0.7 dBA and 1.0 dBA per 1,000 feet, respectively.

The closest noise-sensitive receptors to the project are residential land uses located approximately 2,100 feet to the southeast of the project site. A construction noise level of 89 dBA L_{eq} at 50 feet would attenuate to approximately 48 dBA L_{eq} at a distance of 2,100 feet from the source, after accounting for structural shielding, attenuation with distance and absorption effects. At the nearest noise-sensitive receivers with an unobstructed line of sight, the construction noise is predicted to be approximately 51 dBA. These noise levels are on a par with or slightly below typical, daytime suburban ambient noise levels[2] in the absence of nearby major noise sources (such as highways, major roadways, industrial

[2] Reference: Harris Miller Miller & Hanson, Inc. 2003. Noise and Vibration Impact Assessment for the San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project. Draft report. February. (HMMH Report No. 298760-01.) Burlington, MA.

plants, etc). Thus, construction noise levels may be slightly audible at times in the residential areas during construction operations, however the levels are sufficiently low such that they are unlikely to cause interference with conversation or other activities requiring concentration, or to cause sleep interference. Furthermore, noise levels generated by construction activities would be less than the 30-minute 55 dBA exterior standard for residential receptors as specified in the noise ordinance. Provided that construction is conducted within the hours permitted by the City's Municipal Code (i.e., 7:00 a.m.–7:00 p.m., Monday through Friday, and 9:00 a.m.–6:00 p.m. on Saturdays), noise from construction would result in a less than significant impact.

Operational Noise On-Site. The storage building would be approximately 24 feet in height and would be used for storage of materials and equipment used for maintenance activities at the MWRP. The materials to be stored within the building would be relocated from other storage buildings on the MWRP site. The materials that would be stored in the structure are currently stored at other buildings on the same site. Once the building is constructed, these materials would be consolidated in the new structure and the existing buildings would be converted to office space. Delivery of materials to the plant would not increase as a result of the proposed project; therefore, no increase in truck deliveries would result from the proposed project, and no net increase in overall on-site noise would result when compared to existing levels. Although there may be a minor increase in the number of automobile traffic trips, the increase in traffic noise would not be measurable or audible, and would not cause an exceedance of City of Irvine noise standards. The noise from operation of the proposed project would not exceed applicable standards and would therefore be less than significant.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. The nearest vibration-sensitive land uses are residences, located approximately 2,100 feet from the project site. Vibration would be generated by construction equipment during project construction and by trucks and other equipment during project operations. Groundborne vibration from construction and operations equipment would be relatively minor, and would generally dissipate to a level below perceptibility within 50 feet or less. At nearby sensitive land uses, vibration or groundborne noise would not be perceptible; therefore, impact from groundborne vibration or grounborne noise would be less than significant. No mitigation measures are required or recommended.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. As discussed in Response XII(a), the nature of the proposed project is such that noise from project operation would not generate noise levels that would be noticeably different from existing levels on-site. No substantial permanent increase in ambient noise levels above existing levels without the project is anticipated; therefore, impacts would be less than significant. No mitigation measures are required or recommended.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. As discussed in Response XII(a), construction noise at noise-sensitive land uses is estimated to be approximately 51 dBA L_{eq}or less. These noise levels are on a par with or slightly below typical, daytime suburban ambient noise levels. The combined effect of the temporary noise from construction and the ambient noise would result in a temporary increase in overall noise levels in the area of approximately 3 decibels, assuming that the construction noise was equivalent in sound level to the existing ambient level. In terms of audibility (all other things being equal), a change in noise level of 3 decibels is considered to be barely perceptible in a community environment, while a change of 5 decibels is considered to be clearly perceptible. Impacts would be less than significant.

e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

Less-than-Significant Impact. The project site is located within the Orange County Airport Environment Land Use Plan (AELUP) for John Wayne (Orange County) Airport. The project site is approximately 1.8 miles east of the airport's main runway (19R/1L), and lies approximately 0.5 mile outside of the airport's 60 dBA CNEL noise contour. Therefore, the project would not expose people residing or working in the project area to excessive noise levels and impacts would be less than significant. No mitigation measures are required or recommended.

f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed project is not located in the vicinity of a private airstrip. Therefore, there would be no impact.

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

Would the project:

a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No Impact. No housing or commercial facilities are related to the proposed project. In addition, the proposed project would not modify land use or zoning designations to permit new residential or commercial development. Therefore, the proposed project would not have the potential to induce substantial population growth and there would be no impact.

b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?

