NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE SAN JOAQUIN MARSH SMALL AREA MITIGATION SITE 1 PROJECT

Lead Agency:
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618
Contact: Christian Kessler

Irvine Ranch Water District (IRWD) is the lead agency and has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the subject project. A 30-day review and comment period for this IS/MND is provided under state law. The MND is available for review between October 26, 2011 and November 28, 2011 at IRWD and on their website at: http://www.irwd.com. You are invited to review the document and send written comments to IRWD, Water Resources & Planning Department, 15600 Sand Canyon Avenue, Irvine, California 92618, Attn: Christian Kessler, Assistant Engineer/Planner by 3:00pm on November 28, 2011. The IRWD Board of Directors is scheduled to consider the MND and approval of the project on December 12, 2011 at 5:00 pm.

Project Title: San Joaquin Marsh Small Area Mitigation Site 1 (SAMS 1) Project

Project Location: IRWD is planning to develop and improve wetlands on the Small Area Mitigation Site 1 (SAMS 1), located in the City of Irvine, California. The region surrounding and including the site is known as the San Joaquin Marsh, and is located within the San Diego Creek Watershed. The project site is located southwest of Campus Drive and northwest of the San Diego Creek Channel.

Project Description: IRWD is the owner of the SAMS 1 site and is planning to develop and improve wetlands on this site. The SAMS 1 site is a 16.9-acre wetlands mitigation site constructed by the property's previous landowner, the Irvine Company. The site was planted with riparian trees in 1990 and maintained by the Irvine Company until the site was deemed to have successfully achieved mitigation criteria in 1997. The site was originally planted with row trees and a network of furrows. Several years following installation, the site received authorized maintenance in the form of tree removals to encourage natural recruitment within the understory and development of a more diverse habitat structure. The site is currently dominated by relatively open native riparian woodland, with a well-developed understory predominated by non-native ruderal plants. Riparian trees on a large portion of the site are in poor health and many have died with additional tree mortality anticipated in the future, mainly due to a lack of sufficient hydrology/moisture.

The SAMS 1 site is included in a 2010 agreement between IRWD and the California Department of Fish and Game (CDFG) that provides for allowable operation and maintenance practices and procedures for IRWD's operations within the San Joaquin Marsh. The agreement defines the marsh as including 356

acres of land, 232 acres of which are managed riparian habitat and 121.6 acres are considered compensatory habitat mitigation areas, including SAMS 1. The agreement remains in effect until August 31, 2015.

The proposed improvements to the SAMS 1 site are intended to improve the quality of surface water runoff within the San Diego Creek Watershed, in conformance with IRWD's larger San Diego Creek Natural Treatment System (NTS) Master Plan. Improvements to the surface water quality runoff to San Diego Creek would reduce watershed contaminants. The proposed project is also intended to enhance wetland habitats on the SAMS 1 site, which lacks suitable water supply necessary to support the type of vegetation intended to be on the site as mitigation.

The proposed SAMS 1 project would include construction of an open conveyance, meandering earthern channel through the northwestern portion of the site. The channel has been sited to avoid impacts to mature trees and dense stands of native shrubs. The terraced trapezoidal channel will be 1 foot wide at the bottom, 2.5 feet deep, and approximately 600 feet long with 3:1 side flows and a 5-foot-wide terrace at a depth of 1 foot. A 12-foot-wide access road will be installed on top of the northern berm of the channel; the southern berm has a 3-foot-wide top width. The channel bottom will convey low flows while storm flows may overflow via an approximately 7-foot-wide concrete weir (i.e. spillway) constructed on the south side of the channel.

Areas outside the channel bank that are disturbed as part of construction and that are not within the 12-foot-wide access road would be planted and seeded with riparian woodland species (High Riparian planting), including deergrass *(Muhlenbergia rigens)*, mugwort *(Artemisia douglasiana)*, Mexican elderberry *(Sambucus mexicana)*, western sycamore *(Platanus racemosa)*, Fremont's cottonwood *(Populus fremontii)*, several willow species *(Salix* spp.), mulefat *(Baccharis salicifolia)*, Emoryi's baccharis *(Baccharis emoryi)*, wild grape *(Vitis girdiana)*, and California blackberry *(Rubus ursinus)*, among other native species.

The project site does not appear on any lists enumerated under Section 65962.5 of the Government Code including, but not limited to lists of hazardous waste facilities, land designated as hazardous waste property, and hazardous waste disposal sites, and the information in the Hazardous Waste and Substances Statement.

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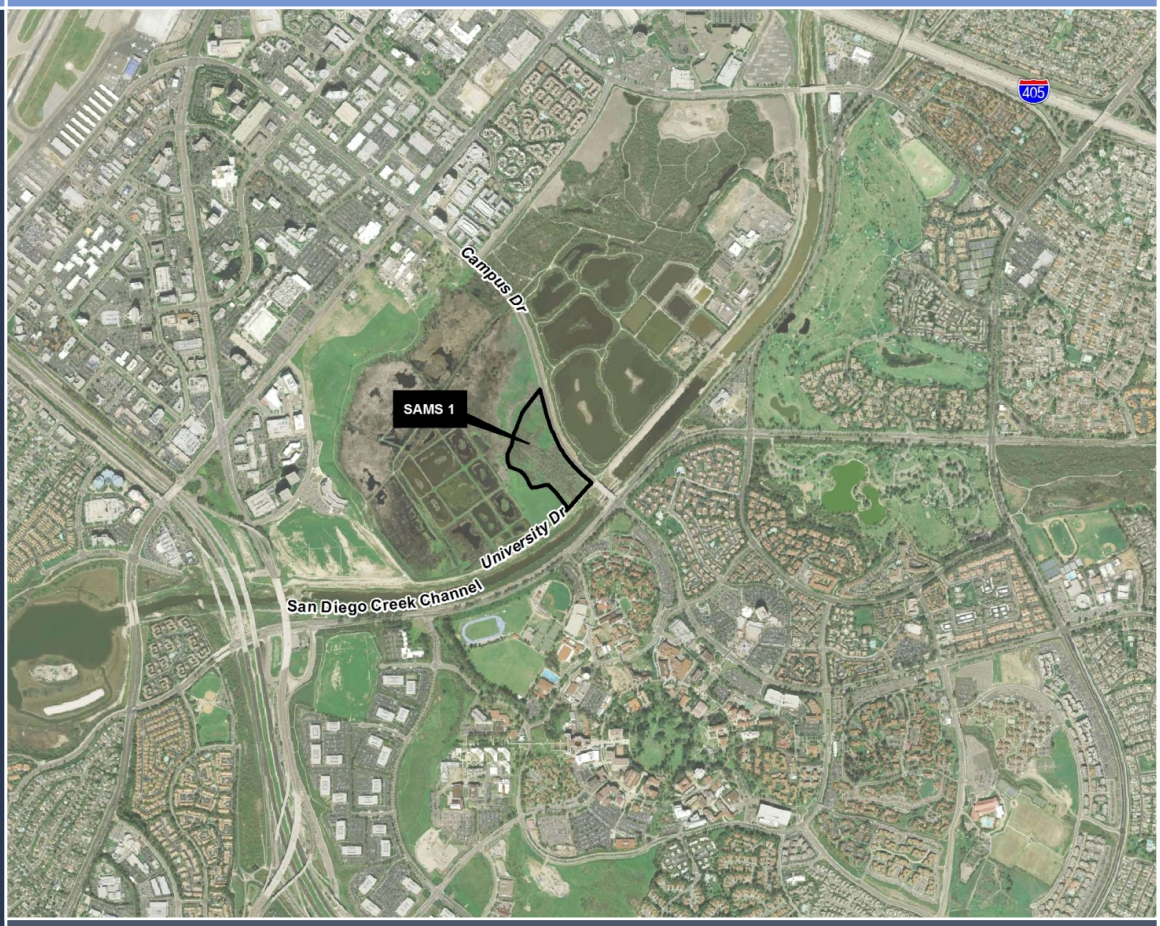
Initial Study/Mitigated Negative Declaration for

San Joaquin Marsh Small Area Mitigation Site 1 Project



OCTOBER 2011

PREPARED FOR:
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

PREPARED BY:
DUDEK
605 Third Street
Encinitas, CA 92024

DRAFT

Initial Study/Mitigated Negative Declaration for the San Joaquin Marsh Small Area Mitigation Site 1 Project

Prepared for:

Irvine Ranch Water District
15600 Sand Canyon Avenue
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OCTOBER 2011

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APPENDICES

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	Army Corps of Engineers
AQMP	Air Quality Management Plan
ATCM	Airborne Toxics Control Measure
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
dBA	A-weighted decibel
EIR	environmental impact report
GHG	greenhouse gas
IRWD	Irvine Ranch Water District
MND	mitigated negative declaration
NAHC	Native American Heritage Commission
NCCP/HCP	Natural Communities Conservation Plan/Habitat Conservation Plan
NOx	oxides of nitrogen
NTS Master Plan	San Diego Creek Natural Treatment System Master Plan
NTS Site 62	San Joaquin Natural Treatment System Site 62
O_3	ozone
PM	particulate matter
RWQCB	Regional Water Quality Control Board
SAMS 1	Small Area Mitigation Site 1
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SDCC	San Diego Creek Channel
SOx	sulfur oxides
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant
TMDL	total maximum daily loads
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

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1.0 INTRODUCTION

Irvine Ranch Water District (IRWD) is planning to develop and improve wetlands on the Small Area Mitigation Site 1 (SAMS 1), located in the City of Irvine, California. The region surrounding and including the site is known as the San Joaquin Marsh, and is located within the San Diego Creek Watershed.

IRWD, in cooperation with Orange County and the Cities of Irvine, Lake Forest, Newport Beach, Orange, Santa Ana and Tustin, created a plan for a natural treatment system for the San Diego Creek Watershed. This system uses constructed wetlands to collect and treat surface drainage from the cities of Irvine, Lake Forest, Orange, Santa Ana, and Tustin and from County unincorporated areas that flow into the Upper Newport Bay. The plan is known as the San Diego Creek Watershed Natural Treatment System Master Plan, hereinafter referred to as the "NTS Master Plan" (IRWD 2004). The created wetlands, or water quality treatment facilities, rely on natural ecosystems to remove sediment, nutrients, pathogens and other contaminants from dry weather flows and small storm runoff and prevent these contaminants from reaching the Upper Newport Bay. The SAMS 1 site and project was not included in the NTS Master Plan as it was previously owned and maintained by The Irvine Company as a mitigation site. However, the SAMS 1 site is located adjacent to several sites that were included in the NTS Master Plan (NTS Site 62, NTS Site 46, Carlson Marsh, and the San Diego Creek Channel). IRWD is the current land owner of the SAMS 1 site.

The SAMS 1 project would be constructed in accordance with the Project Design Features as described in the NTS Master Plan (IRWD 2004) and the Biological Technical Report prepared for the SAMS 1 site (Dudek 2011).

1.1 Purpose and Scope

The purpose of this project is to develop and improve wetlands on the SAMS 1 Site. The proposed improvements to the project area would assist IRWD in improving the quality of the surface water runoff in the San Diego Creek watershed in conformance with the NTS Master Plan.

1.2 Findings of this Initial Study/Mitigated Negative Declaration

IRWD finds that the project will not have a significant adverse effect on the environment based on the results of the Initial Study Environmental Checklist (Appendix A) and the Environmental Analysis (see Section 3.0). Some potentially significant effects have been identified and mitigation measures have been incorporated into the project to ensure that these effects remain at less than significant levels. A Mitigated Negative Declaration (MND) is, therefore, proposed to satisfy the requirements of California Environmental Quality Act (CEQA) (PCR 210000 et.seq. 14 Cal. Code Regs 15000 et.seq.). This conclusion is supported by the following:

Findings

1. **Aesthetics:** The project would not have a substantial effect on a scenic vista or substantially degrade the existing visual quality of the site. See Section 3.1, Aesthetics for additional information.
2. **Agricultural Resources:** The project would not result in impacts to prime, unique, or farmland of statewide importance. See Section 3.2, Agricultural Resources for additional information.
3. **Air Quality:** Short-term construction related impacts are anticipated to occur due to fugitive dust and emissions from vehicles. To reduce the project's potential for contribution to regional air quality problems, project design features have been incorporated into the project. The operational phase of the project would not result in a substantial increase in emissions, and impacts would be less than significant. See *Section 3.3, Air Quality* for additional information.
4. **Biological Resources:** The proposed project would result in impacts to riparian/wetland habitats on the project site. Implementation of project design features and mitigation measures would reduce impacts to less than significant levels. See *Section 3.4, Biological Resources* for additional information.
5. **Cultural Resources:** The potential exists for cultural resources to be located within the project site; implementation of the proposed mitigation measures would reduce potential impacts to unknown locations of cultural resources to less than significant levels. See *Section 3.5, Cultural Resources* for additional information.
6. **Geology and Soils:** The proposed project would not expose people or structures to adverse risk associated with geologic or soil conditions. Impacts would be less than significant. See *Section 3.6, Geology and Soils* for more information.
7. **Greenhouse Gas Emissions:** The proposed project would result in minimal construction related emissions. During the operational phase, emissions would be consistent with existing conditions. Therefore, impacts would be less than significant. See *Section 3.7, Greenhouse Gas Emissions* for additional information.
8. **Hazards and Hazardous Materials:** The proposed project would not introduce hazardous materials to people or the environment. Therefore, impacts would be less than significant. See *Section 3.8, Hazards and Hazardous Materials* for additional information.
9. **Hydrology and Water Quality:** Construction activities associated with implementation of the project have the potential to result in temporary construction-related impacts on water quality from erosion and sedimentation. However, the project will implement best available

control measures to reduce construction-related erosion. Impacts would be less than significant. See *Section 3.9, Hydrology and Water Quality* for additional information.

10. **Land Use and Planning:** The proposed project would not have a significant impact to land use and planning. See *Section 3.10, Land Use and Planning* for more information.
11. **Mineral Resources:** The proposed project would not have an impact on mineral resources. See *Section 3.11 Mineral Resources* for additional information.
12. **Noise:** The proposed project would not impact sensitive receptors during construction or operation of the proposed project. Refer to *Section 3.12, Noise* for more information.
13. **Population and Housing:** The project would not have an impact on population and housing as discussed in *Section 3.13, Population and Housing*.
14. **Public Services:** The proposed project would not result in direct or indirect impacts to public services. See *Section 3.14, Recreation* for additional information.
15. **Recreation:** The project would not result in impacts to recreation. See *Section 3.15, Recreation* for additional information.
16. **Transportation/Traffic:** During construction, traffic would be generated by equipment delivery and construction worker transport. No road closures would result from the proposed project. See *Section 3.16, Transportation and Traffic* for additional information.
17. **Utilities and Service Systems:** The proposed project would not have a significant impact to utilities and service systems. See *Section 3.17, Utilities and Service Systems* for additional information.
18. **Mandatory Findings of Significance:** The proposed project would result in less than significant impact with implementation of the project design features and mitigation measures proposed. See *Section 3.18, Mandatory Findings of Significance* for more information.

1.3 Existing Documents Incorporated by Reference

The following is incorporated by reference in this document according to the CEQA Guidelines, Section 15150: San Diego Creek Watershed Natural Treatment System Master Plan (NTS Master Plan) Environmental Impact Report, prepared by IRWD (IRWD 2004).

1.4 Review of the Initial Study/Mitigated Negative Declaration

In accordance with CEQA, a good faith effort has been made during the preparation of this IS/MND to contact affected agencies, organizations and persons who may have an interest in this project.

In reviewing the IS/MND, affected public should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project area proposed to be avoided or mitigated.

Comments may be made on the IS/MND in writing before the end of the comment period. Following the close of the public comment period, IRWD will consider this IS/MND and comments thereto in determining whether to approve the proposed project.

Written comments on the IS/MND should be sent to the following address by 5:00 p.m., November 28, 2011.

Irvine Ranch Water District
Christian Kessler, Assistant Engineer/Planner
Water Resources & Planning Department
15600 Sand Canyon Avenue
Irvine, California 92618
Phone: 949-453-5441

Approval and certification of this CEQA document will occur by the IRWD Board of Directors. Date and time information on the meeting where this document will be considered can be determined by contacting Christian Kessler.

1.5 Project Contact Persons

The IRWD contact person for this project is Christian Kessler. Mr. Kessler can be contacted by the information provide above in Section 1.4, or via email at KESSLER@irwd.com.

2.0 PROJECT DESCRIPTION

2.1 Existing Setting

The SAMS 1 project site is located in the City of Irvine, in Orange County, California (Figure 2-1). Specifically, the project site is located southwest of Campus Drive and northwest of San Diego Creek Channel (SDCC) (Figure 2-2). The region surrounding and including the site is known as the San Joaquin Marsh. Immediately south of the SAMS 1 site is another property owned and operated by IRWD, known as Natural Treatment System Site 62 (NTS Site 62). To the west are a series of freshwater ponds that are owned and managed for research purposes by the University of California Natural Reserve System. On the northeastern side of Campus Drive, opposite the project site, are additional freshwater ponds and marshes that are owned and operated by IRWD for water quality treatment and habitat functions, known as Site No. 46 (Site 46) and Carlson Marsh; both are part of the overall IRWD NTS Master Plan (Figures 2-2 and 2-3). In addition, residences are located approximately 750 feet southeast of the project site, opposite the SDCC and University Drive on the University of Irvine Campus.

2.2 Background Information

IRWD is the owner of the SAMS 1 site and is planning to develop and improve wetlands on this site. The SAMS 1 site is a 16.9-acre wetlands mitigation site constructed by the property's previous landowner, the Irvine Company. The site was planted with riparian trees in 1990 and maintained by the Irvine Company until the site was deemed to have successfully achieved mitigation criteria in 1997 (Tettemer 1997). The site was originally planted with row trees and a network of furrows. Several years following installation, the site received authorized maintenance in the form of tree removals to encourage natural recruitment within the understory and development of a more diverse habitat structure. The site is currently dominated by relatively open native riparian woodland, with a well-developed understory predominated by non-native ruderal plants. Riparian trees on a large portion of the site are in poor health and many have died with additional tree mortality anticipated in the future, mainly due to a lack of sufficient hydrology/moisture (CH2M Hill 2010).

The SAMS 1 site is included in a 2010 agreement between IRWD and the California Department of Fish and Game (CDFG) that provides for allowable operation and maintenance practices and procedures for IRWD's operations within the San Joaquin Marsh (CDFG 2010). The agreement defines the marsh as including 356 acres of land, 232 acres of which are managed riparian habitat and 121.6 acres are considered compensatory habitat mitigation areas, including SAMS 1. The agreement remains in effect until August 31, 2015.

2.3 Proposed Project

The proposed improvements to the SAMS 1 site are intended to improve the quality of surface water runoff within the San Diego Creek Watershed (in conformance with the larger San Diego Creek NTS Master Plan (IRWD 2004)). Improvements to the surface water quality runoff to San Diego Creek would reduce watershed contaminants such as nitrogen, sediment, phosphorus, pathogens, pesticides, organochlorine compounds, and selenium. These reductions would assist in meeting established total maximum daily loads (TMDLs). The proposed project is also intended to enhance wetland habitats on the SAMS 1 site, which lacks suitable water supply necessary to support the type of vegetation intended to be on the site as mitigation (CH2M Hill 2010).

