Draft

P-236 Sewer Equalization Tanks Environmental Assessment

Marine Corps Air Station Miramar
San Diego, California

May 2014

This page intentionally left blank.

Draft
Environmental Assessment

Abstract

Lead Agency for the EA: United States Marine Corps Air Station Miramar
Title of Proposed Action: P-236 Sewer Equalization Tanks at Marine Corps Air Station Miramar
Affected Region: San Diego, San Diego County, CA
Designation: Draft Environmental Assessment

The United States Marine Corps Air Station (MCAS) Miramar has prepared this Draft Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC) §§ 4321-4370h, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Marine Corps Order (MCO) P5090.2A, Change 3, Chapter 12, 26 August 2013, *Environmental Compliance and Protection Manual*, which establishes procedures for implementing NEPA. The purpose of the Proposed Action is to upgrade the existing sewer system at MCAS Miramar. This is needed to reduce the effluent flow into the City of San Diego's sewer system to less than the permitted limit of 1.6 million gallons per day. This EA analyzes two (2) alternatives and the No-Action Alternative.

Point of Contact: MCAS Miramar
Lieutenant Colonel James Szepesy
Environmental Management Officer
P.O. Box 452001, Building 6022
San Diego, California 92145-2001
Phone: (858) 577-1650, Fax: (858) 577-4200

Contracting Officer's Technical Representative: Mr. Ryan Maynard
Naval Facilities Engineering Command, Southwest
1220 Pacific Highway
San Diego, California 92132-5182
Phone: (619) 532-3728

May 2014

This page intentionally left blank.

Table of Contents

Abstract

Executive Summary 1

1 Purpose of and Need for Proposed Action 1-1
- 1.1 Introduction/Background 1-1
- 1.2 Location 1-1
- 1.3 Purpose and Need 1-3
- 1.4 Decision to Be Made 1-3
- 1.5 Scope of Analysis 1-3
- 1.6 Regulatory Setting and Intergovernmental Coordination 1-4
- 1.7 Public Involvement 1-6
- 1.8 Organization of the Document 1-6

2 Proposed Action and Alternatives 2-1
- 2.1 Proposed Action 2-1
- 2.2 Alternatives Development and Screening Criteria 2-1
- 2.3 Alternatives 2-2
  - 2.3.1 Alternative 1: De La Garza Road Gravity Tank Alternative (Preferred Alternative) 2-2
    - 2.3.1.1 Facilities and Components 2-2
    - 2.3.1.2 Construction 2-5
    - 2.3.1.3 Site Access 2-8
    - 2.3.1.4 Utilities 2-8
    - 2.3.1.5 Operation and Maintenance 2-8
  - 2.3.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 2-8
    - 2.3.2.1 Facilities and Components 2-8
    - 2.3.2.2 Construction 2-10
    - 2.3.2.3 Site Access 2-10
    - 2.3.2.4 Utilities 2-10
    - 2.3.2.5 Operation and Maintenance 2-11
  - 2.3.3 No-Action Alternative 2-11
  - 2.3.4 Environmental Protection Measures 2-11
    - 2.3.4.1 Air Quality 2-11
    - 2.3.4.2 Biological Resources 2-12
    - 2.3.4.3 Geologic Resources 2-14
    - 2.3.4.4 Public Health and Safety 2-14
    - 2.3.4.5 Recreation 2-14
    - 2.3.4.6 Transportation/Circulation/Traffic 2-14
    - 2.3.4.7 Utilities 2-15
    - 2.3.4.8 Water Resources 2-15
- 2.4 Alternatives Considered but Not Carried Forward for Detailed Analysis 2-15
  - 2.4.1 Renovation/Modernization of Existing Sewer Lines 2-15
  - 2.4.2 Gravity-fed Tank Pump on Rim of Rose Canyon 2-16
  - 2.4.3 Multiple Gravity-fed Tank Locations 2-16
  - 2.4.4 Pump Tank on West Side of Pless Road 2-16
- 2.5 Summary of Impacts 2-16