No Impact. There are no housing units located on site. Therefore, the proposed project would not displace a substantial number of existing housing units and there would be no impact.

c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?

No Impact. See Response XIII(b). There would be no impact.

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion

Would the project:

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

a1. Fire protection?

No Impact. Introduction of an additional storage building would not change local fire protection authority response times or substantially affect demand for fire protection services at the facility. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities and there would be no impact.

a2. Police protection?

No Impact. The proposed project would not involve the introduction of structures outside of the existing MWRP property. Further, the proposed project would not include the addition of housing, schools, or other community facilities that might require additional police protection. Therefore, the proposed project would not affect local police response times or demand for police protection services and there would be no impact.

a3. Schools?

No Impact. As discussed in the Response XIII(a), Population and Housing, the proposed project would not induce population growth. Therefore, no new demands would be placed on schools and there would be no impact.

a4. Parks?

No Impact. As discussed in Response XIII(a), Population and Housing, the proposed project would not induce population growth. Therefore, no new demands would be placed on parks and there would be no impact.

a5. Other public facilities?

No Impact. As discussed in Response XIII(a), Population and Housing, the proposed project would not induce population growth. Therefore, no new demands would be placed on other public facilities and there would be no impact.

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

Would the project:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. As discussed in Response XIII(a), Population and Housing, the proposed project would not induce population growth. Therefore, no new demands would be placed on recreational facilities and there would be no impact.

b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact. As discussed in Response XIII(a), Population and Housing, the proposed project would not induce population growth. The proposed project would not include recreational facilities or require the construction of or expansion of recreational facilities that might have an adverse effect on the environment. The construction laydown area would located within the fenced MWRP boundaries, and access to trails in the area surrounding the MWRP for walkers/joggers and bicyclists would remain available. There would be no impact.

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Discussion

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?

Less-than-Significant Impact. Although the proposed project is located entirely within the MWRP site boundaries, there is a potential for project-related traffic to affect adjacent roadways providing access to the project site during construction and operation.

Construction Period

No road or lane closures are expected to result from construction of the proposed project. Access to the project site during construction would be provided through Riparian View, IRWD's private road accessed from Michelson Drive. Construction activities would generate construction-related traffic, which could create a temporary increase in localized traffic. Additionally, construction related traffic could potentially disrupt or reduce pedestrian, bicycle, and vehicular accessibility in the area during construction hours.

The impact of construction generated traffic on area traffic volumes would be less than significant with implementation of IRWD project technical specifications section 1300 pertaining to construction traffic control (IRWD 2010). Covered traffic regulations include construction signing, vehicular traffic control, pedestrian traffic control and safety, access to adjacent properties, and permanent traffic control devices. Traffic control associated with the proposed project would conform to the ordinances and regulations of the City of Irvine.

Operation Period

During operation, increases in traffic volumes are not expected to result from the introduction of an additional storage building. Thus, operational traffic volume impacts would be less than significant.

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?

Less-than-Significant Impact. See Response XVI(a). Although the proposed project would result in minor temporary increases in traffic on local area roadways, this short-term construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to conflict with any congestion management programs. Impacts would be less than significant.

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?

No Impact. Neither construction nor operation of the proposed project is expected to have any effect on air traffic patterns. There would be no impact.

d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. No obstacles to sight distance are expected to result from construction of the proposed project. No sharp roadway curves currently exist in the project area, nor would such curves be created as a result of the proposed project. There would be no impact.

e. Result in inadequate emergency access?

Less-than-Significant Impact. No lane closures would occur and emergency access would be maintained through the site and on surrounding roadways. The impact of construction

generated traffic on emergency vehicle access would be minimized with implementation of IRWD project technical specifications section 1300 pertaining to construction traffic control (IRWD 2010). Therefore, impacts during construction would be less than significant.

Once operational, the proposed project would not result in inadequate emergency access. Operational impacts would be less than significant.

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?

Less-than-Significant Impact. The proposed project would not conflict with any alternative transportation policies, plans, or programs within the City. Because public transit service does not run on the project site access road (Riparian View), construction-related traffic is not expected to interfere with transit operations.

There is an unpaved equestrian and hiking path located between Riparian View and the San Diego Creek Channel. During construction of the proposed project, access to the path would remain fully available, and no adverse impact to the path would occur. Therefore, impacts to alternative transportation would be less than significant after mitigation.