The proposed SAMS 1 project would include construction of an open conveyance, meandering earthen channel through the northwestern portion of the site. The channel has been sited to avoid impacts to mature trees and dense stands of native shrubs. The terraced trapezoidal channel will be 1 foot wide at the bottom, 21 feet wide at the top, 2.5 feet deep, and approximately 600 feet long with 3:1 side flows and a 5-foot-wide terrace at a depth of 1 foot (Figure 2-4). A 12-foot-wide access road will be installed on top of the northern berm of the channel; the southern berm has a 3-foot-wide top width. The channel bottom will convey low flows while storm flows may overflow via an approximately 7-foot-wide concrete weir (i.e. spillway) constructed on the south side of the channel. The northern outlet of the channel would also allow conveyance of water for additional treatment within the future NTS Site 62 project.

Plantings: Areas outside the channel bank that are disturbed as part of construction would be planted and seeded with riparian woodland species (High Riparian planting), including deergrass (*Muhlenbergia rigens*), mugwort (*Artemisia douglasiana*), Mexican elderberry (*Sambucus mexicana*), western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), several willow species, mulefat (*Baccharis salicifolia*), Emoryi's baccharis (*Baccharis emoryi*), wild grape (*Vitis girdiana*), and California blackberry (*Rubus ursinus*), among other native species.

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FIGURE 2-1
Regional Map

San Joaquin Marsh SAMS 1 MND

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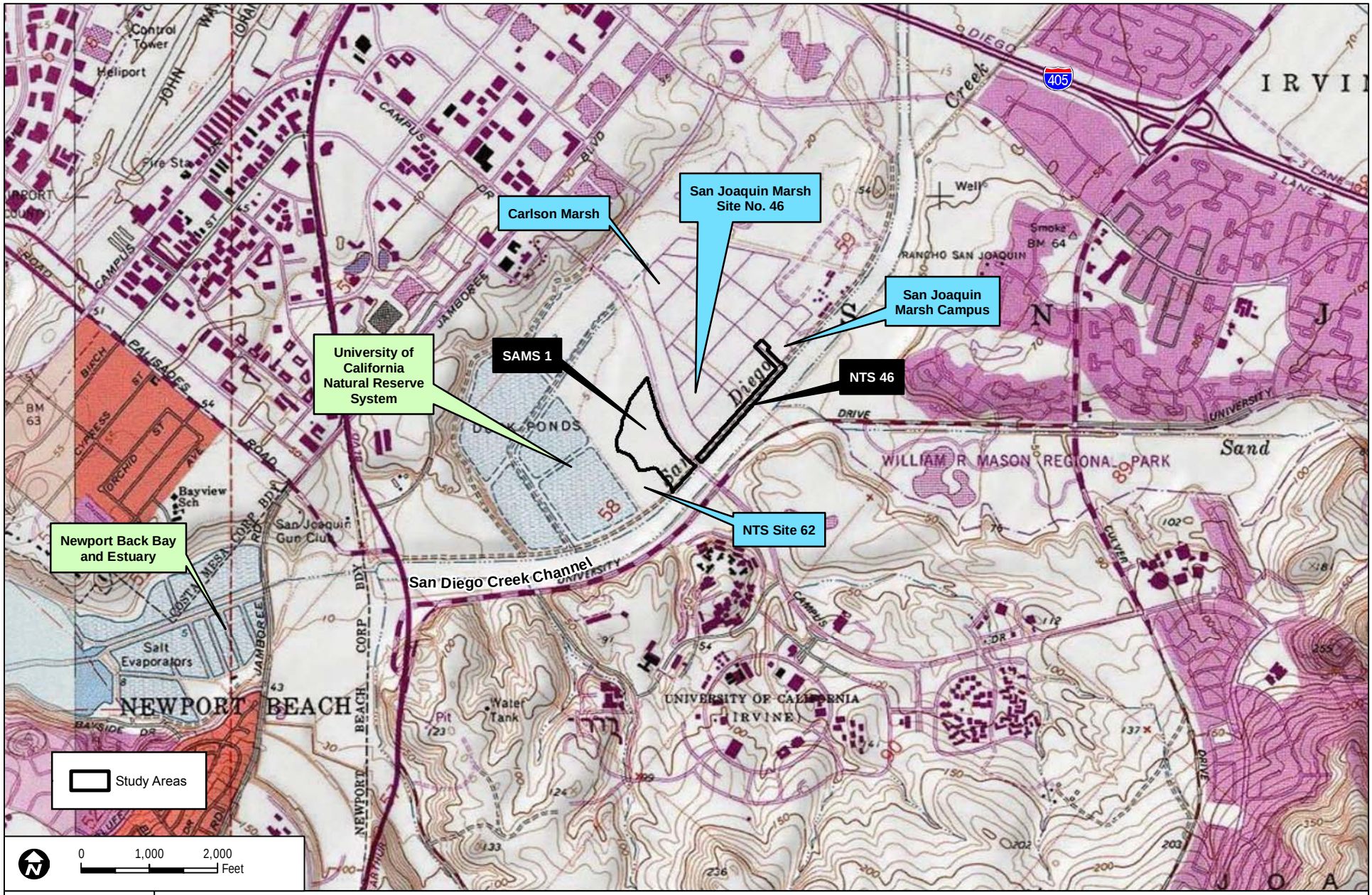

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SOURCE: USGS 7.5-Minute Series Tustin Quadrangle.

FIGURE 2-2

Vicinity Map

San Joaquin Marsh SAMS 1 MND

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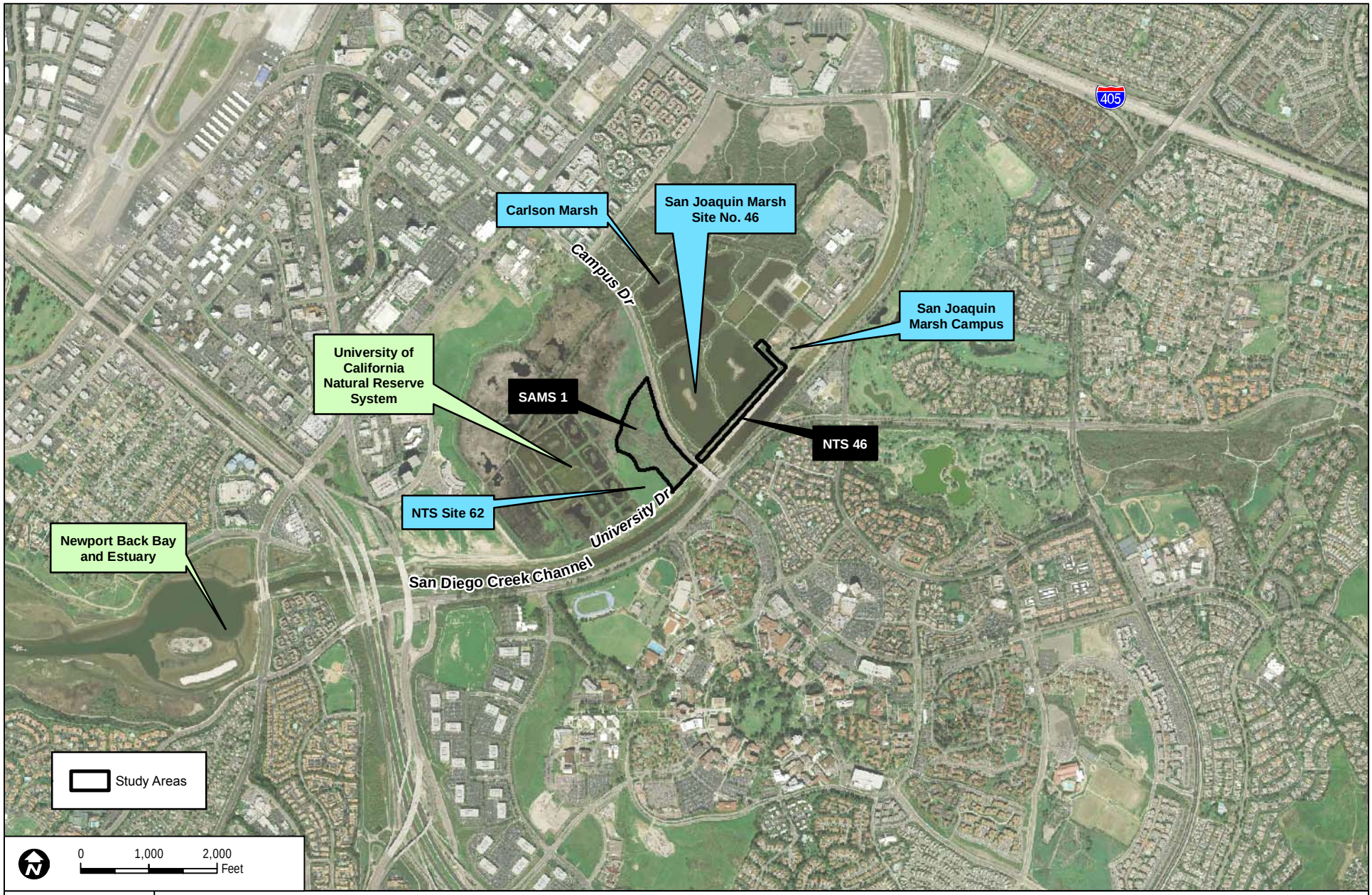

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SOURCE: USGS 7.5-Minute Series Tustin Quadrangle.

FIGURE 2-3

Project Aerial

San Joaquin Marsh SAMS 1 MND

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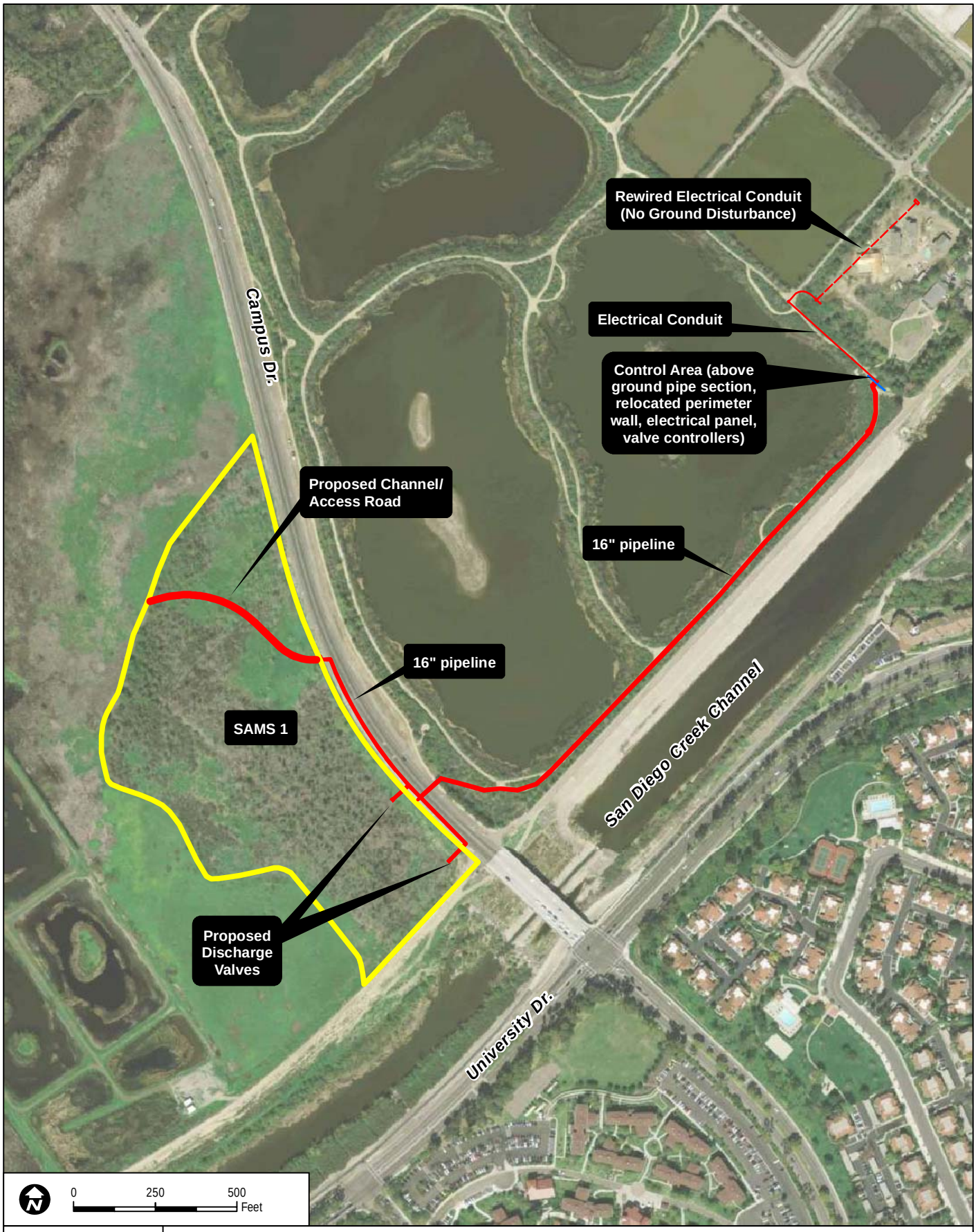

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SOURCE: CH2MHill 2011

FIGURE 2-4
Site Plan

San Joaquin Marsh SAMS 1 MND

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***Conveyance Pipeline*:** Providing water to SAMS 1 will require installation of a new 16-inch pipeline from existing pumps in the SDCC across the southern edge of Site 46 and across Campus Drive. Approximately 4,100 linear feet of pipeline would be installed below grade, mostly within an existing access road/path/trail; an approximately 100-foot section would be constructed beneath Campus Drive; and approximately 1,800 linear feet of pipeline will be constructed below grade, along the existing disturbed shoulder on the west side of Campus Drive (a total of approximately 6,000 linear feet). The existing access path in that location borders an approximately 3-1/2 foot tall perimeter wall which will be relocated towards the access path in order that the above grade section of pipeline and controls (valves, flow meter, and utility box) are screened behind the relocated wall. Electrical upgrades at this "NTS Site 46 Control Area" are discussed below. In addition, two outlet pipes, valves, flow meters, and electric power to power them are proposed along the proposed 16-inch conveyance pipeline on Campus Drive to allow control discharges to the southern portion of the SAMS 1 site. These short sections of 16-inch pipe will be installed below grade, from Campus Drive to the eastern edge of the SAMS 1 site. The pipe outlets will include a 4.5-foot by 3-foot flare end section as a permanent outlet structure.

Electric Improvements: Proposed electrical improvements would be located on NTS Site 46 and the adjacent the San Joaquin Marsh Campus (Figure 2-4). The San Joaquin Marsh Campus is owned by IRWD with classrooms and historic buildings. Electrical improvements would include replacement of an existing wire within an existing conduit, installation of a new conduit and wiring from an existing storm water pump motor controller adjacent to the San Joaquin Marsh Campus to the valve controllers being installed at the NTS Site 46 Control Area (see description of above-ground pipeline and relocated wall above), and the installation of new electrical equipment at one location along the conduit (pull box location, discussed below) and at the NTS Site 46 Control Area.

The replacement of the existing wiring would occur from the existing storm water pump motor controller (San Joaquin Marsh Campus - west) to the existing main switchgear, "MSA" (San Joaquin Marsh Campus - north). Replacement of the wire would not require any ground disturbance; the new wire can be "pulled through" the existing conduit with limited disturbance at either end of the conduit. A new conduit with wires required for the new 480-volt service would be installed from the existing storm water pump motor controller (San Joaquin Marsh Campus – west) to the new modulating valves and instruments required for the NTS Site 62 and SAMS 1 projects, which are located at the NTS Site 46 Control Area. There would also be supply and installation of electrical equipment at the NTS Site 46 Control Area behind the relocated perimeter wall, to supply power to the electric valve actuators and instruments at the new modulating valve location. The work would also require a new pull box located below-grade in the existing path on NTS Site 46 across from the western corner of the San Joaquin Marsh Campus.

This conduit between the new valves at the NTS Site 46 Control Area and existing storm water pump motor controller is a 1.5-inch diameter underground conduit that would require a trench that is approximately 8 inches wide by 12 inches deep by approximately 430 feet long. . The conduit is primarily located in an existing path; approximately 30 feet of the conduit is located on an existing disturbed portion of an existing landscaped native vegetated berm. The portion of the conduit trench that is off the existing path would require a 5 foot wide cleared area during construction however only minor trimming of upland native landscaped plants would occur.

Construction Schedule: Construction is anticipated to start in December 2011 and extend approximately 3 months; if regulatory permits are not acquired by December 2011, the start of construction would be delayed until September 2012. Construction staging would occur on the shoulder of Campus Drive. Construction of the project would disturb approximately 1.46 acres on the 16.9-acre SAMS 1 site. The trapezoidal earthen channel would require a 60-foot-wide temporary construction zone; installation of the 16-inch conveyance pipeline and outlet segments would require a 12-foot-wide temporary open trench; installation of the two-pipe outlet flare end sections would require a 10-foot by 10-foot temporary construction footprint each. To reduce impacts during construction IRWD is including the following project features:

- **PDF-AQ-A:** Best available control measures shall be used during construction to reduce particulate emissions and reduce soil erosion and trackout, through the following project features:
  - Construction staff will cover or water daily any on-site stockpiles of debris, dirt, or other dusty material.
  - Construction staff will use adequate water and/or other dust palliatives on all disturbed areas in order to avoid particle blow-off.
  - Construction staff will wash down or sweep paved streets as necessary to control trackout or fugitive dust.
  - Construction staff will cover or tarp all vehicles hauling dirt or spoils on public roads if sufficient freeboard is not available to prevent material blow-off during transport.
  - Construction staff will use gravel bags and catch basins during ground-disturbing operations.
  - If necessary, construction staff will erect temporary wind breaks to mitigate wind erosion.
  - Construction staff will maintain appropriate soil moisture, apply soil binders, and plant stabilizing vegetation.

- **PDF-AQ-B:** During construction equipment emissions will be reduced through the following project features:
  - Construction staff will properly tune and maintain construction equipment.
  - Construction management staff shall encourage carpooling by all construction workers.
  - Any necessary lane closures will be limited to off-peak travel periods.
  - Construction staff will park construction vehicles off traveled roadways.
  - Construction management will encourage receipt of materials during non-peak traffic hours.
  - Construction staff will minimize obstruction of through traffic lanes from construction equipment or activities to the greatest extent feasible.
- **PDF-BIO-A:** Long-term operations and maintenance activities, provided in Section 3.3.2 of the NTS Master Plan Environmental Impact Report (EIR) and in Section 7 of the Master Plan, are intended to provide guidance in achieving NTS program goals involving effective water quality treatment while minimizing potential negative effects on sensitive wildlife habitats and special-status plant and wildlife species. The following project design features have been incorporated from the NTS Master Plan EIR.
  - **PDF-BIO-1.** Offline facilities shall include basin liners to prevent infiltration into existing groundwater, in conditions where underlying soils are characterized as having moderate to high permeability.
  - **PDF-BIO-2.** All NTS facilities shall be operated and maintained as specified in Section 7, and monitored as specified in Section 8 of the NTS Master Plan to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency, and episodic activities and minimization measures intended to optimize performance of the NTS facilities and the improvement of water quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities include routine inspection and monitoring of each NTS facility, performance monitoring of select NTS facilities, and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in the NTS Master Plan and individual site project design reports PDRs.
- **PDF-BIO-B:** All project grading and trenching shall occur between September 15 and April 1 in order to avoid potential impacts to least Bell's vireo nesting. Project grading or trenching which occurs between February 1 and March 31 shall be preceded by a nesting bird survey. Any special-status species nest, including all raptor nests, shall be protected from disturbance through avoidance of project activities within an appropriate buffer, as

determined by the qualified biological monitor. Should construction activities occur during the nesting season, 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 feet for nesting song birds and 500 feet 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.