3 Affected Environment and Environmental Consequences 3.1-1
- 3.1 Air Quality 3.1-1

3.1.1 Definition of Resource 3.1-1
3.1.2 Region of Influence 3.1-2
3.1.3 Affected Environment 3.1-2
3.1.3.1 Baseline Air Quality 3.1-2
3.1.3.2 Regional and Local Air Pollutant Sources 3.1-3
3.1.3.3 Greenhouse Gas Emissions 3.1-3
3.1.4 Applicable Regulations and Standards 3.1-4
3.1.4.1 Federal Regulations 3.1-5
3.1.4.2 Local Regulations 3.1-5
3.1.5 Environmental Consequences 3.1-5
3.1.5.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.1-6
3.1.5.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.1-7
3.1.5.3 No-Action Alternative 3.1-7
3.2 Biological Resources 3.2-1
3.2.1 Definition of Resource 3.2-1
3.2.2 Region of Influence 3.2-2
3.2.3 Affected Environment 3.2-2
3.2.3.1 Vegetation Communities 3.2-2
3.2.3.2 General Wildlife and Wildlife Corridors 3.2-5
3.2.3.3 Special Status Species 3.2-5
3.2.3.4 Wetlands and Other Waters of the United States 3.2-10
3.2.4 Environmental Consequences 3.2-14
3.2.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.2-15
3.2.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.2-19
3.2.4.3 No-Action Alternative 3.2-22
3.3 Geologic Resources 3.3-1
3.3.1 Definition of Resource 3.3-1
3.3.2 Region of Influence 3.3-1
3.3.3 Affected Environment 3.3-1
3.3.3.1 Topography 3.3-1
3.3.3.2 General Geology 3.3-1
3.3.3.3 Faulting and Seismicity 3.3-1
3.3.3.4 Geologic Hazards 3.3-2
3.3.4 Environmental Consequences 3.3-2
3.3.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.3-2
3.3.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.3-4
3.3.4.3 No-Action Alternative 3.3-4
3.4 Public Health and Safety 3.4-1
3.4.1 Definition of Resources 3.4-1
3.4.2 Region of Influence 3.4-1
3.4.3 Affected Environment 3.4-1
3.4.3.1 Protection of Children (Executive Order 13045) 3.4-1
3.4.3.2 Hazardous Materials and Waste Disposal 3.4-2
3.4.3.3 Installation Restoration Program 3.4-2
3.4.3.4 Military Munitions Response Program 3.4-2

3.4.3.5 Resource Conservation and Recovery Act Petroleum, Oil, and Lubricants Sites 3.4-2
3.4.3.6 Other Federal Health and Safety Requirements 3.4-4
3.4.4 Environmental Consequences 3.4-4
3.4.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.4-4
3.4.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.4-5
3.4.4.3 No-Action Alternative 3.4-6
3.5 Recreation 3.5-1
3.5.1 Definition of the Resource 3.5-1
3.5.2 Region of Influence 3.5-1
3.5.3 Affected Environment 3.5-1
3.5.4 Environmental Consequences 3.5-1
3.5.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.5-1
3.5.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.5-2
3.5.4.3 No-Action Alternative 3.5-2
3.6 Transportation, Circulation, and Traffic 3.6-1
3.6.1 Definition of Resource 3.6-1
3.6.2 Region of Influence 3.6-1
3.6.3 Affected Environment 3.6-1
3.6.4 Environmental Consequences 3.6-3
3.6.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.6-3
3.6.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.6-4
3.6.4.3 No-Action Alternative 3.6-4
3.7 Utilities 3.7-1
3.7.1 Definition of Resources 3.7-1
3.7.2 Region of Influence 3.7-1
3.7.3 Affected Environment 3.7-1
3.7.3.1 Electrical Distribution System 3.7-1
3.7.3.2 Communication System 3.7-1
3.7.3.3 Natural Gas 3.7-1
3.7.3.4 Water Supply and Distribution System 3.7-1
3.7.3.5 Sanitary Sewer System 3.7-2
3.7.3.6 Storm Drainage System 3.7-2
3.7.3.7 Solid Waste Disposal 3.7-2
3.7.4 Environmental Consequences and Mitigation Measures 3.7-2
3.7.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.7-2
3.7.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.7-3
3.7.4.3 No-Action Alternative 3.7-4
3.8 Water Resources 3.8-1
3.8.1 Definition of Resource 3.8-1
3.8.2 Region of Influence 3.8-1
3.8.3 Affected Environment 3.8-1
3.8.3.1 Surface Water 3.8-1