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 stormwater 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 would new or expanded entitlements be needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
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 regulations related to solid waste?	☐	☐	☐	☒

Discussion

Would the project:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less-than-Significant Impact. The proposed project would not exceed wastewater treatment requirements of SARWQCB. The proposed project would be constructed in an area that is currently developed with an existing 33,000 square foot 57-stall surface parking lot and some landscaped area. The project site currently generates wastewater from urban runoff during rain events. The proposed project would replace 12,000 square feet of impervious parking lot with a pre-fabricated steel storage building, also impervious, and therefore would not increase wastewater generation above the existing conditions. No point source discharge would occur as a result of the proposed project. The proposed

project does not involve connection to the existing sewer system. Therefore, the proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. Impacts would be less than significant.

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?

No Impact. As discussed in Response XIII(a), Population and Housing, the proposed project would not induce population growth. Therefore, no new demands would be placed on water or wastewater facilities and there would be no impact.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-than-Significant Impact. The project site consists mostly of impervious surfaces. The proposed project would not alter the existing drainage pattern of the site and would not increase the pervious area as described in Section IX, Hydrology and Water Quality. During construction, runoff from the project site would be managed by construction plans, activities and BMPs consistent with the DAMP. Furthermore, all surface runoff at the MWRP is collected, pumped to the headworks, and incorporated into the water treatment flow. Therefore, the proposed project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. Impacts would be less than significant.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

No Impact. See Response XVII(b) above. There would be no impact.

e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. See Response XVII(b) above. There would be no impact.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-than-Significant Impact. The proposed project would generate a modest amount of construction-related solid waste during the construction phase. The Frank K. Bowerman landfill, located in Irvine, serves as the landfill for all solid waste at the MWRP, and has a permitted capacity to accept the expected waste generated from construction of the proposed project. The proposed new storage building, once operational, would not create an additional demand for solid waste disposal. Impacts would be less than significant.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The proposed project would comply with all regulations related to solid waste, including the California Integrated Waste Management Act and City recycling programs. Therefore, there would be no impact.

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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, substantially 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 viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

Would the project:

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, substantially 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?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project could potentially result in indirect noise impacts to least Bell's vireo and southwestern willow flycatcher if construction occurs during the nesting season. If construction during least Bell's vireo and southwestern willow flycatcher nesting season (March 15 through September 15) cannot be avoided, noise impacts to these species would be avoided through implementation of **Mitigation Measure BIO-1**, thus reducing impacts to a less than significant level**.** Additionally, no historical cultural resources would be affected by the construction or operation of the proposed project. Although the proposed project is unlikely to disturb significant archaeological resources during construction, **Mitigation Measure CR-1** would reduce impacts on archaeological resources to less than significant levels. Therefore, impacts would be less than significant with mitigation incorporated.

b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact. Due to its limited size and magnitude, the proposed project, in conjunction with other area projects, would not result in cumulative impacts on the physical environment. Impacts would be less than significant.

c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

No Impact. Based on the analysis of the above listed topics, the proposed project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. There would be no impact.

Chapter 4
References

Printed References

CalEPA. 2010a. *Hazardous Waste and Substances Site List*. Available: <http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,ERAP,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST>. Accessed: September 30, 2010.

CalEPA. 2010b. *Cleanup Sites and Hazardous Waste Permitted Facilities*. Available: <http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&city=Irvine&zip=92612&county=orange&federal_superfund=True&state_response=True&voluntary_cleanup=True&school_cleanup=True&permitted=True&pc_permitted=True&hist_nonoperating=True&corrective_action=True&tiered_permit=True&display_results=Report&pub=True>. Accessed: September 30, 2010.

CalEPA. 2010c. *Cal/EPA "Cortese List: Data Resources*. Available: <http://www.calepa.ca.gov/SiteCleanup/CorteseList/>. Accessed: September 30, 2010.

California Department of Conservation. 1999. *California Geological Survey – Alquist-Priolo Earthquake Fault Zones*. Last revised: May 1999. Available: <http://www.consrv.ca.gov/cgs/rghm/ap/Pages/affected.aspx>. Accessed: September 17, 2010.

California Department of Conservation. 2009. *Orange County Important Farmland 2008*. Farmland Mapping and Monitoring Program. Sacramento, CA. August, 2009.

California Department of Transportation. 2010. *Officially Designated State Scenic Highways and Historic Parkways*. Available: <http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm>. Accessed: September 15, 2010.