- **PDF-BIO-C:** Regardless of whether a stormwater pollution prevention plan (SWPPP) is required, an SWPPP or similar plan shall be prepared and implemented to provide best management practices (BMPs) to control runoff, sedimentation, erosion, siltation, and other adverse hydrologic effects during construction.
- **PDF-BIO-D:** Regardless of the time of year, a qualified biological monitor will be present during any vegetation disturbance to flush any birds that are currently occupying the construction area prior to mechanical disturbance. If nesting birds are present, the biological monitor shall establish an appropriate buffer to protect the nest from direct vegetation clearing until breeding is complete.
- **PDF-BIO-E:** The following mitigation measures shall be incorporated from the NTS Master Plan EIR to reduce potential impacts to biological resources:
    - **MM-BIO-1.** Prior to any construction and/or major operation and maintenance activity within an NTS site that involves the disturbance and/or removal of vegetation resources that provide suitable habitat for sensitive plant and wildlife species IRWD's staff biologist will inspect the NTS site to determine if sensitive species are present. If the staff biologist is not certain as to the presence/absence of a sensitive species, an independent, qualified biological specialist will be consulted and/or will directed to perform the survey of the site and determine if a sensitive species is present. If a sensitive species is present, the biologist will recommend appropriate minimization measures aimed at minimizing and/or reducing the effects of this activity on the species.
    - **MM-BIO-2.** If construction or routine or major maintenance activities occur between February 1 and June 30 on NTS sites identified as having potential for nesting raptors, the IRWD staff biologist will review site conditions for the presence of any active raptor nests. If any active or inactive nest is found during site review, it will be

mapped on the construction plans. If no active nests are found, the construction and/or operation and routine or major maintenance activities will be allowed to proceed. If nesting activity is determined to be present at any raptor nest site identified during the site review, a qualified biologist shall recommend appropriate actions to avoid and/or minimize impacts to these nesting raptors. Information concerning the raptor nest locations and nesting status will be provided to the CDFG.

- **MM-BIO-3.** Prior to and within 30 days of the initiation of construction on NTS Sites 16, 18, 27 and 62, a pre-construction survey for the borrowing owl shall be conducted by a qualified biologist. If the species is determined present, the biologist shall prescribe the appropriate course of action(s) to avoid and/or minimize impacts this species to the greatest extent practicable. Avoidance actions may include establishing a 50 m buffer (approximately 160 feet) between construction activities and known burrows. If avoidance is not possible, passive relocation measures will be implemented. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-breeding season (i.e., September 1st to January 30th). On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site. Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approximately 160 ft.) buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow will be provided for each burrow that will be excavated in the project impact zone. The project area will be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. Information concerning the nest locations and nesting status of this species will be provided to the CDFG.
- **MM-BIO-4.** Prior to the issuance of a grading permit over areas that have been identified as jurisdictional as determined by the CDFG and US Army Corps of Engineers (ACOE), the landowner shall obtain all permits and/or authorizations from CDFG pursuant to Section 1601- 1603 of the Fish and Game Code, the USACOE pursuant to Section 404 of the Clean Water Act and Regional Water Quality Control Board (RWQCB) Water Quality Certification pursuant to Section 401 of the Clean

Water Act. Prior to the final design of Site 68 NTS facility, the facility will be adjusted to avoid impacts to mule fat scrub. If avoidance is not possible, then mitigation will be provided at a 1:1 ratio in accordance with a plan approved by the USACOE and CDFG.

- **MM-BIO-5.** Surveys for southern tarplant (*Centromadia parryi* sp. *australis*) will be conducted by a qualified botanist prior to the initiation of major maintenance activities involving vegetation removals within Sites 31, 32, 46, 62 and 64. Also, prior to the construction of Site 62, a survey for this species will be conducted to determine presence. If found in areas that are scheduled to be disturbed as part of the operation and maintenance and/or creation of a NTS facility, seeds from this species will be collected for use in the appropriate restoration area associated with the facility's development or an appropriate off-site location as directed by a restoration ecologist.

- **PDF-HAZ-A:** A traffic control plan will be prepared to minimize traffic and traffic-related hazards associated with construction of the 16-inch pipeline along Campus Drive. The traffic control plan will be submitted to the City of Irvine traffic engineer for review and approval prior to commencement of construction.
- **PDF-HYDRO-A:** Standard erosion control measures that will be implemented by the project include the use of sediment barriers, silt basins, and/or silt fences.
- **PDF-HYDRO-B:** The following measure is incorporated from the NTS Master Plan EIR to ensure water quality impacts remain less than significant:
  - All NTS Facilities shall be operated and maintained as specified in Section 7 of the of the San Diego Creek Watershed NTS Master Plan Final EIR, and monitored as specified in Section 8, to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency and episodic activities and minimization measures intended to optimize performance of the NTS Facilities and the improvement of water quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities for each NTS Facility include: visual site inspections; field testing of water quality parameters; basic pollutant suite testing (dry weather); expanded pollutant suite testing (dry weather); aquatic biology, sediment, and plant tissue monitoring; flow monitoring and hydraulic retention time; selenium monitoring; vegetation monitoring; vector and pest monitoring; performance monitoring of selected NTS Facilities; wildlife monitoring; watershed monitoring for TMDL compliance; and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in Section 8 of the NTS Master Plan and individual site PDRs.

As noted in Section 8 of the NTS Master Plan, NTS Facilities will be monitored with a phased approach that includes the following components:

- Baseline – Pre-Construction
- Baseline – Startup
- Startup (years 1–3)
- Ongoing (years 4 and beyond)
- Vegetation harvesting
- Emergency monitoring

- **PDF-NOI-1:** Compliance with the City of Irvine's Noise Ordinance Section 6-8-205A, which limits construction activities between the hours of 7:00 a.m. and 7 p.m., Monday through Friday, and 9:00 a.m. and 6 p.m. on Saturdays. No construction activities are permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City of Irvine.
- **PDF-PS-A:** Prior to removal, all sediment and vegetation proposed for removal will be tested for pollution. In addition, IRWD will reduce as much of the construction waste as possible.

2.4 Discretionary Actions

IRWD would use this IS/MND and supporting documentation in its decision to approve and certify this IS/MND.

The City of Irvine would use this IS/MND and supporting documentation in its decision to issue an encroachment permit for the proposed pipeline that would cross Campus Drive.

CDFG would use this IS/MND and supporting documentation in its decision to issue a 1602 Streambed Alteration permit.

3.0 ENVIRONMENTAL ANALYSIS

3.1 Aesthetics

This section analyzes the proposed project's potential impacts to visual quality, character and views in the project area.

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

Less-Than-Significant Impact. According to the City of Irvine's General Plan (City of Irvine 2006), no designated scenic vistas are located in the project area. The closest designated viewpoint to the project site is identified as being located at the intersection of University Avenue and Culver Drive, which is approximately 1 mile east of the project site (City of Irvine 2009c). Due to the relatively flat topography of the area and the mature landscaping at this viewpoint, views to the project site would not be obtainable from this location. It is further noted that the project would result in enhancements to a wetland mitigation site. Though views of the site may be temporarily negatively impacted during construction, the project would ultimately improve views of the site by enhancing the wetland vegetation communities. Therefore, impacts would be less than significant.

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

No Impact. There are no state scenic highways located within the vicinity of the proposed project (Caltrans 2011). No rock outcrops or historic buildings are located within the project site. The proposed project has been designed to avoid impacts to mature trees and dense stands of native shrubs. Therefore, no impacts to views from state scenic highways would occur.

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

Less-Than-Significant Impact. The project proposes to construct two water conveyance pipes along Campus Drive and an earthen drainage channel and maintenance access road across the northern portion of the SAMS 1 site from Campus Drive. In addition, the project proposes to enhance the site by planting native species including Mexican elderberry, western sycamore, Fremont's cottonwood, several willow species, mulefat, yerba, mansa, and desert wild grape. The purpose of the proposed drainage is to provide additional hydrology to the site, which would provide the necessary irrigation to sustain the on-site wetland communities. The restoration of these wetland communities would enhance the scenic quality of the site. Therefore, impacts would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact. No lighting or glare would be generated as part of the proposed project. Therefore, no impacts would result.

3.2 Agriculture and Forest Resources

This section analyzes the proposed project's potential impacts on agricultural, forestry, and timberland resources in the project area.

a) Would the project 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?

No Impact. According to the State of California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation 2008), the project site is designated as Other Land. In addition, there is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance located within or adjacent to the proposed project site. Therefore, no impacts would result to these agricultural resources.

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

No Impact. The project site is zoned for Preservation in the City of Irvine's General Plan. The Preservation zone does not include the preservation of agricultural lands. The project site is not subject to a Williamson Act contract (California Department of Conservation 2009), and therefore, no conflict with a Williamson Act contract would occur.

c) Would the project 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 zoning designation for the project site is Preservation. No forest land, timberland, or timberland production areas (as defined in the Public Resources Codes) are located within or adjacent to the project site. Therefore, the project would not conflict with the existing zoning for forestry uses, and no impacts would result.

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

No Impact. Refer to response to item 3.2.c above. No forest lands are located within the project vicinity; therefore, the project would not result in the loss of or conversion of forest lands to non-forest uses. No impacts would result.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project would result in the enhancement of the wetland communities on the project site to improve the water quality of San Diego Creek. The project would not involve changes that would result in the conversion of farmlands or forest lands to non-farmland or non-forest lands. Therefore, no impacts would result.

3.3 Air Quality

This section analyzes the potential impacts of the proposed project on air quality in the project area.

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

Less-Than-Significant Impact. The South Coast Air Quality Management District (SCAQMD) is the agency primarily responsible for comprehensive air pollution control in the South Coast Air Basin (SCAB), which includes all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects sources, and enforces measures through educational programs or fines when necessary.

The applicable air quality plan for the SCAB is the Air Quality Management Plan (AQMP). The AQMP is based on Southern California Association of Governments (SCAG) growth forecast for the region, and it incorporates measures to meet state and federal requirements. Significance of air quality impacts is based on the degree to which the project is consistent with SCAG's growth forecasts. If a project is consistent with growth forecasts, its resulting impacts were anticipated in the AQMP and are considered to be less than significant. Growth forecast in the AQMP is based on approved general plans, community plans, and redevelopment plans.

Operation of the project would result in minimal emissions from occasional vehicle trips to monitor and maintain the site. The proposed project does not include housing or business

development and would not induce population growth within the air basin. The project does not alter or introduce conflicts with land use designations. Therefore, the project once constructed would not conflict with or obstruct implementation of the AQMP.

During the project's proposed 3-month construction period, air emissions would result from heavy equipment hauling and exhaust, construction-related worker trips, and associated fugitive dust emissions from clearing and grading. The total disturbance area would be approximately 1.46 acres. The types and quantities of construction equipment that would be used for the proposed project would be typical of the industry and would not be of sufficient magnitude in quantity to exceed those assumptions used in the preparation of construction equipment emissions in the AQMP. Because the AQMP has accounted for construction-related emissions, construction emissions generated by the proposed project would be consistent with those included in the emissions inventory of the AQMP and would also be consistent with construction-related emissions projected in the AQMP. Furthermore, the project would implement best available control measures as listed in the project description that would reduce construction-related air pollution emissions consistent with the AQMP. Hence, the threshold of significance (i.e., conflict with or obstruct implementation of the applicable air quality plan) would not be exceeded and no impact would result.

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

Less-Than-Significant Impact. As stated previously, once construction is complete, the project would result in minimal emissions from occasional vehicle trips to monitor and maintain the site, and is therefore not expected to violate any air quality standard or contribute substantially to an existing air quality violation during operations.

Construction of the proposed project would result in a temporary, or short-term, addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$)) emissions would primarily result from minor grading and site preparation activities. Oxides of nitrogen (NO_x) and carbon monoxide (CO) emissions would primarily result from the use of construction equipment and motor vehicles.

SCAQMD sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 3-1 are exceeded.

Table 3-1
SCAQMD Air Quality Significance Thresholds

Criteria Pollutant	Construction Mass Daily Thresholds
VOC	75 lbs/day
NO_x	100 lbs/day
CO	550 lbs/day
SO_x	150 lbs/day
PM_{10}	150 lbs/day
$PM_{2.5}$	55 lbs/day
Lead	3 lbs/day

Source: SCAQMD CEQA Handbook (SCAQMD 1993) Revised March 2011
VOC – volatile organic compounds
NO_x – oxides of nitrogen
CO – carbon monoxide
SO_x – sulfur oxides
PM_{10} – particulate matter less than 10 microns
$PM_{2.5}$ – particulate matter less than 2.5 microns
lbs – pound

For these pollutants, if emissions exceed the thresholds shown in Table 3-1, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

Construction emissions would come from heavy equipment exhaust, construction-related trips by workers, material-hauling trucks, and associated fugitive dust generation from clearing and grading activities. The principal pollutants would be CO, VOCs, NO_x and PM_{10}. VOCs and NO_x are precursors of ozone (O_3). Due to the small project footprint (1.46 acres), construction emissions are expected to be below SCAQMD significance thresholds. The project also includes project features that would reduce air pollution emissions during construction. Therefore, the project is not anticipated to violate any air quality standard or contribute substantially to an existing air quality violation, and impacts would be less than significant.

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

Less-Than-Significant Impact. In analyzing cumulative impacts from the proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is listed as nonattainment for the California Ambient Air Quality Standards (CAAQS). If the proposed project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the project would only be considered to have a cumulative impact if the project's contribution accounts for a significant proportion of the cumulative total emissions.

PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. As discussed earlier, the emissions of all criteria pollutants, including PM_{10} and $PM_{2.5}$, are expected to be well below the significance thresholds. Construction would be short-term. Consistent with the size and scale of the proposed project, construction activities would be considered minor and not intensive. Considering that construction of the project is anticipated to disturb approximately 1.46 acres over a relatively short 3-month period, project construction is not anticipated to result in a cumulatively significant impact on air quality.

With regard to cumulative impacts associated with O_3 precursors, in general, if a project is consistent with the community and general plans, it has been accounted for in the O_3 attainment demonstration contained within the State Implementation Plan. The project would not conflict with any land use designations and would therefore not cause a cumulatively significant impact on the ambient air quality for O_3.

Additionally, the project would include project design features that would reduce construction-generated particulate matter emissions through dust abatement procedures and reduce construction-generated CO, O_3, and NO_X through proper maintenance of construction vehicles and traffic management. As a result, implementation of the proposed project would not result in cumulatively considerable impacts to air quality. Impacts would be less than significant.

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

Less-Than-Significant Impact. The greatest potential for toxic air contaminant (TAC) emissions during construction would be diesel particulate emissions from heavy equipment operations, heavy-duty trucks, and the associated health impacts to sensitive receptors. Both residential land uses and schools are considered sensitive receptors. The only potential sensitive receptors in the project area are nearby residences located approximately 750 feet southeast of the project site, opposite SDCC and University Drive on the University of Irvine Campus. As noted previously, the proposed project would not result in substantial pollutant emissions or concentrations and would implement best available control measures to further reduce some unavoidable emissions. Therefore, impacts to sensitive receptors would be less than significant.

The project would not require the extensive use of heavy-duty construction equipment, which is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure (ATCM) for in-use diesel construction equipment to reduce diesel particulate emissions, and it would not involve extensive use of diesel trucks, which are also subject to an ATCM. Construction of the proposed project would last for approximately 3 months, after which project-related TAC emissions would cease. Thus, the proposed project would not result in a long-term (i.e., 70 years) source of TAC emissions. No residual TAC emissions and corresponding cancer risk are anticipated after construction. Additionally, the project will implement best available control measures to further reduce some unavoidable emissions during construction. As such, the exposure of project-related TAC emission impacts to sensitive receptors during construction would be less than significant.

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

Less-Than-Significant Impact. Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the proposed project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant.

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project is intended to improve the quality of surface water runoff within the San Diego Creek

Watershed by reducing the concentrations of contaminants such as nitrogen, sediment, phosphorus, pathogens, pesticides, organochlorine compounds, and selenium. These improvements to the San Diego Creek water quality would reduce the likelihood of objectionable odors in the area. Therefore, project operations would not create objectionable odors that would affect a substantial number of people.

3.4 Biological Resources

This section analyzes the proposed project's potential impacts to sensitive plants, wildlife, and habitats as well as its consistency with adopted conservation plans. The analysis is based on the 2011 Dudek Biological Technical Report prepared for the project and a 2011 Harmsworth Associates biological assessment letter report prepared for the electrical improvements. These technical reports are Appendices B and C to this IS/MND.

a) Would the project 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 Impact. Various biological surveys of the project area were conducted by Dudek and Harmsworth and Associates biologists in 2011. A Biological Technical Report was prepared for the project by Dudek (2011) and a Biological Assessment letter report was prepared for the electrical upgrade portion of the project by Harmsworth and Associates (2011). According to the reports, three upland vegetation communities (coastal sage scrub, non-native grassland, and ruderal); six wetland vegetation communities (freshwater marsh, mulefat scrub, riparian herb, riparian savannah, southern cottonwood-willow riparian woodland, and southern willow scrub); and two land cover types (open channel/water and disturbed land) are located within the project area. No special-status plant species occur within the project area. Several special-status animal species occur within the project study area including the state- and federally-listed endangered least Bell's vireo (*Vireo bellii pusillus*) which was confirmed as breeding within the SAMS 1 area. Other species that were observed or have a high potential to occur include western pond turtle, (*Emys marmorata*), Cooper's hawk (*Acccipiter cooperi*), yellow warbler (*Dendroica petechial brewsteri*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), osprey (*Pandion haliaetus*), and Yuma myotis (*Myotis yumanensis*).

The SAMS 1 project would affect 1.46 acres supporting mulefat scrub, riparian herb, riparian savannah, and southern willow scrub as well as non-native grassland and ruderal vegetation communities supporting special-status wildlife species (refer to Figure 3-1). Direct impacts to relatively mobile special-status species including birds and bats are avoided due to the limited extent of impact compared with the remaining habitat available in the area and implementation of project design features to avoid impacts to breeding success and direct mortality of bird species. Implementation of avoidance measures will provide avoidance of take of state and federally listed species known to occur in the area including least Bell's vireo, light-footed clapper rail, and white-tailed kite. Direct impacts to special-status wildlife will occur through the loss of habitat and potential mortality of special-status reptiles and Southern California saltmarsh shrew during construction. The loss of habitat that would result from the project is not considered significant because sufficient adjacent habitat is present for these species to persist in the short term and, following revegetation/restoration of the majority of the impact areas, the sites will support a greater extent of suitable habitat and therefore provide a net benefit to these species. The potential direct mortality of special-status reptiles and Southern California saltmarsh shrew is not considered significant because the project site does not present a core population for these species and the expected number of individual species to be killed is low; therefore, there would not be a substantial effect on the species as a whole or on the regional population. Impacts are considered less than significant.