City of Irvine. 2006. *Year 2000 General Plan Update*. Adopted June 13, 2006. (City Council Resolution 06-65.) Irvine, CA.

County of Orange. 1996. *Natural Community Conservation Plan and Habitat Conservation Plan*. County of Orange Central & Coastal Subregion. Santa Ana, CA.

Dudek & Associates, Inc. 2006. *Final Environmental Impact Report Michelson Water Reclamation Plan Phase 2 and 3 Capacity Expansion Project*. State Clearinghouse No. 2005051174. Encinitas, CA. Prepared for: Irvine Ranch Water District. February 2006.

EPA. 2010. *Listed Water Information – Waters – US EPA*. Last revised: September 23, 2010. Available: <http://oaspub.epa.gov/tmdl/waters_list.control?region=9&tmdl_pollutant=DIAZINON&tmdl_pol_id=7>. Accessed: September 23, 2010.

Federal Aviation Administration. 2010. *Notice Criteria Tool*. Available <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>. Accessed: October 15, 2010.

Geotracker. 2010. *Geotracker*. Available: <http://geotracker.swrcb.ca.gov/map/?CMD=runreport&myaddress=3512+michelson+drive%2C+irvine%2C+ca>. Accessed: September 30, 2010.

IRWD. 2010. Project Technical Specifications. Revised August 2010. Irvine, CA.

Orange County Public Works, Flood Control Division (OCPW). 2010. *OC Flood Control Division NFC Projects in Design – San Diego Creek Channel*. Available: <http://www.ocflood.com/NFC_Design_SanDiego.aspx>. Accessed: September 23, 2010.

Orange County Fire Authority. 2010a. *About the Orange County Fire Authority*. Available: <http://www.ocfa.org/ocfamain.asp?pgn1=2>. Accessed: September 30, 2010.

Orange County Fire Authority. 2010b. *OCFA Services*. Available: <http://www.ocfa.org/ocfamain.asp?pgn1=2>. Accessed: September 30, 2010.

R. J. Meade Consulting, Inc. 1996. *Natural Community Conservation Plan & Habitat Conservation Plan. Central & Coastal Subregion, Parts I and II: NCCP/HCP. Final.* (JN 3065D-4513). County of Orange, California. Prepared for County of Orange, Environmental Management Agency and United States Fish and Wildlife Service/California Department Fish and Game.

RRM Design Group. 2010. *Grading and Drainage Plan – Storage Building*. Sheet GD-1. July 2010.

SARWQCB. 1995. *Water Quality Control Plan Santa Ana River Basin (8)*. Resolution 94-1. Riverside, CA.

South Coast Air Quality Management District, 1993. *CEQA Air Quality Handbook*.

U. S. Army Corps of Engineers (USACE). 2009. *A Special Area Management Plan (SAMP) for the San Diego Creek Watershed*. Orange County, California.

Chapter 5
List of Preparers

Irvine Ranch Water District

Christian Kessler	Project Manager

ICF International

Chad Beckstrom	Project Director
Aaron Carter	Project Manager
Tanya Jones	Environmental Planner
Victor Ortiz	Air Quality Specialist
Anita Eng	Biologist
Mark Robinson	Cultural Resources
Michael Greene	Noise Specialists
Yonnel Gardes	Traffic and Transportation Specialists
Soraya Mustain	GIS
Diana Roberts	Editor

Appendix A

Air Quality Calculations

CONSERVATIVE ESTIMATE OF UNMITIGATED CONSTRUCTION EMISSIONS (pounds per day)