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

Less-Than-Significant Impact with Mitigation Incorporated. Refer to response to item 3.4.a above. Permanent impacts associated with the SAMS 1 project are limited to the proposed access road adjacent to the proposed earthen conveyance channel and the above grade pipeline and relocated retaining wall section at NTS Site 46 Control Area. The channel and associated slopes are considered temporary impacts as the slopes will be restored with native species and the channel will mimic natural hydrologic drainage functions.

Project Boundary

Vegetation

- CBM, Coastal Brackish Marsh
- CSS, Coastal Sage Scrub
- DEV, Developed
- DIST, Disturbed
- FWM, Freshwater Marsh
- MFS, Mule Fat Scrub
- NNG, Non-native Grassland
- OW, Open Water
- RH, Riparian Herb
- RS, Riparian Savannah
- RUD, Ruderal
- RW, Southern Cottonwood Willow Riparian Woodland
- SWS, Southern Willow Scrub

Pre-project Jurisdictional Areas

- ACOE/RWQCB/CDFG
- CDFG only

Wildlife Species Locations

- Least Bell's vireo
- White tailed kite

Impacts

- Temporary Impacts from Proposed Pipeline
- Permanent Impacts from Proposed Pipeline
- Temporary Impacts from Proposed Channel
- Permanent Impacts from Proposed Access Road

OW
MFS
MFS
MFS
MFS
DIST
MFS
MFS
FWM
MFS
San Diego Creek Channel
NNG
NNG
RS
RUD
FWM
MFS
MFS
MFS
MFS
DEV
CSS
Campus Dr.
RUD
RW
RH
Pair
Pair
SWS
Male
MFS
RW
CBM
SWS
RUD
RH
RH
MFS
NNG
RH
NNG
NNG
University Dr.

0 100 200 Feet

DUDEK

6917-01

SOURCE: CH2MHill 2011

FIGURE 3-1

Proposed Impacts to Biological Resources

San Joaquin Marsh SAMS 1 MND

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Also, the below grade pipeline alignment and electrical improvement through existing NTS Site 46 paths and adjacent San Joaquin Marsh Campus are considered temporary. Table 3-2, identified the temporary and permanent impacts for each vegetation community on the SAMS 1 site.

Table 3-2
Impacts to Vegetation Communities and Land Cover Types
(with Jurisdictional Determination)

Vegetation Type / Land Cover	SAMS 1 Site	
	Permanent	*Temporary*
Upland Vegetation		
Coastal sage scrub		0.01
Ruderal		0.03
Subtotal Upland Vegetation Communities[1]		***0.04***
Wetland/Riparian Vegetation (Jurisdiction)		
Mulefat scrub (CDFG-jurisdictional)		0.14
*Riparian herb (CDFG-jurisdictional)	0.03	0.11
*Riparian savannah (CDFG-jurisdictional)	0.10	0.34
*Southern willow scrub (CDFG-jurisdictional)	0.03	0.07
Subtotal Wetland/Riparian Vegetation[1]	***0.16***	***0.66***
Land Cover Types		
Disturbed land		0.40
Developed		0.20
Subtotal Land Cover Types[1]		***0.60***
Total[1]	**0.16**	**1.30**

[1] Total does not sum due to rounding.
* Communities/land cover listed considered special-status/regulated.

Direct impacts (both temporary and permanent) to jurisdictional wetlands are significant because these communities are considered special-status by CDFG and because they are regulated under the Fish and Game Code. Direct impacts to non-special-status vegetation communities are not considered significant because these resources are not unique community types and do not support special-status species.

A total disturbance of 0.82 acre of CDFG-only jurisdiction would result from the SAMS 1 project and would be considered significant. In particular, 0.16 acre of this impact represents a conversion of existing wetlands mitigation to an access road (refer to Figure 3-1). Implementation of mitigation measures MM-BIO-1 would reduce potential impacts to less than significant.

Construction-related sedimentation, siltation, erosion, or pollutant runoff could indirectly impact growth of vegetation in special-status vegetation communities adjacent to the development area; however, these effects are expected to be avoided and minimized to the extent feasible through implementation of the PDFs. Potential long-term indirect effects resulting from operation and maintenance may include introduction of invasive plants and periodic loss of vegetation within the facilities during maintenance; however, these effects are expected to be avoided and minimized to the extent feasible through implementation of the PDFs. Both short-term and long-term indirect impacts are reduced to a level which is less than significant.

Mitigation Measure

MM-BIO-1. The SAMS 1 project shall include recording a conservation easement over the 16.9-acre existing property, pursuant to its status as a mitigation site. Due to the development of the access road occupying 0.16 acre, it is expected that the conservation easement will need to be expanded to cover a 17.5-acre area supporting wetlands/riparian habitat. The adjacent NTS Site 62 area includes sufficient area to allow for this increase in the total conserved area and sufficient area to offset the loss caused by the development of the access road. The conservation easement will require implementation of long-term management of wetland/riparian resources, including successful restoration of temporary impacts.

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

Less Than Significant Impact with Mitigation Incorporated. Refer to response to item 3.4.b above. All wetlands communities within the 16.9 acre SAMS 1 site are CDFG-jurisdictional only (mulefat scrub, riparian herb, riparian savannah, southern cottonwood-willow riparian woodland, and southern willow scrub (refer to Figure 3-1). These areas support a predominance of hydrophytic vegetation in proximate association with SDCC and were identified as mitigation for several projects subject to regulation by CDFG. These areas are not under the jurisdiction of ACOE or RWQCB pursuant to the federal Clean Water Act due to the lack of three parameter wetlands and the lack of hydrologic connectivity between SDCC and the SAMS 1 site.

A total disturbance of 0.82 acre of CDFG-only jurisdiction would result from the SAMS 1 project and would be considered significant. In particular, 0.16 acre of this impact

represents a conversion of existing wetlands mitigation to an access road. Implementation of mitigation measures MM-BIO-1 would reduce potential impacts to less than significant.

d) Would the project 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?

Less Than significant Impact. Project construction will result in a short-term increase in noise and dust levels, which may disrupt wildlife usage in adjacent habitat areas. Chemical spills or other pollution discharges could also result in adverse impacts to special-status wildlife species. These impacts would also adversely affect wildlife corridor function. However, these effects are expected to be avoided and minimized to the extent feasible through implementation of the PDFs.

Potential long-term indirect impacts to special-status wildlife resulting from the operation and maintenance of the constructed facilities may include loss of habitat/vegetation during vegetation removal/thinning as part of maintenance, wildlife mortality or nest disturbance during vegetation removal/thinning as part of maintenance, construction noise during operation and maintenance, disturbance due to human presence/trail usage, and potential introduction of invasive animal species including bullfrog and/or African clawed frog. These impacts would adversely affect wildlife corridor function, which would diminish the overall habitat linkage function of the area. However, these effects are expected to be avoided and minimized to the extent feasible through implementation of the PDFs.

The project study area is adjacent to the SDCC, which can likely functions as a wildlife corridor for certain species that can utilize habitats present downstream (Upper Newport Bay), in the project vicinity (San Joaquin Marsh), and upstream (limited riparian habitat within SDCC). The upland portions of the project area would likely support very limited wildlife corridor functions due to the urbanized nature of the surrounding area. The San Joaquin Marsh area, including the project area, is designated as Non-Reserve Open Space under the NCCP/HCP. As such, the habitats within the San Joaquin Marsh were not considered to be critical components to the conservation of covered species and habitats in the plan (i.e. coastal sage scrub). However, it is recognized that the area supports important native habitats, and therefore, does contribute to the linkage between Upper Newport Bay and the San Joaquin Hills to the east and southeast of the project area. However, the project does not substantially adversely affect any portion of the project study area in terms of wildlife corridor or habitat linkage functions, and therefore, impacts to these resources/functions would be less than significant.

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

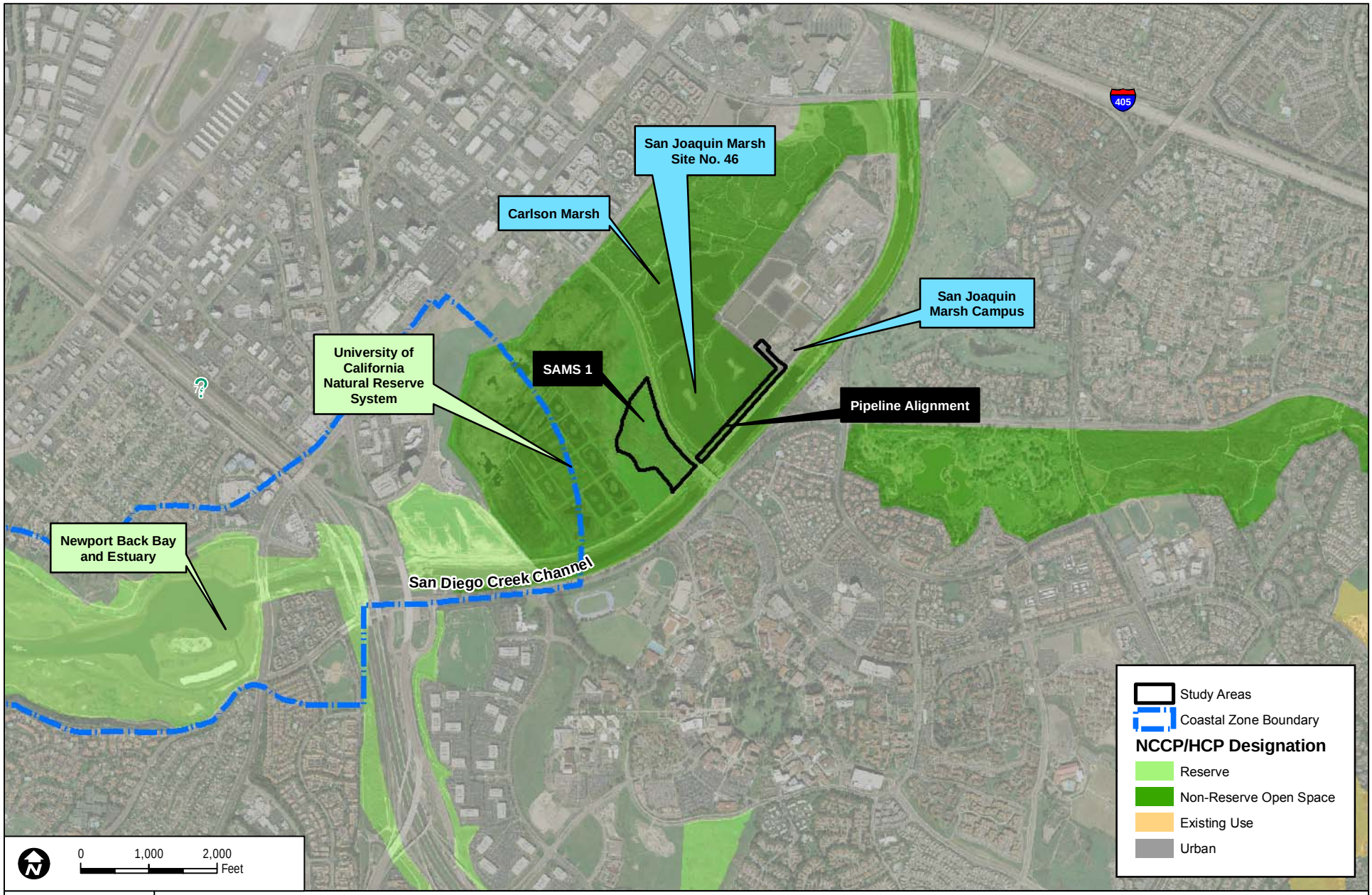
Less Than Significant Impact. The proposed project would not conflict with any local policies or ordinances protecting biological resources. The project has been designed to avoid impacts to mature trees and dense stands of native shrubs; therefore, impacts would be less than significant.

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

Less Than Significant Impact. The entire project area is located within the County of Orange Coastal Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) and is designated as Non-Reserve Open Space (refer to Figure 3-2). This designation indicates the area is "not considered suitable for inclusion in the coastal sage scrub management program due to lack of significant coastal sage scrub habitat, the absence of target species, and/or location which did not contribute directly to enhanced biological connectivity within the region" (County of Orange 1996). IRWD is a participating landowner under the NCCP/HCP. Implementation of the proposed projects is consistent with the NTS Master Plan EIR and the regional biological resource planning conducted in the area (i.e., the NCCP/HCP). Therefore, impacts would be less than significant.

3.5 Cultural Resources

This section analyzes the potential impacts of the proposed project on historical, cultural resources, paleontological resource, and human remains.



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6917-01

SOURCE: USGS 7.5-Minute Series Tustin Quadrangle.

FIGURE 3-2

Regional Resource Planning Map

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

No Impact. According to a listing of historical places in Irvine generated by the National Register of Historical Places, the project site is not identified as a historical resource (NPS 2011). Therefore, no impacts to historical resources would result.

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

Less-Than-Significant with Mitigation Incorporated. Review of the San Diego Creek Watershed NTS Final EIR revealed that 22 recorded sites were previously identified within 1 mile of the SAMS 1 site. Many of these sites represent important archaeological resources, both locally and nationally (CH2MHill 2010). Due to the sensitivity of the project area for cultural resources, the potential exists for the project to result in significant impacts to unknown archaeological resources. Implementation of mitigation measures MM-CR-1 and MM-CR-2 would reduce potential impacts to less-than-significant levels.

Mitigation Measures

MM-CR-1: IRWD shall contract with a qualified archaeologist to obtain data, including but not limited to a record search and a field reconnaissance visit, that would aid in understanding the subsurface potential for archaeological material on the SAMS I Site. IRWD shall implement the recommendations of the archaeologist to avoid any potential impacts to known or known cultural resources.

MM-CR-2: In the event that cultural resources are discovered during construction, work must cease, and IRWD shall be contacted immediately. A qualified archaeologist shall be consulted to assess the significance of the resource and to provide proper management and/or handling recommendations.

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

Less-Than-Significant Impact. According to the City of Irvine General Plan Cultural Resources Element (Figure E-2, Paleontological Sensitivity zones), the project site is located in an area that is categorized as having a low sensitivity and is defined as an area typically as having been altered, or the soils of the site are considered young rocks exposed at the surface (City of Irvine 2005a). The SAMS 1 site is a 16.9-acre wetlands

mitigation site constructed by the property's previous landowner, the Irvine Company. The site was planted with riparian trees in 1990 and maintained by the Irvine Company until the site was deemed to have successfully achieved mitigation criteria in 1997 (Tettemer 1997). Due to the nature of the site, limited depth of ground disturbance proposed by the project and the low sensitivity rating, the potential for the project to directly or indirectly destroy a unique paleontological resource or site would be low, and impacts are considered less than significant. No unique geologic features exist on the project site; therefore, impacts would not result.

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

Less-Than-Significant with Mitigation Incorporated. There are no known human remains or formal cemeteries located within the project site. Although human remains are not anticipated to be encountered, the potential for additional cultural resources to be present within the project does exist. Therefore, impacts are considered potentially significant unless mitigated. With implementation of mitigation measure MM-CR-3, potential impacts to human remains would be reduced to less than significant.

Mitigation Measure

MM-CR-3: In the unlikely event that human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The county coroner shall be notified of any human remains found immediately. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant. With the permission of IRWD, or an authorized representative, the most likely descendant may inspect the site of the discovery. The most likely descendant may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

3.6 Geology and Soils

This section analyzes the potential seismic, geologic, and soil impacts of the proposed project.

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

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

No Impact. The proposed project is located within seismically active Southern California, an area where several of the faults and fault zones are considered active by the California Division of Mines and Geology. The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to regulate development near active faults so as to mitigate the hazards of surface fault rupture. There are no active faults located on or within the immediate vicinity of the project site. The nearest active fault to the project site is the Newport-Inglewood fault located in Huntington Beach, approximately 4 miles west of the site (Division of Mines and Geology 1986). The proposed project would not build housing or structures on the site. The project would build an earthen drainage channel and two other small drainage pipes that would assist IRWD in managing the water quality in the adjacent San Diego Creek. Therefore, the project would not expose people or structures to significant effects related to rupture of a known earthquake fault.

ii) Strong seismic ground shaking?

Less-Than-Significant Impact. The project site is located in seismically active Southern California and is, therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. As stated previously, the proposed project would not build housing or structures on the site, but would build an earthen drainage channel, one small conveyance pipeline, and two drainage outlets that would assist IRWD in managing the water quality in the adjacent San Diego Creek. With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the project would not expose people or structures to significant effects related to strong ground shaking.

iii) Seismic-related ground failure, including liquefaction?

Less-Than-Significant Impact. As stated previously, the project site is located in seismically active Southern California and is, therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. When saturated, loose to medium dense, sandy soils can be prone to liquefaction during a ground-shaking event, thereby causing the soils to act like a liquid and compromising their integrity. The project site is in an area of soft soils and high ground water per the City of Irvine General Plan (City of Irvine 2005b). As stated previously, the proposed project would not build housing or structures on the site, but would build an earthen drainage channel and other small drainage pipes that would assist IRWD in managing the water quality in the adjacent San Diego Creek. With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the project would not expose people or structures to significant effects related to ground failure, including liquefaction.

iv) Landslides?

No Impact. The project site and surrounding area is generally level at approximately 12 feet above sea level and is not prone to landslides. The project would not expose people or structures to effects related to landslides.

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

Less-Than-Significant Impact. During construction, the project is anticipated to disturb approximately 1.46 acres on the site. During the 3-month-long construction period, erosion may occur where the soils are temporarily exposed. The limited amount of disturbance on site is not anticipated to cause a significant amount of soil erosion or loss of topsoil. Additionally, during the construction period, the project will implement best available control measures, including requiring construction staff to cover or water daily on-site stockpiles, which will reduce project-related soil erosion on site. Therefore, project-related impacts to soils on site would be less than significant. Once construction is complete, the soils on site would not be exposed because they would be secured with newly planted riparian species. Impacts would be considered less than significant.

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

Less-Than-Significant Impact. See response 3.6.a(iii) and 3.6.a(iv). With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the project is not anticipated to result in impacts related to on-site ground failure. Impacts are considered less than significant.

d) Would the project 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 response 3.6.a(iii) and 3.6.a(iv). With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the project is not anticipated to result in impacts related to on-site ground failure. The site is relatively flat, and the project does not propose any buildings on site that would ultimately create a substantial risk to life or property on or off the site. Impacts are considered less than significant.

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

No Impact. As stated previously, the proposed project would not build housing or structures on the site, but would build an earthen drainage channel and two other small drainage pipes that would assist IRWD in managing the water quality in the adjacent San Diego Creek, and therefore, the project would not result in impacts due to wastewater disposal.

3.7 Greenhouse Gas Emissions

This section analyzes the proposed project's potential to contribute to greenhouse gases or conflict with applicable plans adopted to reduce greenhouse gas emissions.

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

Less-Than-Significant Impact. The proposed project would result in construction-generated greenhouse gas (GHG) emissions associated with construction equipment and vehicle trips. Construction is expected to take approximately 3 months and, therefore, would be a temporary source of GHG emissions.

Once constructed and installed, the project components would be maintained by IRWD. IRWD staff would monitor the facility on a regular basis as part of normal maintenance operations. Maintenance of the SAMS 1 site would not require a substantial amount of vehicle trips or other activities beyond those already required for regular maintenance of the IRWD facilities in the immediate area, and as a result, these vehicle trips would not generate significant amounts of GHG emissions.

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

Less-Than-Significant Impact. As mentioned in response VII a, project construction, as well as operation and maintenance, would result in less-than-significant GHG emissions, and would not result in a cumulative contribution to global climate change. As a result, the proposed project is not likely to result in a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impacts would be less than significant.

3.8 Hazards and Hazardous Materials

This section analyzes the potential impacts of the proposed project related to hazards, including hazardous material contamination, hazardous emissions, airport hazards, interference with emergency response plans, and wildland fires and fire protection.

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

Less-Than-Significant Impact. The project proposes the enhancement of an existing wetland mitigation site to improve the water quality of the San Diego Creek Watershed. The project would not involve the routine transport, use, or disposal of hazardous material. No impacts would result from the operational phase of the project.

During the construction period, standard BMPs will be applied to ensure that all hazardous materials (i.e., construction equipment fuels) are stored properly and that no hazards occur during this phase of the project. Therefore, impacts would be less than significant.

b) Would the project 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. The project is the restoration of an existing wetland community to enhance the water quality of the SDCC. The project would not result in the use of hazardous materials, and therefore, the potential for the accidental conditions associated with the release of hazardous material into the environment would be less than significant. During the construction phase of the project, BMPs would be applied to reduce potential concerns from accidental conditions. Impacts would be less than significant.

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

Less-Than-Significant Impact. The project site is located less than 0.25 mile north of the University of California, Irvine (UCI). The project does not propose the use of hazardous materials, and therefore, potential impacts associated from the project emitting hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste adjacent to the educational facilities would be less than significant.

d) Would the project 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?

No Impact. According to the State of California Department of Toxic Substance Control EnviroStor Database (DTSC 2011), the project site is not included on a list of hazardous material sites and, therefore, would not create a significant hazard to the public or the environment.

e) Would the project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?

Less-Than-Significant Impact. The project site is located within the John Wayne Airport Land Use Plan. According to the airport land use plan, the project site is located outside the established safety zones and the 60 A-weighted decibel (dBA) noise contours for the airport. In addition, the project does not propose the construction of housing or other structures. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area.

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

Less-Than-Significant Impact. The project site is located within the vicinity of the John Wayne Airport; however, the project proposes the enhancement of wetland communities to improve the water quality of the San Diego Creek Watershed. While the project would result in people working in the project area, the project site is located outside of the airports safety zones and 60 dBA noise contours. Therefore, impacts would be less then significant.

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

Less-Than-Significant Impact. The construction of the proposed project is anticipated to result in the temporary road closure of one southbound travel lane along Campus Drive. However, IRWD proposes to implement a traffic control plan, as outlined in the list of project design features incorporated by the proposed project in the project description of this MND. Implementation of the proposed traffic control plan would reduce impacts to less than significant.

h) Would the project 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?

No Impact. The project site is located within the San Joaquin Marsh and is not located near or adjacent to wildlands having high fire hazards. Therefore, no impacts would result.

3.9 Hydrology and Water Quality

This section analyzes the potential impacts of the proposed project on the hydrology of the project site, as well as the quality of surface and groundwater.

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

Less-Than-Significant Impact.

Short-Term Construction-Related: Construction activities associated with implementation of the project could result in temporary construction-related impacts on water quality from erosion and sedimentation, as well as storage of construction-related hazardous materials (e.g., such as fuels, etc.) on site.

The proposed grading, excavation, and construction of the site would increase the potential for temporary erosion and sediment transport of material both within and downstream of the facility. The downstream waters and associated wildlife habitats could potentially be subject to these impacts during the construction phase. However, during the construction period the project will implement best available control measures, including requiring construction staff to cover or water daily on-site stockpiles, which would reduce project-related soil erosion on the site. In addition, the project would implement the use of silt basins, sediment barriers, and/or silt fences to reduce construction-related erosion. Implementation of the project design features and permitting requirements would avoid or reduce all erosion and sedimentation impacts to below a level of significance.

Long-Term Operations-Related: a pollutant of concern in the region is the known high concentration of dissolved selenium in San Diego Creek, including near Campus Drive. As addressed in the NTS Master Plan EIR (IRWD 2004), IRWD measured the levels of selenium at this location between 1997 and 1999 and the levels consistently exceeded the applicable water quality criterion, known as the four-day average chronic California Toxics Rule. The primary source of selenium in San Diego Creek is believed to be groundwater seepage into surface waters, particularly in areas of shallow groundwater tables in lower Peters Canyon Wash. The region is located in an historic ephemeral lake and marsh area known as the "Swamp of the Frogs". The Swamp of Frogs is considered to be a likely source of organic nitrogen and previously captured selenium. High selenium concentrations have also been detected in channels downstream from nursery sources during rain events, suggesting the possibility of upstream sources including runoff from hillsides, open spaces, agricultural lands and commercial nursery sites. Concentrations of selenium in the San Diego Creek Watershed from 2001 ranged between 1 and 30 parts per billion. Selenium can be bioaccumulated, from water and aquatic sediments, through uptake by benthic invertebrates. Elevated selenium levels in dietary items can cause reproductive toxicity to wildlife and especially to some species of birds. The USEPA has set a TMDL target of reducing selenium concentrations in water to less than 5 parts per billion (µg/L) as a long-term average in the watershed.

The NTS system of developing constructed wetlands in areas throughout the San Diego Creek Watershed was designed to remove various pollutants and sediments from low flow and small storm runoff. As such the proposed project has been designed in accordance with the NTS Master Plan to achieve additional reductions of selenium and other pollutants.

Currently, water from the SDCC is pumped through the SDCC pump station and into the San Joaquin Marsh. Pumping to the San Joaquin Marsh only occurs during dry conditions. During storm events, the pump station is turned off.

The project proposes to provide water for additional treatment by conveying the water through the SAMS 1 site to the future NTS site 62 project, located adjacent and to the southwest of SAMS 1. There are two water sources that would be used in this new treatment wetland: dry weather flows from NTS Site 46/San Joaquin Marsh and wet weather flows directly from SDCC. Both water sources would be conveyed through the proposed earthen channel on the SAMS 1 site to the future NTS Site 62 project; however, only wet weather flows would be used to provide flooding of the SAMS 1 site to mimic natural hydrology and rehabilitate the riparian habitat on the site. Approximately 1,330 acre-feet of water is expected to flow from NTS Site 46 through the SAMS 1 channel to the future NTS Site 62 during dry weather conditions annually. During wet-weather conditions, a total of 144 acre-feet of water would be annually conveyed directly from SDCC to the SAMS 1 channel; of that volume, approximately 81 acre-feet are expected to be conveyed through to the future NTS Site 62 wetlands and 63 acre-feet would overflow the channel weir and flood the adjacent SAMS 1 riparian habitat on an annual basis (during an estimated 5 storm events each lasting approximately 2 days). Thus, overflows to the SAM 1 site are approximately 4% of the total volume of water to be conveyed through the SAMS 1 channel. Both water sources are conveyed to the SAMS 1 channel by installation of a new 16-inch pipeline from existing pumps in the SDCC, across the southern edge of NTS Site 46 and across Campus Drive.

Dry-Weather Flows

Outflow data provided by IRWD shows that water quality is being improved by the Site 46/San Joaquin Marsh, through the implementation of the NTS sites, with observed reductions in nitrates, phosphorus, copper, selenium, and fecal coliforms as shown in Table 3-3, below (CH2MHill 2010). The outlet values represent the levels that will be discharged to the proposed channel on the SAMS 1 during dry weather conditions; these flows would pass through the channel and discharge to the future NTS Site 62 project and would not enter riparian habitat in the surrounding portion of the SAMS 1 site.

Table 3-3
San Joaquin Marsh Outflow Quality, Average Values by Season

Parameter	Units	Inlet		Outlet	
		Summer	*Winter*	*Summer*	*Winter*
Total Suspended Solids (TSS)	mg/L	66	72	80	72
Nitrate as N	mg/L	7	7	3	1
Phosphate as P	mg/L	0.55	0.11	0.13	0.23
Fecal Coliform	MPN	14,034	5,210	758	4,132
Selenium (Se)	µg/L	19	17	15	13
Nickel (Ni)	µg/L	2	2	N/A	2
Lead (Pb)	µg/L	1	1	1	1
Copper (Cu)	µg/L	9	6	6	5
Chromium (Cr)	µg/L	3	4	N/A	4

Source: CH2MHill 2010

Although the water conveyed to the proposed channel within the SAMS 1 site would contain high levels of selenium (approximately 13-15 µg/L), the channel has been design to have minimal sediment accumulation in order to minimize maintenance and maximize the efficiency of conveyance within the channel. The relatively small area of the channel compared with the volume of water will create a flow and velocity that will minimize settlement of the sediment and thus pollutants, including particulate-associated selenium, within the channel. The channel characteristics, particularly the expected flow rates, will not allow for selenium transformation to more chemically-reduced and bioavailable forms (Byron pers. comm. 2011). However, to ensure impacts from selenium remain below a level of significance, the project has incorporated project design feature PDF-HYDRO-B, which provides ongoing monitoring of the surface soil concentrations to check that selenium is not building up to harmful levels.

Wet-Weather Flows

The water quality of SDCC that would be conveyed to the SAMS 1 during wet weather flows is represented in Table 3-4. This water would be conveyed via the proposed channel on the SAMS 1 site to the future NTS Site 62 and also would overflow the channel via a weir constructed on the south side of the channel and flood riparian habitat within the larger SAMS 1 site.

Table 3-4
San Diego Creek Water Quality, Average Values by Season

Parameter	Units	Storm Event
TSS	mg/L	149
Nitrate as N	mg/L	5
Phosphate as P	mg/L	0.51
Fecal Coliform	MPN	18,800
Se	µg/L	8
Ni	µg/L	7
Pb	µg/L	4
Cu	µg/L	16
Cr	µg/L	6

Source: CH2MHill 2010

In the winter, for purposes of irrigation of habitat, conveyed flows from SDCC would be conveyed to the future NTS Site 62 and would overflow from the channel into the SAMS 1 site. It is estimated that these conditions will be reached approximately 5 times annually with each event lasting approximately 2 days. Winter stormflow concentrations of selenium are the lowest waterborne concentrations for the watershed and are expected to average approximately 8 µg/L selenium (based on Orange County long-term records showing selenium concentrations during the highest winter stormflow periods). The overflow to the SAMS 1 site will pool in the terrestrial habitats of SAMS 1 and provide rehydration of the soils in support of the terrestrial vegetation habitat. The pooled water will quickly absorb and evaporate and is not expected to provide aquatic habitat.

Based on the facts that discharges to the SAMS 1 site are limited (5 times per year and approximately 4% (63 acre-feet annually) of the total flows conveyed through the SAMS 1 channel (1,474 acre-feet annually)) and would utilize water that has lower levels of selenium compared with dry-weather periods (average of 8 µg/L compared with 13-19 µg/L), the winter stormflow additions to the SAMS 1 site are not expected to cause adverse toxicological effects to terrestrial plant habitat and associated wildlife (Byron pers. comm. 2011). However, to ensure impacts from selenium remain below a level of significance, the project has incorporated a project design feature PDF-HYDRO-B, which provides ongoing monitoring of the surface soil concentrations to check that selenium is not building up to harmful levels.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., 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)?

Less-Than-Significant Impact. The project would not interfere or deplete groundwater supplies. The water source for the project would consist of intercepted water from the San Joaquin Marsh outflow, or from stormwater that currently bypasses the marsh in a storm event or during wet weather season. The San Joaquin Marsh receives water from SDCC via the SDCC pump station. While the project would transport water from the San Joaquin Marsh or SDCC to the SAMS 1 site, these areas are adjacent to one another, and the water would remain in the same watershed for the support of wetland communities. In addition, the project would not result in an increase in impervious surface area that would decrease groundwater recharge. Therefore, impacts to groundwater would be less than significant.

c) Would the project 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 on or off site?

Less-Than-Significant Impact. Refer to response to item 3.9.a above. A portion of the outflow from the San Joaquin Marsh is used to support irrigation of the existing Carlson Marsh site located north of NTS Site 46 while the remaining portion is returned to the SDCC through the existing San Joaquin Marsh Pump Station and pipeline. In addition, SDCC flows are diverted to the marsh during the dry season. The SAMS 1 site would use some of the existing water that is typically outflowed to the SDCC to irrigate the site, to treat the water, and then discharge the water. The amount of water used for irrigation of the SAMS 1 site would not substantially alter the existing drainage pattern of the area and would not result in substantial erosion or siltation on or off site. Therefore, impacts would be less than significant.

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

Less-Than-Significant Impact. The project would result in the diversion of existing water sources within the San Joaquin Marsh to provide irrigation in support of the proposed wetland habitat. The amount of water diverted to the SAMS 1 site would not

result in a substantial alteration of the existing drainage pattern of the project area and would not alter the course of the SDCC, nor would it increase the amount of water within the SDCC that could result in flooding. Therefore, impacts would be less than significant.

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

Less-Than-Significant Impact. Refer to response to items 3.9.a and 3.9.d above.

f) Would the project otherwise substantially degrade water quality?

Less-Than-Significant Impact. The project proposes to enhance an existing wetland community to improve the water quality of the San Diego Creek Watershed. While some additional sediment would be suspended in the water during the construction phase of the project, this would be a minor temporary disturbance. During the operational phase of the project, water quality of the watershed would be improved. Therefore, impacts would be less than significant.

g) Would the project 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 project does not propose the construction or relocation of housing. Therefore, the project would not result in the placement of housing within a 100-year flood hazard area.

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

Less-Than-Significant Impact. The southern portion of the project site is bounded by a 100-year flood hazard area (FEMA 2006). While the project proposes to construct pipelines north of the 100-year flood hazard area, the pipelines would bring water to irrigate the SAMS 1 site and would not serve to impede or redirect flood flows. In addition, the project does not propose the construction of any structures within the 100-year flood hazard area. Therefore, impacts would be less than significant.

i) Would the project 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 project does not propose the construction of a levee or dam to contain water flows. A levee is located along the SDCC; however, the project would not expose people or habitable structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee. The structures proposed by the project consist of a pipeline to import water from the San Joaquin Marsh and SDCC to the SAMS 1 site, which is located approximately 1,750 feet to the south and will continue to outflow to the SDCC (which is located approximately 2,375 feet south of the existing outfall north of Site 46). Therefore, the project would divert water from the north to irrigate the proposed wetland habitats at the SAMS 1 site, would continue to outfall to the SDCC approximately 2,375 feet to the south, and would not result in an increase in water flows to the creek. Therefore, the project would not increase the flows of the creek that could result in the failure of the levee. Impacts would be less than significant.

j) Result in inundation by seiche, tsunami, or mudflow?

Less-Than-Significant Impact. The nearest water source to the project site is the SDCC. The project proposes the construction of an open earthen channel across the SAMS 1 site to provide irrigation to SAMS 1 for the enhancement of wetlands and other sensitive vegetation communities. Implementation of the project would not result in impacts from seiche, tsunami, or mudflow. Impacts would be less than significant.

3.10 Land Use and Planning

This section analyzes the potential impacts of the proposed project on existing and planned land uses, and its consistency with adopted land use and conservation plans.

a) Would the project physically divide an established community?

No Impact. The project proposes to enhance an existing wetland community/habitat and would not physically divide an established community.

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

No Impact. The City of Irvine General Plan Land Use and Zoning designations for the site is Preservation. Construction of the proposed channel and maintenance road would not result in conflicts with the existing land use and zoning designations of the site, since the project would provide the irrigational needs to support and enhance the existing and proposed wetland communities of the SAMS 1.

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

Less-Than-Significant Impact. The project site is located within the Coastal Subarea under the NCCP/HCP and is designated as Non-Reserve Open Space. IRWD is a participating landowner under the NCCP/HCP. Although habitat conservation values are expected to be largely retained within the Non-Reserve Open Space, conservation of the area is not required to meet the conservation goals and requirements of the project. The project as proposed does not substantially change biological resources and is compliant with the NCCP/HCP. Therefore, impacts would be less than significant.

3.11 Mineral Resources

This section analyzes the potential impacts of the proposed project on mineral resources.

a) Would the project 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. The project site is located within the San Joaquin Marsh, which is a previous mitigation site that was planted with wetland communities. There are no known mineral resources that would be of value to the region and the residents of the state. Therefore, no impacts would result.

b) Would the project 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 to XI.a above. The City of Irvine has designated the project site for preservation. The Preservation designation for the project site reflects the wetland community of high importance. Therefore, no impacts would result.

3.12 Noise

This section analyzes the potential short- and long-term noise impacts resulting from implementation of the proposed project.

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

Less-Than-Significant Impact. The construction activities associated with implementation of the open-conveyance, meandering earthen channel through the SAMS 1 site would be short-term and conducted in accordance with the City of Irvine Noise Ordinance. Section 6-8-205A of the Noise Ordinance limits construction activities between the hours of 7:00 a.m. and 7 p.m., Monday through Friday, and 9:00 a.m. and 6 p.m. on Saturdays. No construction activities are permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the chief building officer or his or her authorized representative (City of Irvine 1998). Therefore, construction-related impacts would be less than significant. The maintenance activities associated with the operational phase of the project would not result in an increase to the ambient noise levels.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-Than-Significant Impact. The proposed project would not require the use of blasting; therefore, people would not be exposed to excessive groundborne vibration or noise levels. Impacts would be less than significant.

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

Less-Than-Significant Impact. The project would result in a maintenance vehicle traveling on the proposed maintenance road to ensure maintenance of the proposed

earthen channel, and to monitor the wetland communities and water quality of the SAMS 1 site. The noise generated by this occasional maintenance activity would not result in a substantial permanent increase in the ambient noise levels. Therefore, impacts would be less than significant.

d) Would the project 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. Construction of the proposed project would temporarily increase ambient noise levels in the project vicinity above existing levels without the project. However, given the temporary short-term nature of the construction noise disturbances in compliance with the City's noise ordinance, impacts would be less than significant. In addition, the operational phase of the project would not result in a substantial noise increase; impacts would be less than significant.

e) Would the project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?

Less-Than-Significant Impact. The project site is located within the John Wayne International Airport Land Use Planning Area. The John Wayne International Airport is located approximately 1.2 miles northwest of the project site, but is outside of the 60 Community Noise Equivalent Level (CNEL) noise contour (Orange County Airport Land Use Commission 2008). Therefore, the proposed project would not expose construction workers to excessive noise levels. Impacts would be less than significant.

f) Would the project located within the vicinity of a private airstrip expose people residing or working in the project area to excessive noise levels?