	ROC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]	CO_2
Demolition Emissions							
On-site Total	1.05	7.22	4.58	-	5.59	1.55	700.30
Fugitive Dust	-	-	-	-	5.04	1.05	-
Off-Road Diesel	1.05	7.22	4.58	-	0.55	0.50	700.30
Off-site Total	0.40	4.73	2.78	0.01	0.22	0.18	830.77
On-Road Diesel	0.37	4.67	1.80	0.01	0.21	0.18	706.40
Worker Trips	0.03	0.06	0.98	-	0.01	-	124.37
Grand Total	**1.45**	**11.95**	**7.36**	**0.01**	**5.81**	**1.73**	**1,531.07**
Site Grading Emissions							
On-site Total	2.83	23.44	11.96	-	2.03	1.26	2,247.32
Fugitive Dust	-	-	-	-	0.86	0.18	-
Off-Road Diesel	2.83	23.44	11.96	-	1.17	1.08	2,247.32
Off-site Total	0.09	0.84	1.28	-	0.05	0.03	242.10
On-Road Diesel	0.06	0.78	0.30	-	0.04	0.03	117.73
Worker Trip	0.03	0.06	0.98	-	0.01	-	124.37
Grand Total	**2.92**	**24.28**	**13.24**	**-**	**2.08**	**1.29**	**2,489.42**
Building Erection/Finishing Emissions							
On-site Total	3.00	19.77	11.59	-	1.52	1.40	1,872.62
Off-Road Diesel, Bldg Cnst	1.11	8.51	4.68	-	0.54	0.50	893.39
Arch Coatings Off-Gas	-	-	-	-	-	-	-
Asphalt Off-Gas	0.06	-	-	-	-	-	-
Off-Road Diesel, Asphalt	1.83	11.26	6.91	-	0.98	0.90	979.23
Off-site Total	0.12	0.75	2.46	-	0.05	0.04	378.99
Worker Trips, Bldg Cnst	0.01	0.02	0.37	-	-	-	47.74
Vendor Trips, Bldg Cnst	0.04	0.40	0.29	-	0.02	0.02	79.38
Worker Trips, Arch Coatings	-	-	-	-	-	-	-
On-Road Diesel, Asphalt	0.02	0.23	0.09	-	0.01	0.01	34.23
Worker Trips, Asphalt	0.05	0.10	1.71	-	0.02	0.01	217.64
Grand Total	**3.12**	**20.52**	**14.05**	**-**	**1.57**	**1.44**	**2,251.61**
On-site Emissions Totals							
Demolition	1.1	7.2	4.6	-	5.6	1.6	700.3
Site Grading	2.8	23.4	12.0	-	2.0	1.3	2,247.3
Building Erection/Finishing	3.0	19.8	11.6	-	1.5	1.4	1,872.6
Maximum On-site Emissions	**3**	**23**	**12**	**-**	**6**	**2**	**2,247**
Localized Significance Threshold[b]	--	123	2,109	--	60	22	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Regional Emissions Totals							
Demolition	1.5	12.0	7.4	0.0	5.8	1.7	1,531.1
Site Grading	2.9	24.3	13.2	-	2.1	1.3	2,489.4
Building Erection/Finishing	3.1	20.5	14.1	-	1.6	1.4	2,251.6
Maximum Regional Emissions	**3**	**24**	**14**	**0**	**6**	**2**	**2,489**
Regional Significance Threshold	75	100	550	150	150	55	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

URBEMIS print-out sheets and fugitive PM calculation worksheet are included in Appendix A.

[a] Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is located in SCAQMD SRA No. 20. These LSTs are based on the site location SRA, distance to nearest sensitive receptor location from the project site (200 meters), and project area that could be under construction on any given day (less than one acre).

10/26/2010 11:42:45 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Victor M Ortiz\Desktop\09232010\MWRP Storage Bldg\MWRP Storage Bldg.urb924

Project Name: MWRP Storage Bldg

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	3.11	24.27	14.05	0.01	5.07	1.55	5.81	1.06	1.43	1.74	2,489.42

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-1/31/2011 Active Days: 21	1.45	11.95	7.36	**0.01**	**5.07**	0.74	**5.81**	**1.06**	0.68	**1.74**	1,531.07
Demolition 01/01/2011-01/31/2011	1.45	11.95	7.36	0.01	5.07	0.74	5.81	1.06	0.68	1.74	1,531.07
Fugitive Dust	0.00	0.00	0.00	0.00	5.04	0.00	5.04	1.05	0.00	1.05	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.37	4.67	1.80	0.01	0.02	0.19	0.21	0.01	0.17	0.18	706.40
Demo Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37