Less-Than-Significant Impact. Refer to response to item 3.12.e above. The project site is located outside of the John Wayne International Airport's 60 CNEL noise contour level; therefore, the project would not expose people residing or working in the project area to excessive noise levels. Impacts would be less than significant.

3.13 Population and Housing

This section analyzes the potential impacts of the proposed project on population and housing, and growth inducement.

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

No Impact. The project proposes the construction of an earthen channel to convey water to the SAMS 1 site to enhance the existing wetland communities. The project would not result in the increased allocation of water for future development; therefore, no impacts would result.

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

No Impact. The proposed project would not result in the removal of existing housing and, therefore, would not necessitate the construction of replacement housing elsewhere. No impacts would result.

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

No Impact. The project would not result in the displacement of people; therefore, no replacement housing would be required.

3.14 Public Services

This section analyzes the potential impacts of the proposed project on fire, police, schools, parks, and other public services facilities.

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

Fire protection?

No Impact. The project proposes to construct a new earthen channel and maintenance road to convey water for the enhancement of wetland habitat. Therefore, the proposed project would not result in an increase in fire protection services or response times of such services, and impacts would be less than significant.

Police protection?

No Impact. The proposed earthen channel and maintenance road would not result in an increased need for police protection services. No impacts would occur.

Schools?

No Impact. The proposed project would not result in an increase in students or affect existing or proposed schools. Since the project does not propose housing, impacts to existing schools or the need for additional schools would not result. No impacts would result.

Parks?

No Impact. The proposed project would not generate an increase in population and would therefore not cause an increase in use of existing parks. No impact would result.

Other public facilities?

No Impact. As stated previously, the proposed project would not generate an increase in population and, therefore, would not cause an increased demand in public services. No additional public facilities would be impacted by the proposed project.

3.15 Recreation

This section analyzes the potential impacts of the proposed project on existing recreational facilities and the potential impacts associated with the construction of new recreational facilities.

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

No Impact. As stated previously, the proposed project would not generate an increase in population and would therefore not cause an increased demand for recreational facilities. Therefore, no impacts would result.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities. No impacts would result.

3.16 Transportation and Traffic

This section analyzes the potential impacts of the proposed project on existing transportation, including mass transit and non-motorized travel, air traffic, hazardous road designs, inadequate emergency access, and public transit.

a) Would the project 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. During the construction phase of the project, traffic would be generated by construction crews and equipment traveling to and from the project site. Due to the size of the project, a relatively small number of vehicles would be required to implement the construction phase. Therefore, increased traffic from the construction phase of the project would be short-term and less than significant. During the operational phase of the project, periodic maintenance of the channel would not result in a noticeable change from the existing traffic levels. Therefore, the proposed project would not conflict with applicable plans, ordinances, or policies measuring effectiveness of the circulation systems. Impacts would be less than significant.

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

Less-Than-Significant Impact. Short-term limited construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to affect the LOS or vehicle to congestion ratios on study area roadways. Long-term traffic associated with the operation and maintenance of the channel would not change

from the existing conditions and, therefore, would have a less-than-significant impact to the LOS on study area roadways.

c) Would the project 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. The project does not propose any use that would result in a change in air traffic patterns. Therefore, no impacts would result.

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

No Impact. The project does not include the development or redesign of any roadways that would impose a hazardous threat due to a design feature. No impacts would result.

e) Would the project result in inadequate emergency access?

Less-Than-Significant Impact. See response to item VIII.g. The project would include a traffic control plan to reduce potential impacts associated with construction of the 16-inch conveyance pipeline along Campus Drive. The traffic control plan would include measures to address emergency access. Therefore, impacts would be less than significant.

f) Would the project 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. Peters Canyon Trail is located along the west side of SDCC, and a bike lane is provided along Campus Drive; however, implementation of the open-conveyance meandering earthen channel through the SAMS 1 site would not result in impacts to Peters Canyon Trail or the bike lane along Campus Drive. However, approximately 4,100 linear feet of pipeline would be installed below grade, mostly within an existing access road/path/trail. Due to the short construction schedule, approximately 3 months, this would be a short-term temporary impact to the existing trail. Therefore, impacts would be less than significant.

3.17 Utilities and Service Systems

This section analyzes the potential impacts of the proposed project on existing utilities and service systems.

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

No Impact. The project would enhance an existing wetlands mitigation site and would not generate wastewater. Therefore, the project would not exceed the wastewater treatment requirements of the RWQCB. No impacts would result.

b) Would the project 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. Refer to response to response 3.17.a above. The project would not generate wastewater or a demand for new water and, therefore, would not require or result in construction of a new or expansion of an existing wastewater treatment facility or water treatment facility.

c) Would the project 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?

No Impact. The project does not require or propose the construction of new stormwater drainage facilities or the expansion of existing facilities. Irrigation and enhancement of wetland communities are proposed to improve the water quality of the SDCC and would not result in a new source of stormwater runoff.

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

No Impact. The project does not generate a demand for potable water. The project would enhance an existing wetland mitigation site and would not generate any new or increased demand for water or expanded entitlements.

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

No Impact. The project would not generate wastewater; therefore, impacts to existing wastewater services would not result.

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

Less-Than-Significant Impact. A small amount of solid waste may be generated by the construction of wetland berms, clearing of vegetation, installation of the two pipes along Campus Drive, and installation of plants in areas to be revegetated. In compliance with applicable laws and regulations, IRWD will recycle as much of the waste generated during construction as possible. Therefore, the amount of construction-related waste generated by the proposed project and sent to a local landfill would be minimal and considered a less-than-significant impact.

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

Less-Than-Significant Impact. While sediment and cleared vegetation would be generated as part of the proposed project, all sediment would be tested for pollution prior to removal. Testing will likely confirm that the sediment on the site is not hazardous, and it would be disposed of in a Class III sanitary landfill (i.e., a landfill that accepts non-hazardous waste materials). Also, as stated previously, in compliance with applicable laws and regulations, IRWD will recycle as much of the waste generated during construction as possible. Therefore, the project would comply with federal, state, and local statutes and regulations, and impacts would be less than significant.

3.18 Mandatory Findings of Significance

This section analyzes the potential impacts of the proposed project on the potential to degrade the quality of the environment which would threaten or eliminate plant or animal species, result in substantial effects on human beings, and/or the potential to result in limited impacts that are cumulatively considerable.

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less-Than-Significant with Mitigation Incorporated. The proposed project would result in direct impacts to 0.82 acre of riparian/wetland habitats. Specifically, 0.16 acre of this impact represents a conversion of existing wetlands mitigation to an access road. Implementation of mitigation measure MM-BIO-1 would reduce potential impacts to less than significant. Due to the high sensitivity of cultural resources in the project area, the potential exists for the project to impact cultural resources. However, implementation of MM-CR-1 through MM-CR-3 would reduce potential impacts to less-than-significant levels.

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 with Mitigation Incorporated.

As discussed in Sections 3.1 through 3.17 of this MND, many of the potential environmental impacts of the proposed project would occur during construction, with few lasting operational effects. Because construction related impacts of the proposed project are temporary and localized, they would only have the potential to combine with similar impacts or other projects if they occur at the same time and in proximity to each other.

Other projects that are known to be occurring at the same time and in proximity of the SAMS 1 project include IRWD's proposed development of NTS Site 62, Michelson Water Recycling Plant (MWRP) Phase II Expansion Project, and Biosolids Handling and Energy Recovery (BHER) Facilities Project.

NTS Site 62 is part of the NTS Master Plan and is located immediately west of the SAMS 1 site. Similar to the SAMS 1 project, as part of the NTS Master Plan, the NTS Site 62 project proposes the creation of a wetlands site to improve local water quality. The proposed construction schedule for NTS Site 62 project is approximately 3 months, and may occur concurrently with the SAMS 1 project. Therefore, the NTS Site 62 project and the SAMS 1 project may result in cumulative construction disturbances in the project area.

Based on information provided in IRWD's Michelson Water Reclamation Plant Phase 2 and 3 Capacity EIR (IRWD 2005), IRWD proposed to expand the existing water recycling plant to meet the future recycled water needs of IRWD's service area. The MWRP Phase II Expansion Project is listed in IRWD's Master Plan to ensure that the plant will meet IRWD's future build out needs. Phase II of the project entails the expansion of the existing MWRP capacity using conventional activated sludge and gravity filtration process. The MWRP is located approximately 0.5 mile east from the SAMS 1 project within the existing MWRP boundary. The Phase II project is currently under construction, and is anticipated to be completed in late 2012.

The BHER Facilities Project proposes to provide a complete processing, biogas management and energy recovery system for the MWRP. This project is currently in the planning stages and is anticipated to commence upon completion of the MWRP Phase II Expansion Project, in late 2012 (IRWD 2011).

As discussed in Sections 3.3, 3.4, 3.5, and 3.9 of this MND, the proposed project would have a less-than-significant effect on air quality, biological resources, cultural resources and hydrology and water quality. The cumulative impact associated with the project's incremental effects, in addition to the past, current, and future surrounding development on these environmental resources, has been determined to be less than significant, as further described below.

Air Quality

The air quality impact analysis in Section 3.3 of this MND determined that air quality impacts from construction for the SAMS 1 project would be less than significant with implementation of PDFs identified in the project description of the proposed project (see Section 2.3).

Construction emissions resulting from the NTS Site 62 project would be anticipated to be similar in scale to the SAMS 1 project and would also be reduced through similar PDFs. The cumulative analysis contained in the NTS Master Plan EIR (Section 4.3.1) is incorporated by reference to this MND. That analysis concluded that the NTS Master Plan would not represent a significant cumulative air quality impact because the NTS would be negligible in light of the total cumulative emissions, and because the physical effects on air quality in the region would be similarly negligible.

The MWRP Phase 2 and 3 Capacity Expansion EIR concluded that emissions generated by the MWRP Expansion Project would be well below the SCAQMD emission

thresholds, however, the non-attainment status of the air basin resulted in the need to incorporate best available control measures to reduce emissions during the construction phase. Incorporation of these measures would reduce cumulative impacts from the MWRP Expansion Project to less than significant levels.

According to the Notice of Preparation for the EIR, the BHER Facilities Project is anticipated to affect air quality during both the construction and operational phases of the project (IRWD 2011). Therefore it is anticipated that if significant air quality effects are identified for construction, the EIR will identify project design features or mitigation measures to reduce impacts to less than significant levels. However, since this project would be constructed after the SAMS 1, NTS Site 62 and MWRP Phase II projects, there would not be an opportunity for this project to contribute to the cumulative construction condition. In addition, since the SAMS 1 and NTS Site 62 projects would result in minimal long term operational related air quality impacts (emissions from one vehicle traveling to these adjacent project sites for maintenance), cumulative impacts would be less than significant.

Therefore, with incorporation of PDFs and/or mitigation measures for SAMS 1, NTS Site 62, and MWRP Phase II Expansion Project, the proposed projects would not result in a cumulatively considerable impact to air quality.

Biological Resources

The project-level analysis for biological resource impacts is presented in Section 3.4 of this MND. As discussed therein, direct impacts (both temporary and permanent) to jurisdictional wetlands would be significant. A total disturbance of 0.82 acre of CDFG-only jurisdiction would result from the SAMS 1 project. In particular, 0.16 acre of this impact represents a conversion of existing wetlands mitigation to an access road. MM-BIO-1 would reduce potential impacts to a level which is less than significant.

Additionally, construction-related sedimentation, siltation, erosion, or pollutant runoff could indirectly impact growth of vegetation in special-status vegetation communities adjacent to the development area; however, these effects are expected to be avoided and minimized to the extent feasible through implementation of PDFs. Potential long-term indirect effects resulting from operation and maintenance may include introduction of invasive plants and periodic loss of vegetation within the facilities during maintenance; however, these effects are expected to be avoided and minimized to the extent feasible through implementation of the PDFs. Both short-term and long-term indirect impacts are reduced to a level which is less than significant.

The design of the SAMS 1 and NTS 62 sites is such that new restored habitat areas at both project sites would more than offset the impacts caused during construction. With similar mitigation and PDFs built in to the NTS 62 project, impacts would not be considered cumulatively considerable.

As described in Section 3.4(f), implementation of the proposed project would be consistent with the NTS Master Plan EIR and the NCCP/HCP (regional biological resource planning document) for the area. The NTS Master Plan EIR requires project specific mitigation and implementation of PDFs related reducing biological resource impacts which are substantially similar to those listed above for the SAMS 1 project. With implementation of these measures, the NTS Master Plan EIR (Section 4.3.3), incorporated herein by reference, concludes that cumulative impacts to biological resources are less than significant. The NCCP/HCP provides a regional biological resource analysis to assemble a habitat reserve system that, despite cumulative loss of biological resources through development in the region, serves to support conservation of native habitats and special-status species. Both the SAMS 1 and NTS projects occur within the Non-Reserve Open Space designation which allows for the development of infrastructure such as treatment systems which, although not critical to the conservation of species covered under the NCCP/HCP, do contribute to the conservation of biological resources in the region. As such these projects are consistent with the NTS Master Plan EIR and NCCP/HCP, impacts would not be cumulatively considerable, and would therefore be less than significant.

The MWRP Phase II Expansion and the BHER Facility projects would be developed entirely within the existing footprint of the MWRP. These projects would not result in direct or permanent impacts to sensitive plant species, sensitive plant communities, jurisdictional waters, and would not result in impacts to wildlife movement or habitat conservation plans (IRWD 2005 and 2011). However, the MWRP project has the potential to result in direct impacts to sensitive wildlife through the removal of eucalyptus trees on the site and indirect impact to sensitive wildlife due to project site located adjacent to habitat of sensitive wildlife (IRWD 2005). Implementation of MM-BIO-1 would reduce potential impacts to less than significant levels; however it is noted that the other reasonably foreseeable projects including the SAMS 1 project would not result in the removal trees or other direct impacts to sensitive wildlife and therefore no cumulative impact would occur to this regard.

The MWRP and BHER projects have the potential to result in short-term indirect impacts to sensitive wildlife within the San Joaquin Marsh due to their adjacency of the San Joaquin Marsh and the potential lighting, noise, and other disturbance from increased

human activity in the area (IRWD 2005). However, implementation of mitigation measures would reduce potential indirect impacts to adjacent sensitive wildlife to less than significant levels. The SAMS 1 and NTS 62 projects would not result in short-term construction related impacts and therefore these projects would not contribute to a cumulative impact. In addition, as discussed above the projects' consistency with the Orange County NCCP/HCP would reduce potential cumulative impacts to less than significant levels.

Cultural Resources

As analyzed in Section 3.5 of this MND, due to the sensitivity of the SAMS 1 project area for cultural resources, the potential exists for the project to result in significant impacts to unknown archaeological resources. Implementation of MM-CR-1 and MM-CR-2 would reduce potential impacts to less-than-significant levels. Similarly, although human remains are not anticipated to be encountered on the project site, the potential for additional cultural resources to be present within the project does exist. Therefore, project-level impacts are considered potentially significant and would be mitigated through MM-CR-3 to reduce potential impacts to below a level of significance.

It is anticipated that similar mitigation measures would be required to construct the NTS 62 site, MWRP Phase II Expansion Project and the BHER Facilities project given that they are located in the vicinity of the SAMS 1 site and based on analysis presented in the NTS Master Plan EIR and the MWRP Phase II and II Capacity EIR. In this way, potential impacts would be mitigated on a project-by-project basis and would not be cumulatively considerable. Cumulative impacts would therefore be less than significant.

Hydrology and Water Quality

The purpose of the proposed project and the NTS Site 62 project is to improve the water quality of the San Diego Creek Watershed. However, the hydrology and water quality impact analysis in Section 3.9 of this MND and the NTS Master Plan identified the primary water quality impact of concern for construction is the release of sediment and increased erosion. According to the MWRP Phase 2 and 3 Capacity Expansion Project EIR (IRWD 2005), implementation of a SWPPP which listed BMPs to protect stormwater runoff and water quality would reduce potential impacts to less than significant levels. The BHER Facilities Notice of Preparation (IRWD 2011) identified the project's potential to impact the drainage patterns at the project site which could affect the volume and quality of surface runoff (IRWD 2011). The BHER project would likely also result in the need for site specific hydrology and water quality BMPs.

While construction activities of these projects could result in a cumulative short-term increase in erosion and sedimentation impacts to local surface waters in the San Diego Creek Watershed, implementation of appropriate PDFs, standard erosion control measures (including the use of sediment barriers, silt basins, and/or silt fences), and BMPs by each individual project would reduce potential cumulative impacts to a level below significance.

In addition, it is also important to note that project construction impacts to water quality are short-term. Over the long-term, the proposed NTS Site 62 and SAMS 1 projects would be beneficial in terms of sediment and selenium removals. Accordingly, cumulative impacts would not be cumulatively considerable and would be less than significant.

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

Less-Than-Significant Impact with Mitigation Incorporated. The proposed project would have the potential to result in environmental impacts; however, implementation of mitigation measures identified in this MND would reduce potential impacts that could cause adverse effects on human beings. Based on the analysis of the above questions, it has been determined that there would be no significant direct or indirect effect on human beings. Impacts would be less than significant with incorporation of mitigation.