10/26/2010 11:42:45 AM

Time Slice 2/1/2011-2/28/2011 Active Days: 20	2.92	**24.27**	13.23	0.00	0.87	1.21	2.07	0.18	1.11	1.29	**2,489.42**
Fine Grading 02/01/2011-02/28/2011	2.92	24.27	13.23	0.00	0.87	1.21	2.07	0.18	1.11	1.29	2,489.42
Fine Grading Dust	0.00	0.00	0.00	0.00	0.86	0.00	0.86	0.18	0.00	0.18	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.06	0.78	0.30	0.00	0.00	0.03	0.04	0.00	0.03	0.03	117.73
Fine Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 3/1/2011-6/14/2011 Active Days: 76	1.16	8.93	5.34	0.00	0.01	0.56	0.57	0.00	0.52	0.52	1,020.51
Building 03/01/2011-06/30/2011	1.16	8.93	5.34	0.00	0.01	0.56	0.57	0.00	0.52	0.52	1,020.51
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.40	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	79.38
Building Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.74
Time Slice 6/15/2011-6/30/2011 Active Days: 12	**3.11**	20.51	**14.05**	0.00	0.02	**1.55**	1.57	0.01	**1.43**	1.43	2,251.61
Asphalt 06/15/2011-06/30/2011	1.96	11.58	8.70	0.00	0.01	0.99	1.00	0.00	0.91	0.92	1,231.10
Paving Off-Gas	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.02	0.23	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	34.23
Paving Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64
Building 03/01/2011-06/30/2011	1.16	8.93	5.34	0.00	0.01	0.56	0.57	0.00	0.52	0.52	1,020.51
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.40	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	79.38
Building Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.74

Phase Assumptions

Phase: Demolition 1/1/2011 - 1/31/2011 - Default Demolition Description

Building Volume Total (cubic feet): 12000

Building Volume Daily (cubic feet): 12000

On Road Truck Travel (VMT): 166.67

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 2/1/2011 - 2/28/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.28

Maximum Daily Acreage Disturbed: 0.07

Fugitive Dust Level of Detail: Default

12.22 lbs per acre-day

On Road Truck Travel (VMT): 27.78

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/15/2011 - 6/30/2011 - Default Paving Description

Acres to be Paved: 0.27

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 6/30/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

10/26/2010 11:42:35 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Victor M Ortiz\Desktop\09232010\MWRP Storage Bldg\MWRP Storage Bldg.urb924

Project Name: MWRP Storage Bldg

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.11	0.83	0.50	0.00	0.06	0.05	0.11	0.01	0.05	0.06	93.26

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2011	0.11	0.83	0.50	0.00	0.06	0.05	0.11	0.01	0.05	0.06	93.26
Demolition 01/01/2011-01/31/2011	0.02	0.13	0.08	0.00	0.05	0.01	0.06	0.01	0.01	0.02	16.08
Fugitive Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.35
Demo On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.42
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
Fine Grading 02/01/2011-02/28/2011	0.03	0.24	0.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	24.89
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.03	0.23	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	22.47
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24
Building 03/01/2011-06/30/2011	0.05	0.39	0.24	0.00	0.00	0.02	0.02	0.00	0.02	0.02	44.90
Building Off Road Diesel	0.05	0.37	0.21	0.00	0.00	0.02	0.02	0.00	0.02	0.02	39.31
Building Vendor Trips	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49
Building Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10
Asphalt 06/15/2011-06/30/2011	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.39
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	5.88
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31

Phase Assumptions

Phase: Demolition 1/1/2011 - 1/31/2011 - Default Demolition Description

Building Volume Total (cubic feet): 12000

10/26/2010 11:42:35 AM

Building Volume Daily (cubic feet): 12000

On Road Truck Travel (VMT): 166.67

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 2/1/2011 - 2/28/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.28

Maximum Daily Acreage Disturbed: 0.07

Fugitive Dust Level of Detail: Default

12.22 lbs per acre-day

On Road Truck Travel (VMT): 27.78

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/15/2011 - 6/30/2011 - Default Paving Description

Acres to be Paved: 0.27

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 6/30/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

CH4 and N2O from Construction

Author: Brian Schuster
Date: August 11, 2008

Methodology:
Calculated ratio of CO2 emissions per gallon diesel fuel to CH4 and N2O to determine CH4 and N2O emissions from construction equipment
Used CCAR May 2008 Efs

Sources:
CCAR General Reporting Protocol May 2008 (pg. 93, 96)
CCAR General Reporting Protocol May 2008 (pg. 93, 96)
Assumptions:

Diesel Fuel	CO2	CH4	N2O		
kg CO2/gal diesel	10.15	0.00058	0.00026		
g/gal diesel construction equip		0.58	0.26		
ratio	1	5.71E-05	2.56158E-05	0.00006	0.00003

Gasoline	CO2	CH4	N2O
kg CO2/gal gasoline	8.81		
g/mi passenger (2005)		0.0147	0.0079
g/mi light truck (2005)		0.0157	0.0101
ratio	1	0	0