4.0 MITIGATION MONITORING AND REPORTING PROGRAM

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
Project Design Features									
PDF-AQ-A: Best available control measures shall be used during construction to reduce particulate emissions and reduce soil erosion and trackout, through the following project features: • Construction staff will cover or water daily any on-site stockpiles of debris, dirt, or other dusty material. • Construction staff will use adequate water and/or other dust palliatives on all disturbed areas in order to avoid particle blow-off. • Construction staff will wash down or sweep paved streets as necessary to control track out or fugitive dust. • Construction staff will cover or tarp all vehicles hauling dirt or spoils on public roads if sufficient freeboard is not available to prevent material blow-off during transport. • Construction staff will use gravel bags and catch basins during ground-disturbing operations.			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
• If necessary, construction staff will erect temporary wind breaks to mitigate wind erosion. • Construction staff will maintain appropriate soil moisture, apply soil binders, and plant stabilizing vegetation.									
PDF-AQ-B: During construction, equipment emissions will be reduced through the following project features: • Construction staff will properly tune and maintain construction equipment. • Construction management staff shall encourage carpooling by all construction workers. • Any necessary lane closures will be limited to off-peak travel periods. • Construction staff will park construction vehicles off traveled roadways. • Construction management will encourage receipt of materials during non-peak traffic hours. • Construction staff will minimize obstruction of through traffic lanes from construction equipment or activities to the greatest extent feasible.			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
PDF-BIO-A: Long-term operations and maintenance activities, provided in Section 3.3.2 of the NTS Master Plan EIR and in Section 7 of the Master Plan, are intended to provide guidance in achieving NTS program goals involving effective water quality treatment while minimizing potential negative effects on sensitive wildlife habitats and special-status plant and wildlife species. The following project design features have been incorporated from the NTS Master Plan EIR. • **PDF-BIO-1**. Offline facilities shall include basin liners to prevent infiltration into existing groundwater, in conditions where underlying soils are characterized as having moderate to high permeability. • **PDF-BIO-2.** All NTS facilities shall be operated and maintained as specified in Section 7, and monitored as specified in Section 8 of the NTS Master Plan to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency, and episodic activities and minimization measures intended to optimize performance of the NTS facilities and the improvement of water		**X**	**X**	**X**	**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities include routine inspection and monitoring of each NTS facility, performance monitoring of select NTS facilities, and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in the NTS Master Plan and individual site project design reports PDRs.									
PDF-BIO-B: All project grading and trenching shall occur between September 15 and April 1 in order to avoid potential impacts to least Bell's vireo nesting. Project grading or trenching which occurs between February 1 and March 31 shall be preceded by a nesting bird survey. Any special-status species nest, including all raptor nests, shall be protected from disturbance through avoidance of project activities within an appropriate buffer, as determined by the qualified biological monitor. Should construction activities occur during the nesting season, 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			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
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 500ft 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.									
PDF-BIO-C: Regardless of whether a stormwater pollution prevention plan (SWPPP) is required, an SWPPP or similar plan shall be prepared and implemented to provide best management practices (BMPs) to control runoff, sedimentation, erosion, siltation, and other adverse hydrologic effects during construction.	**X**	**X**			**IRWD**				
PDF-BIO--D: Regardless of the time of year, a qualified biological monitor will be present during any vegetation disturbance to flush any birds and capture that are currently occupying the construction area prior to mechanical			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
disturbance. If nesting birds are present, the biological monitor shall establish an approximately buffer (minimum 50 feet) to protect the nest from direct vegetation clearing until breeding is complete.									
PDF-BIO-E: The following mitigation measures shall be incorporated from the NTS Master Plan EIR to reduce potential impacts to biological resources: • **MM-BIO-1.** Prior to any construction and/or major operation and maintenance activity within an NTS site that involves the disturbance and/or removal of vegetation resources that provide suitable habitat for sensitive plant and wildlife species IRWD's staff biologist will inspect the NTS site to determine if sensitive species are present. If the staff biologist is not certain as to the presence/absence of a sensitive species, an independent, qualified biological specialist will be consulted and/or will directed to perform the survey of the site and determine if a sensitive species is present. If a sensitive species is present, the biologist will recommend appropriate minimization measures aimed at minimizing and/or reducing the effects of this activity on the species.	**X**	**X**	**X**	**X**	**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
• **MM-BIO-2.** If construction or routine or major maintenance activities occur between February 1 and June 30 on NTS sites identified as having potential for nesting raptors, the IRWD staff biologist will review site conditions for the presence of any active raptor nests. If any active or inactive nest is found during site review, it will be mapped on the construction plans. If no active nests are found, the construction and/or operation and routine or major maintenance activities will be allowed to proceed. If nesting activity is determined to be present at any raptor nest site identified during the site review, a qualified biologist shall recommend appropriate actions to avoid and/or minimize impacts to these nesting raptors. Information concerning the raptor nest locations and nesting status will be provided to the CDFG. • **MM-BIO-3.** Prior to and within 30 days of the initiation of construction on NTS Sites 16, 18, 27 and 62, a pre-construction survey for the borrowing owl shall be conducted by a qualified biologist. If the species is determined present, the biologist									

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
shall prescribe the appropriate course of action(s) to avoid and/or minimize impacts this species to the greatest extent practicable. Avoidance actions may include establishing a 50 m buffer (approximately 160 feet) between construction activities and known burrows. If avoidance is not possible, passive relocation measures will be implemented. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-breeding season (i.e., September 1st to January 30th). On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site. Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approximately 160 ft.) buffer zone by installing one-way doors in									

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow will be provided for each burrow that will be excavated in the project impact zone. The project area will be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. Information concerning the nest locations and nesting status of this species will be provided to the CDFG. • **MM-BIO-4.** Prior to the issuance of a grading permit over areas that have been identified as jurisdictional as determined by the CDFG and USACOE, the landowner shall obtain all permits and/or authorizations from CDFG pursuant to Section 1601- 1603 of the Fish									

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
and Game Code, the USACOE pursuant to Section 404 of the Clean Water Act and RWQCB Water Quality Certification pursuant to Section 401 of the Clean Water Act. Prior to the final design of Site 68 NTS facility, the facility will be adjusted to avoid impacts to mule fat scrub. If avoidance is not possible, then mitigation will be provided at a 1:1 ratio in accordance with a plan approved by the USACOE and CDFG. • **MM-BIO-5.** Surveys for southern tarplant (*Centromadia parryi* sp. *australis*) will be conducted by a qualified botanist prior to the initiation of major maintenance activities involving vegetation removals within Sites 31, 32, 46, 62 and 64. Also, prior to the construction of Site 62, a survey for this species will be conducted to determine presence. If found in areas that are scheduled to be disturbed as part of the operation and maintenance and/or creation of a NTS facility, seeds from this species will be collected for use in the appropriate restoration area associated with the facility's									

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
development or an appropriate off-site location as directed by a restoration ecologist.									
PDF-HAZ-A: A traffic control plan will be prepared to minimize traffic and traffic-related hazards associated with construction of the 16-inch pipeline along Campus Drive. The traffic control plan will be submitted to the City of Irvine traffic engineer for review and approval prior to commencement of construction.	**X**				**IRWD**				
PDF-HYDRO-A: Standard erosion control measures that will be implemented by the project include the use of sediment barriers, silt basins, and/or silt fences.		**X**			**IRWD**				
PDF-HYDRO-B: All NTS Facilities shall be operated and maintained as specified in Section 7 of the of the San Diego Creek Watershed NTS Master Plan Final EIR, and monitored as specified in Section 8, to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency and episodic activities and minimization measures intended to optimize performance of the NTS Facilities and the improvement of water quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities for each NTS		**X**		**X**	**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
Facility include: visual site inspections; field testing of water quality parameters; basic pollutant suite testing (dry weather); expanded pollutant suite testing (dry weather); aquatic biology, sediment, and plant tissue monitoring; flow monitoring and hydraulic retention time; selenium monitoring; vegetation monitoring; vector and pest monitoring; performance monitoring of selected NTS Facilities; wildlife monitoring; watershed monitoring for TMDL compliance; and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in Section 8 of the NTS Master Plan and individual site PDRs. As noted in Section 8 of the NTS Master Plan, NTS Facilities will be monitored with a phased approach that includes the following components: • Baseline – Pre-Construction • Baseline – Startup • Startup (years 1–3) • Ongoing (years 4 and beyond) • Vegetation harvesting • Emergency monitoring									
PDF-NOI-A: Compliance with the City of Irvine's Noise Ordinance Section 6-8-205A, which limits construction activities between the hours of 7:00 a.m. and 7 p.m., Monday through Friday, and 9:00			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
a.m. and 6 p.m. on Saturdays. No construction activities are permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City of Irvine.									
PDF-PS-A: Prior to removal, all sediment and vegetation proposed for removal will be tested for pollution. In addition, IRWD will reduce as much of the construction waste as possible.		**X**	**X**		**IRWD**				
Mitigation Measures									
MM-BIO-1: The SAMS 1 project includes recording a conservation easement over the 16.9-acre existing property, pursuant to its status as a mitigation site. Due to the development of the access road occupying 0.16 acre, it is expected that the conservation easement will need to be expanded to cover a 17.5-acre area supporting wetlands/riparian habitat. The adjacent NTS Site 62 area includes sufficient area to allow for this increase in the total conserved area and sufficient area to offset the loss caused by the development of the access road.	**X**				**IRWD**				
MM-CR-1: IRWD shall contract with a qualified archaeologist to obtain data, including but not limited to a record search and a field reconnaissance visit, that would aid in understanding the subsurface potential	**X**	**X**	**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
for archaeological material on the SAMS I Site. IRWD shall implement the recommendations of the archaeologist to avoid any potential impacts to known or unknown cultural resources.									
MM-CR-2: In the event that cultural resources are discovered during construction, work must cease, and IRWD shall be contacted immediately. A qualified archaeologist shall be consulted to assess the significance of the resource and to provide proper management and/or handling recommendations.			**X**		**IRWD**				
MM-CR-3: In the unlikely event that human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The county coroner shall be notified of any human remains found immediately. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant. With the permission of IRWD, or an authorized representative, the most likely descendant may inspect			**X**		**IRWD**				

Project Measures	Time Frame of Mitigation				Monitoring Reporting Agency	Time Frame for Verification Frequency to		Date of Completion	Date of Verification
	Planning	*Pre-Const.*	*During Const.*	*Post Const.*		*Monitor*	*Report*		
the site of the discovery. The most likely descendant may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.									

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6.0 LIST OF PREPARERS

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Lesley Terry, Graphics
Mark Lathram, Publications

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APPENDIX A

Initial Study Checklist

Initial Study Checklist – IRWD SAMS 1 Project

1. **Project title:** San Joaquin Marsh Small Area Mitigation Site 1

2. **Lead agency name and address:** Irvine Ranch Water District

3. **Contact person and phone number:** Christian Kessler 949.453.5441

4. **Project location:** The project site is located north of University Drive and west of Campus Drive in Irvine, California (Figures 2-1 and 2-2).

5. **Project sponsor's name and address:** Irvine Ranch Water District

6. **General plan designation:** Preservation (City of Irvine General Plan 2009a)

7. **Zoning:** Preservation (City of Irvine Zoning 2009b)

8. **Description of project:** Irvine Ranch Water District (IRWD) is planning to develop and improve wetlands on the Small Area Mitigation Site 1 (SAMS 1) located in the City of Irvine, California. The SAMS 1 site is owned by IRWD (CH2M Hill 2010). The project site is located southwest of Campus Drive and northwest of San Diego Creek Channel (SDCC) (Figure 2-3).

   The SAMS 1 site is a 16.9-acre wetlands mitigation site constructed by the property's previous landowner, the Irvine Company. The site was planted with riparian trees in 1990 and maintained by the Irvine Company until the site was deemed to have successfully achieved mitigation criteria in 1997 (Tettemer 1997). The site was originally planted with row trees and a network of furrows. Several years following installation, the site received authorized maintenance in the form of tree removals to encourage natural recruitment within the understory and development of a more diverse habitat structure. The site is currently dominated by relatively open native riparian woodland, with a well-developed understory predominated by non-native ruderal plants. Riparian trees on a large portion of the site are in poor health and many have died with additional tree mortality anticipated in the future, mainly due to a lack of sufficient hydrology/moisture (CH2M Hill 2010).

   The SAMS 1 site is included in a 2010 agreement between IRWD and the California Department of Fish and Game (CDFG) that provides for allowable operation and maintenance practices and procedures for IRWD's operations within the San Joaquin Marsh (CDFG 2010). The agreement defines the marsh as including 356 acres of land, 232 acres of which are managed riparian habitat and 121.6 acres are considered compensatory habitat mitigation areas, including SAMS 1. The agreement remains in effect until August 31, 2015.

The proposed improvements to the SAMS 1 site are intended to improve the quality of surface water runoff within the San Diego Creek Watershed (in conformance with the larger San Diego Creek Natural Treatment System Master Plan (IRWD 2004). Improvements to the surface water quality runoff to San Diego Creek would assist in meeting established total maximum daily loads (TMDL) for watershed contaminants such as nitrogen, sediment, phosphorus, pathogens, pesticides, organochlorine compounds, and selenium. The proposed project is also intended to enhance wetland habitats on the SAMS 1 site, which lacks suitable water supply necessary to support the type of vegetation intended to be on the site as mitigation (CH2M Hill 2010).

The proposed SAMS 1 project would include construction of an open conveyance, meandering earthen channel through the northwestern portion of the site. The channel has been sited to avoid impacts to mature trees and dense stands of native shrubs. The terraced trapezoidal channel will be 1 foot wide at the bottom, 21 feet wide at the top, 2.5 feet deep, and approximately 600 feet long with 3:1 side flows and a 5-foot-wide terrace at a depth of 1 foot (Figure 2-4). A 12-foot-wide access road will be installed on top of the northern berm of the channel; the southern berm has a 3-foot-wide top width. The channel bottom will convey low flows while storm flows may overflow via an approximately 7-foot-wide concrete weir (i.e., spillway) constructed on the south side of the channel.

Plantings: Areas outside the channel bank that are disturbed as part of construction would be planted and seeded with riparian woodland species (High Riparian planting), including deergrass (*Muhlenbergia rigens)*, mugwort (*Artemisia douglasiana*), Mexican elderberry (*Sambucus mexicana*), western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), several willow species, mulefat (*Baccharis salicifolia*), Emoryi's baccharis (*Baccharis emoryi*), wild grape (*Vitis girdiana*), and California blackberry (*Rubus ursinus*), among other native species.

***Conveyance Pipeline*:** Providing water to SAMS 1 will require installation of a new 16-inch pipeline from existing pumps in the SDCC across the southern edge of Site 46 and across Campus Drive. Approximately 4,100 linear feet of pipeline would be installed below grade, mostly within an existing access road/path/trail; an approximately 100-foot section would be constructed beneath Campus Drive; and approximately 1,800 linear feet of pipeline will be constructed below grade, along the existing disturbed shoulder on the west side of Campus Drive (a total of approximately 6,000 linear feet). The existing access path in that location borders an approximately 3-1/2 foot tall perimeter wall which will be relocated towards the access path in order that the above grade section of pipeline and controls (valves, flow meter, and utility box) are screened behind the relocated wall. Electrical upgrades at this "NTS Site 46 Control Area" are discussed below.

In addition, two outlet pipes, valves, flow meters, and electric power to power them are proposed along the proposed 16-inch conveyance pipeline on Campus Drive to allow control discharges to the southern portion of the SAMS 1 site. These short sections of 16-inch pipe will be installed below grade, from Campus Drive to the eastern edge of the SAMS 1 site. The pipe outlets will include a 4.5-foot by 3-foot flare end section as a permanent outlet structure.

Electric Improvements: Proposed electrical improvements would be located on NTS Site 46 and the adjacent San Joaquin Marsh Campus property (Figure 2-4). The Nature Center property is owned by IRWD with a lease to the Sea and Sage Audubon Society. Electrical improvements would include replacement of an existing wire within an existing conduit on the Nature Center property, installation of a new conduit and wiring from an existing storm water pump motor controller on the Nature Center property to the valve controllers being installed at the NTS Site 46 Control Area (see description of above-ground pipeline and relocated wall above), and the installation of new electrical equipment at one location along the conduit (pull box location, discussed below) and at the NTS Site 46 Control Area.

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FIGURE 2-1
Regional Map

San Joaquin Marsh SAMS 1 MND

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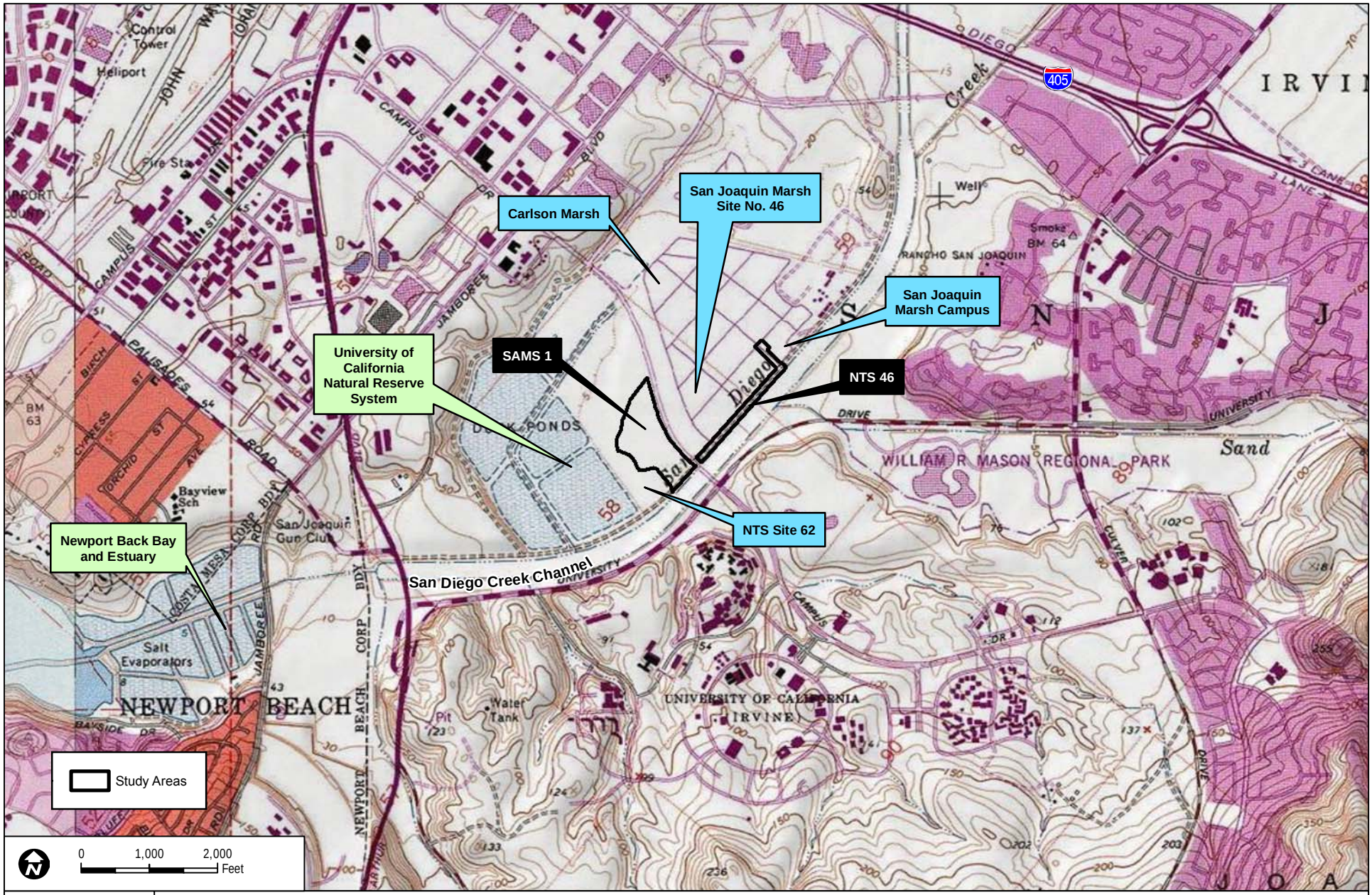

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SOURCE: USGS 7.5-Minute Series Tustin Quadrangle.