Table 6. Total estimated GHG emissions from construction

	Input Emissions					
	Off Road Emissions			On road Emissions		
Year of Construction	**CO2 (metric tons/yr)**	**CH4 (metric tons/yr)**	**N2O (metric tons/yr)**	**CO2 (metric tons/yr)**	**Other (metric tons/yr)**	**CO2e (metric tons/yr)**
2010	-	-	-	-	-	-
2011	68.0	0.0	0.0	16.6	0.9	86.1
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	-	-	-	-	-	-
2016	-	-	-	-	-	-
2017	-	-	-	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	-	-	-	-	-	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	-	-	-	-	-	-
2030	-	-	-	-	-	-
Total Construction Emissions	**68.0**	**0.0**	**0.0**	**16.6**	**0.9**	**86.1**

Sources: URBEMIS 2007; CCAR 2008.

2.2

Diesel Fuel	**CO2**	**CH4**	**N2O**
kg CO2/gal diesel	10.15	0.00058	0.00026
g/gal diesel construction equip		0.58	0.26
ratio	1	5.71429E-05	2.56158E-05

Source: CH4 and N2O from Construction

tons/metric ton	Percent other G	GAS	CH4	N2O
0.90718474	5.00%	GWP	21	310

Appendix B

NMG Geotech Report

NMG
Geotechnical, Inc.

August 26, 2010

Project No. 07052-03

To: Irvine Ranch Water District
3512 Michelson Drive
Irvine, California 92612

Attention: Mr. Ron Esmilla

Subject: Geotechnical Review of Grading, Foundation, and Improvement Plans for IRWD Operations Center Expansion Phase 1, Storage Building, 3512 Michelson Drive, Irvine, California

Reference: NMG Geotechnical, Inc., 2009, Geotechnical Exploration and Preliminary Design Recommendations for Irvine Ranch Water District, Michelson Operations Center Facility Improvements, City of Irvine, County of Orange, California, Project No. 07052-02, dated September 11, 2009.

INTRODUCTION

At your request, NMG Geotechnical, Inc. (NMG) has conducted a geotechnical review of plans related to the subject storage building construction at the IRWD Operations Center next to the Michelson treatment plant. The planned storage building is to be constructed in the northwest end of the existing parking lot behind Building 50.

The 20-scale plan set we reviewed was prepared by RMM Design Group and received from you electronically on August 23, 2010. The plan sheets are dated May and July, 2010 and July 29, 2010. The sheets we focused on were the demolition, grading, utility, and structural sheets (DM-1, GD-1, UT-1, SS-2.1, S-4.1, S-4.2, and S-5.1).

The basis of our review is the geotechnical exploration and testing that NMG performed for the operations center expansion, as reported in the referenced report (NMG, 2009). We provided preliminary remedial grading, foundation, and paving recommendations in that report. This report provides updated and specific recommendations for the storage building project. The recommendations herein supersede those in the referenced report, if they differ.

PROPOSED PROJECT

The reviewed plan shows the following primary project elements:

- Demolition and removal of asphalt pavement, curb and gutter, landscaping, etc., in an approximately 35-foot by 115-foot area of existing parking lot,
- Construction of a 28-foot by 160-foot metal frame storage building with metal siding, roof and 6-inch PCC slab-on-grade,
- Perimeter support for the structure provided by a combination of column footings, turned down slab edges, grade beams, and masonry wall footings all 16 to 24 inches below finish grade,
- 4-foot-high masonry retaining walls at the base of the west and north walls since the new building pad will cut into an existing small slope that descends from the adjacent road,
- A separate L-shaped retaining wall at the northwest corner of the building,
- Retaining walls have waterproofing but no subdrains shown,
- New asphalt concrete (AC) paving consisting of 4 inches of AC over 8 inches of aggregate base (AB) around the new building,
- Concrete v-gutter for surface drainage,
- Relatively shallow electrical and water service lines.

GEOTECHNICAL FINDINGS

In our prior study, NMG excavated two borings, H-3 and H-4, in the footprint of the planned storage building. Below the existing pavement, these borings encountered 3 to 6 feet of sandy fill. The fill layer was thicker at the west end of the site. Immediately below that fill were layers of highly plastic, organic clays with peat. These organic clays had very high moisture contents and were highly compressible. Without remedial grading, the reviewed plans indicate that some of the planned foundations might bear upon these clays, especially toward the eastern side of the building.

The plans show waterproofing but no subdrains behind the small retaining wall as well as the masonry walls associated with the building. In that scenario, the mitigation of potential moisture intrusion into the interior of the storage building will fall entirely to the waterproofing.

CONCLUSIONS AND RECOMMENDATIONS

The planned project is geotechnically feasible and the reviewed plan is acceptable from a geotechnical standpoint, provided the recommendations in this report and those previously provided in the referenced report are implemented during construction.

1. Remedial Grading

The previous recommendation of 5 feet of overexcavation and recompaction of the building area remains valid. The 5 feet should be measured from planned finish grades. This will provide at least 2 feet of compacted fill below the planned foundations and grade beams. The grading contractor should note that some of the excavated materials, especially toward the east end of the planned building, may not be suitable for reuse as compacted fill if it is highly organic. We recommend that the remedial removals be done in such a manner so as to segregate the sandier fill materials from the organic clays. The clays may need to be exported and replaced with more suitable soil. Import fill should have very low to medium expansion potential and be reviewed and accepted by the geotechnical consultant prior to placement.

The grading contractor should also note that bottom of the overexcavated area may expose wet and soft soils. These bottoms may require stabilization prior to placement of new compacted fill. Stabilization options may include mixing in of quick lime or dry cement in the upper 12 inches or placement of a woven geotextile such as Mirifi 500X on the bottom topped with 12 inches of pea gravel or ½-inch gravel. For the latter option, we do not recommend the use of heavier aggregate since it can induce settlements in the clay and peat layers over longer periods of time.

Removal excavations and any bottom stabilization measures should be observed and accepted by the geotechnical consultant.

2. Fill Placement and Subgrade Preparations

Compacted fill should be placed in loose lifts of 6 inches or less, at near optimum moisture content and compacted to a relative compaction of at least 90 percent, per ASTM D1557. Highly organic native soil may not be suitable for use as fill. At the geotechnical consultant's discretion, small quantities may be acceptable if sufficiently mixed and diluted with the sandier onsite soil.

Soil subgrades for AC paving should be compacted to minimum 90 percent relative compaction. Below PCC pavements, such as ribbon gutters, the upper 12 inches of subgrade should be compacted to a minimum of 95 percent relative compaction.

3. Retaining Walls

The water proofing system should be reviewed and accepted by the project architect prior to installation. If a subdrain system is desired, we would recommend the waterproofing system include a drainage board that will direct moisture down to a "burrito" type subdrain (1 cubic ft./ft. of clean gravel wrapped in filter fabric with a 4-inch PVC pipe in the middle). Due to the relatively flat site, any wall subdrain system will have to be carried via solid pipe out under the parking lot and outlet to the PCC ribbon gutter via a riser pipe (bubbler).

Backfill for the planned retaining walls should be compacted to minimum 90 percent relative compaction. Highly organic, clayey soil should not be used as wall backfill.

4. Pavement Construction

The 4 inches of AC over 8 inches of AB that is shown on the plan matches the existing pavement section and should be adequate over the existing sandy fill that we anticipate at the site.

The upper 12 inches of subgrade should be scarified and recompacted to minimum 90 percent relative compaction. The AB may be processed or crushed aggregate base as allowed by the latest edition of the "Greenbook" for public works construction. AB should be compacted at near optimum moisture content to a minimum of 95 percent relative compaction.

5. Utility Trenches

For repair of pavements where utility trenches cut through them, the plan calls for matching the existing section plus an additional inch of AC. That would mean 5 inches of AC over 8 inches of AB. Native soil may be used for the remaining trench backfill below. This backfill should be compacted to at least 90 percent relative compaction (plans call for 95 percent). Highly organic soil should not be used for trench backfill. We anticipate that if the utility trenches are less than 3 feet deep, they will be predominantly in the sandy fill material.

6. Observation and Testing

A geotechnical field representative should observe and test the following elements of the project:

- After demolition and during overexcavation;
- Following completion of overexcavations and removal bottoms are exposed;
- During fill placement;
- Following foundation excavations, prior to placement of reinforcements;
- During retaining wall backfill placement and compaction;
- During retaining wall subdrain installation (if any);
- After slab-on-grade and pavement subgrade preparations, prior to placement of PCC or pavements; and
- During AC and AB placement and compaction.

If you have any questions regarding this report, please contact our office. We appreciate this opportunity to provide our services.

Respectfully submitted,

NMG GEOTECHNICAL, INC.

Ted Miyake, RCE 44864
Principal Engineer

TM/je

Distribution: (2) Addressee
(1) Mr. Billy Stewart, IRWD (via email)