FIGURE 2-2

Vicinity Map

San Joaquin Marsh SAMS 1 MND

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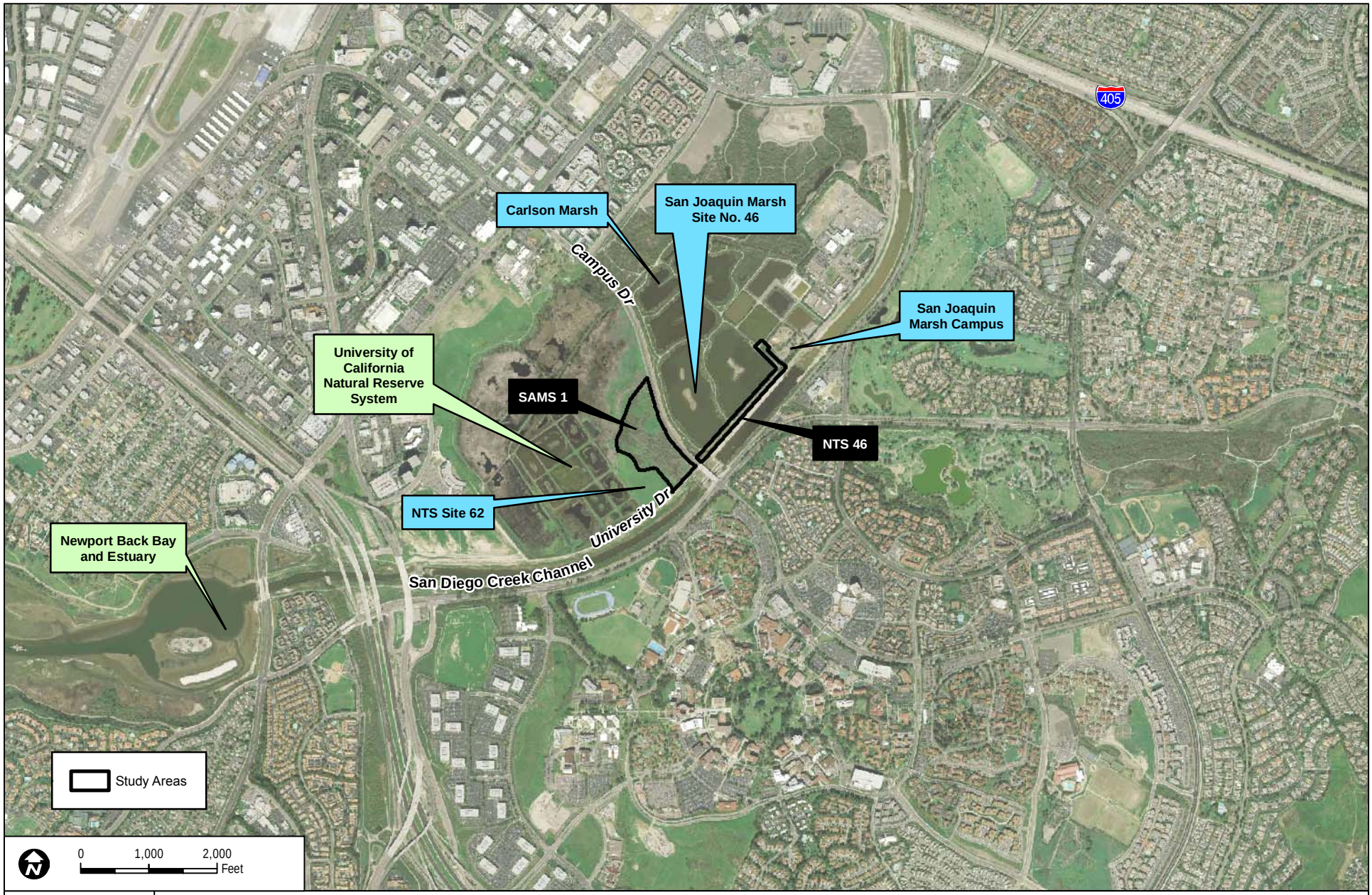

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SOURCE: USGS 7.5-Minute Series Tustin Quadrangle.

FIGURE 2-3

Project Aerial

San Joaquin Marsh SAMS 1 MND

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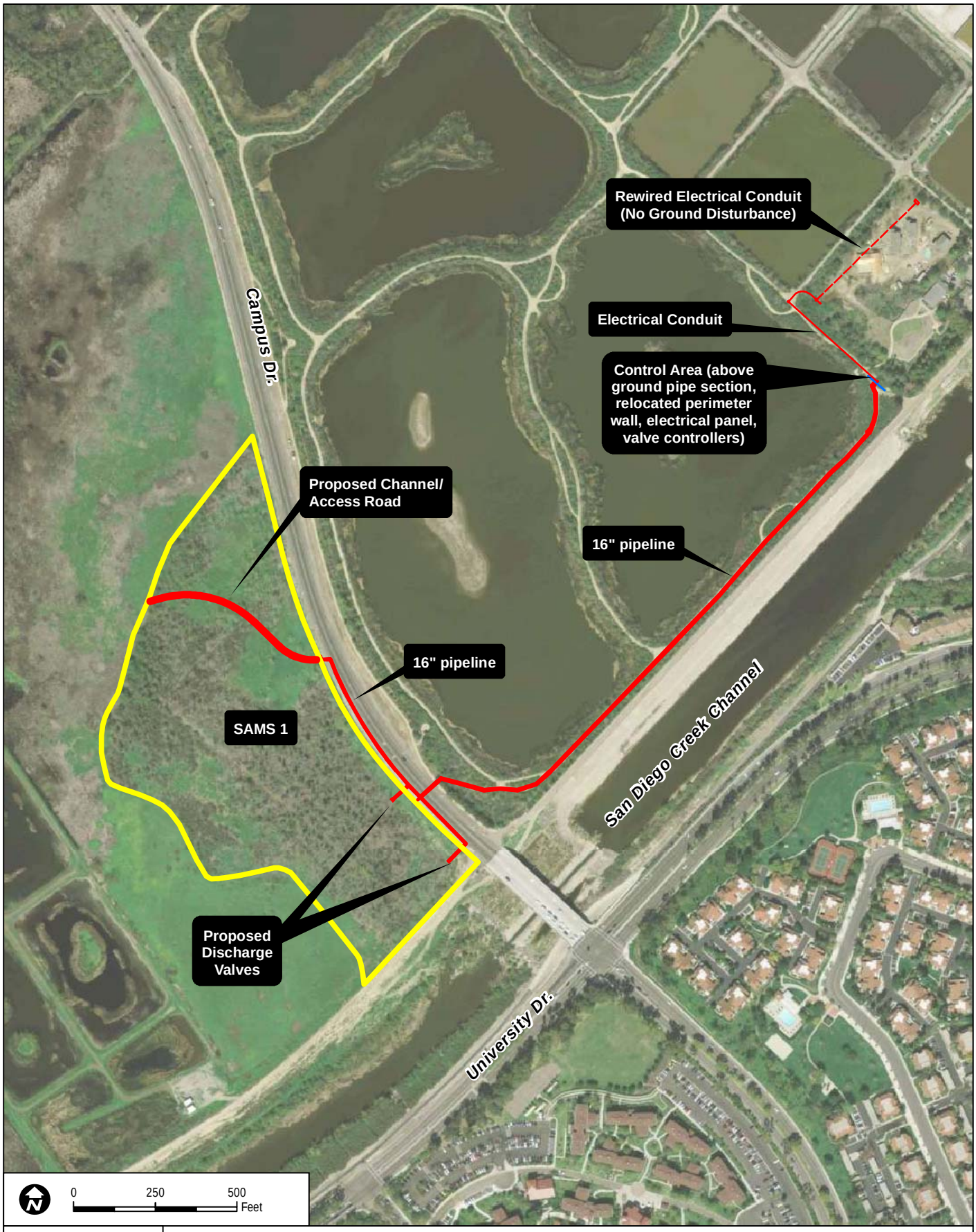

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SOURCE: CH2MHill 2011

FIGURE 2-4
Site Plan

San Joaquin Marsh SAMS 1 MND

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Construction is anticipated to start in December 2011 and extend approximately 3 months. Construction staging would occur on the shoulder of Campus Drive. Construction of the project would disturb approximately 1.46 acres on the 16.9-acre SAMS 1 site. The trapezoidal channel would require a 60-foot-wide temporary construction zone; installation of the 16-inch conveyance pipeline and outlets segments would require a 12-foot-wide temporary open trench; installation of the two-pipe outlet flare end sections would require a 10-foot by 10-foot temporary construction footprint each. To reduce impacts during construction IRWD is including the following project features:

- **PDF-AQ-A:** Best available control measures shall be used during construction to reduce particulate emissions and reduce soil erosion and trackout, through the following project features:
    - Construction staff will cover or water daily any on-site stockpiles of debris, dirt, or other dusty material.
    - Construction staff will use adequate water and/or other dust palliatives on all disturbed areas in order to avoid particle blow-off.
    - Construction staff will wash down or sweep paved streets as necessary to control trackout or fugitive dust.
    - Construction staff will cover or tarp all vehicles hauling dirt or spoils on public roads if sufficient freeboard is not available to prevent material blow-off during transport.
    - Construction staff will use gravel bags and catch basins during ground-disturbing operations.
    - If necessary, construction staff will erect temporary wind breaks to mitigate wind erosion.
    - Construction staff will maintain appropriate soil moisture, apply soil binders, and plant stabilizing vegetation.
- **PDF-AQ-B:** During construction equipment emissions will be reduced through the following project features:
    - Construction staff will properly tune and maintain construction equipment.
    - Construction management staff shall encourage carpooling by all construction workers.
    - Any necessary lane closures will be limited to off-peak travel periods.
    - Construction staff will park construction vehicles off traveled roadways.

- Construction management will encourage receipt of materials during non-peak traffic hours.
- Construction staff will minimize obstruction of through traffic lanes from construction equipment or activities to the greatest extent feasible.

- **PDF-BIO-A:** Long-term operations and maintenance activities, provided in Section 3.3.2 of the NTS Master Plan EIR and in Section 7 of the Master Plan, are intended to provide guidance in achieving NTS program goals involving effective water quality treatment while minimizing potential negative effects on sensitive wildlife habitats and special-status plant and wildlife species. The following project design features have been incorporated from the NTS Master Plan EIR.
  - **PDF-BIO-1.** Offline facilities shall include basin liners to prevent infiltration into existing groundwater, in conditions where underlying soils are characterized as having moderate to high permeability.
  - **PDF-BIO-2.** All NTS facilities shall be operated and maintained as specified in Section 7, and monitored as specified in Section 8 of the NTS Master Plan to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency, and episodic activities and minimization measures intended to optimize performance of the NTS facilities and the improvement of water quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities include routine inspection and monitoring of each NTS facility, performance monitoring of select NTS facilities, and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in the NTS Master Plan and individual site project design reports PDRs.
- **PDF-BIO-B:** All project grading and trenching shall occur between September 15 and April 1 in order to avoid potential impacts to least Bell's vireo nesting. Project grading or trenching which occurs between February 1 and March 31 shall be preceded by a nesting bird survey. Any special-status species nest, including all raptor nests, shall be protected from disturbance through avoidance of project activities within an appropriate buffer, as determined by the qualified biological monitor. Should construction activities occur during the nesting season, 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 feet for nesting song birds and 500 feet 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.

- **PDF-BIO-C:** Regardless of whether a stormwater pollution prevention plan (SWPPP) is required, an SWPPP or similar plan shall be prepared and implemented to provide best management practices (BMPs) to control runoff, sedimentation, erosion, siltation, and other adverse hydrologic effects during construction.
- **PDF-BIO-D:** Regardless of the time of year, a qualified biological monitor will be present during any vegetation disturbance to flush any birds that are currently occupying the construction area prior to mechanical disturbance. If nesting birds are present, the biological monitor shall establish an approximate buffer to protect the nest from direct vegetation clearing until breeding is complete.
- **PDF-BIO-E:** The following mitigation measures shall be incorporated from the NTS Master Plan EIR to reduce potential impacts to biological resources:
    - **MM-BIO-1.** Prior to any construction and/or major operation and maintenance activity within an NTS site that involves the disturbance and/or removal of vegetation resources that provide suitable habitat for sensitive plant and wildlife species IRWD's staff biologist will inspect the NTS site to determine if sensitive species are present. If the staff biologist is not certain as to the presence/absence of a sensitive species, an independent, qualified biological specialist will be consulted and/or will directed to perform the survey of the site and determine if a sensitive species is present. If a sensitive species is present, the biologist will recommend appropriate minimization measures aimed at minimizing and/or reducing the effects of this activity on the species.
    - **MM-BIO-2.** If construction or routine or major maintenance activities occur between February 1 and June 30 on NTS sites identified as having potential for nesting raptors, the IRWD staff biologist will review site conditions for the presence of any active raptor nests. If any active or inactive nest is found during site review, it will be mapped on the construction plans. If no active nests are found, the construction and/or operation and routine or major maintenance activities will be allowed to proceed. If nesting activity is determined to be present at any raptor nest site identified during the site review, a qualified biologist shall recommend appropriate actions to avoid and/or minimize impacts to these nesting raptors. Information concerning the raptor nest locations and nesting status will be provided to the CDFG.

- **MM-BIO-3.** Prior to and within 30 days of the initiation of construction on NTS Sites 16, 18, 27 and 62, a pre-construction survey for the borrowing owl shall be conducted by a qualified biologist. If the species is determined present, the biologist shall prescribe the appropriate course of action(s) to avoid and/or minimize impacts this species to the greatest extent practicable. Avoidance actions may include establishing a 50 m buffer (approximately 160 feet) between construction activities and known burrows. If avoidance is not possible, passive relocation measures will be implemented. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-breeding season (i.e., September 1st to January 30th). On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site. Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approximately 160 ft.) buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow will be provided for each burrow that will be excavated in the project impact zone. The project area will be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. Information concerning the nest locations and nesting status of this species will be provided to the CDFG.
- **MM-BIO-4.** Prior to the issuance of a grading permit over areas that have been identified as jurisdictional as determined by the CDFG and USACOE, the landowner shall obtain all permits and/or authorizations from CDFG pursuant to Section 1601- 1603 of the Fish and Game Code, the USACOE pursuant to Section 404 of the Clean Water Act and RWQCB Water Quality Certification pursuant to Section 401 of the Clean Water Act. Prior to the final design of Site 68 NTS facility, the facility will be adjusted to avoid impacts to mule fat scrub. If avoidance is not possible, then mitigation will be provided at a 1:1 ratio in accordance with a plan approved by the USACOE and CDFG.
- **MM-BIO-5.** Surveys for southern tarplant (*Centromadia parryi* sp. *australis*) will be conducted by a qualified botanist prior to the initiation of major maintenance activities involving vegetation removals within Sites 31, 32, 46, 62

and 64. Also, prior to the construction of Site 62, a survey for this species will be conducted to determine presence. If found in areas that are scheduled to be disturbed as part of the operation and maintenance and/or creation of a NTS facility, seeds from this species will be collected for use in the appropriate restoration area associated with the facility's development or an appropriate off-site location as directed by a restoration ecologist.

- **PDF-HAZ-A:** A traffic control plan will be prepared to minimize traffic and traffic-related hazards associated with construction of the 16-inch pipeline along Campus Drive. The traffic control plan will be submitted to the City of Irvine traffic engineer for review and approval prior to commencement of construction.
- **PDF-HYDRO-A:** Standard erosion control measures that will be implemented by the project include the use of sediment barriers, silt basins, and/or silt fences.
- **PDF-HYDRO-B:** The following measure is incorporated from the NTS Master Plan EIR to ensure water quality impacts remain less than significant:

  All NTS Facilities shall be operated and maintained as specified in Section 7 of the of the San Diego Creek Watershed NTS Master Plan Final EIR, and monitored as specified in Section 8, to ensure compliance with long-term water quality objectives. Operations and maintenance activities include routine, major, emergency and episodic activities and minimization measures intended to optimize performance of the NTS Facilities and the improvement of water quality leaving the treatment wetlands and to minimize the adverse environmental effects. Monitoring activities for each NTS Facility include: visual site inspections; field testing of water quality parameters; basic pollutant suite testing (dry weather); expanded pollutant suite testing (dry weather); aquatic biology, sediment, and plant tissue monitoring; flow monitoring and hydraulic retention time; selenium monitoring; vegetation monitoring; vector and pest monitoring; performance monitoring of selected NTS Facilities; wildlife monitoring; watershed monitoring for TMDL compliance; and preparation of annual monitoring reports. Detailed subtasks for inspection and monitoring are provided in Section 8 of the NTS Master Plan and individual site PDRs.

  As noted in Section 8 of the NTS Master Plan, NTS Facilities will be monitored with a phased approach that includes the following components:

  - Baseline – Pre-Construction
  - Baseline – Startup
  - Startup (years 1–3)
  - Ongoing (years 4 and beyond)

- -Vegetation harvesting
- -Emergency monitoring

- **PDF-NOI-1:** Compliance with the City of Irvine's Noise Ordinance Section 6-8-205A, which limits construction activities between the hours of 7:00 a.m. and 7 p.m., Monday through Friday, and 9:00 a.m. and 6 p.m. on Saturdays. No construction activities are permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City of Irvine.
- **PDF-PS-A:** Prior to removal, all sediment and vegetation proposed for removal will be tested for pollution. In addition, IRWD will reduce as much of the construction waste as possible.

9. **Surrounding land uses and setting:** Immediately south of the SAMS 1 site is another mitigation site owned and operated by IRWD, known as Natural Treatment System Site 62 (NTS Site 62). To the west are a series of freshwater ponds that are managed for research purposes by the University of California Natural Reserve System (UCNRS). On the northeastern side of Campus Drive, opposite the project site, are additional freshwater ponds and marshes managed by IRWD for water quality treatment and habitat functions, known as Site No. 46 (Site 46) and Carlson Marsh; both are part of the overall IRWD Natural Treatment System (NTS) Master Plan. In addition, residences are located approximately 750 feet southeast of the project site, opposite the San Diego Creek Channel (SDCC) and University Drive on the University of Irvine Campus.

10. **Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):** City of Irvine and CDFG.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☐ Aesthetics	☐ Agriculture and Forestry 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	☒ Mandatory Findings of Significance

(To be completed by the Lead Agency)

☐ 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 the mitigation measures described on an attached sheet have been added to the project. 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 "potentially significant impact(s)" on the environment, but at least one potentially significant impact 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. A Negative Declaration 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, there WILL NOT be a significant effect in this case 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 proposed project. Therefore, nothing further is required.

Christian Kessler _____ 10/21/2011

Signature Date

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 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 such as the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where 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 off-site as well as on-site, 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 where the incorporation of mitigation measures has reduced an effect from "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 where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063I (3)(D)). In this case, a brief discussion should identify the following:

   a) **Earlier Analysis Used.** Identify and state where they are available for review.

   b) **Impacts Adequately Addressed.** Identify which effects from the previous 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 Measures 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, where 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

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
I.	**AESTHETICS** – Would the project**:**				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II.	**AGRICULTURE AND FOREST RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a)	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 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 which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III.	**AIR QUALITY** – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have 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, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through 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 handle 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) Located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) Located within the vicinity of a private airstrip 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?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
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 which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐
X. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒
XII. NOISE – Would the project:				
a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Result in exposure of persons to or generation of 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) Located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f) Located within the vicinity of a private airstrip expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
XIII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XV. RECREATION –				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Substantially increase hazards due to 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?	☐	☐	☒	☐
XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new 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 are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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) Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

APPENDIX B

Biological Technical Report (Dudek 2011)

(Available for review at IRWD's Water Resource and Planning Department)

APPENDIX C

SAMS 1 Electrical Conduit Biological Assessment (Harmsworth 2011)

(Available for review at IRWD's Water Resource and Planning Department)