3.8.3.2 Water Quality 3.8-1
3.8.3.3 Groundwater 3.8-2
3.8.3.4 Floodplains/Flooding 3.8-2
3.8.4 Environmental Consequences 3.8-4
3.8.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative) 3.8-4
3.8.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank 3.8-5
3.8.4.3 No-Action Alternative 3.8-6
4 Cumulative Impacts 4-1
4.1 Introduction 4-1
4.2 Projects Considered in the Cumulative Analysis 4-1
4.2.1 Vernal Pool Mitigation Area Planning 4-1
4.2.2 Grow the Force Initiative 4-5
4.2.3 Fort Rosecrans National Cemetery Annex 4-5
4.2.4 West Coast Basing of the MV-22 4-5
4.2.5 Joint Strike Fighter Aircraft Introduction 4-6
4.2.6 United States Army Reserve Center 4-6
4.3 Cumulative Impacts Analysis 4-6
4.3.1 Air Quality 4-7
4.3.1.1 Criteria Pollutants 4-7
4.3.1.2 Greenhouse Gases 4-7
4.3.2 Biological Resources 4-9
4.3.3 Transportation, Circulation, and Traffic 4-10
5 Other NEPA Considerations 5-1
5.1 Energy Requirements and Conservation Potential of Alternatives Including the Proposed Action and All Mitigation Measures Being Considered 5-1
5.2 Irreversible or Irretrievable Commitment of Natural or Depletable Resources 5-1
5.3 Relationship between Short-Term Uses of the Environment and Long-Term Productivity 5-1
5.4 Any Probable Adverse Environmental Effects that Cannot be Avoided and are not Amenable to Mitigation 5-2
5.5 Possible Conflicts Between the Action and the Objective of Federal and State Land Uses 5-2
6 List of Agencies and Persons Consulted 6-1
7 List of Preparers 7-1
8 References 8-1

List of Figures

Figure 1-1. Regional Location Map 1-2
Figure 2-1. Conceptual Site Plan for Alternative 1 2-3
Figure 2-2. Conceptual Sewer Equalization Tank 2-4
Figure 2-3. Equalization Tank and Active Flow System Detail 2-6
Figure 2-4. Conceptual Site Plan for Alternative 2 2-9
Figure 3.2-1. Vegetation Communities in the Vicinity of Alternative 1 ....3.2-3
Figure 3.2-2. Vegetation Communities in the Vicinity of Alternative 2 ....3.2-4
Figure 3.2-3. Federally Listed Species Known to Occur in the Vicinity of Alternative 1 ....3.2-7
Figure 3.2-4. Federally Listed Species Known to Occur in the Vicinity of Alternative 2 ....3.2-8
Figure 3.2-5. Wetlands, Waters of the U.S., Vernal Pools, and Other (Non-Vernal Pool) Seasonally Ponded Features in the Vicinity of Alternative 1 ....3.2-11
Figure 3.2-6. Wetlands, Waters of the U.S., Vernal Pools, and Other (Non-Vernal Pool) Seasonally Ponded Features in the Vicinity of Alternative 2 ....3.2-12
Figure 3.4-1. IR and MR Sites at MCAS Miramar 3.4-3
Figure 3.8-1. 100-Year Flood Plain at MCAS Miramar 3.8-3

List of Tables

Table ES-1. Summary of Impacts ES-2
Table 1-1. Applicable Federal Regulations, Instructions, and Public Law 1-5
Table 1-2. Intergovernmental Coordination and Permits 1-5
Table 2-1. Summary of Potential Environmental Consequences 2-17
Table 3.1-1. National Ambient Air Quality Standards 3.1-2
Table 3.1-2. Annual and Total Emissions Due to Construction of the Sewer Equalization Tanks at MCAS Miramar – Alternative 1 and Alternative 2 ....3.1-7
Table 3.2-1. Existing Vegetation Communities within the Project Site for the Alternative 1 and Alternative 2 ....3.2-2
Table 3.2-2. Federally Listed Threatened and Endangered Species Known to Occur in the Vicinity of Alternative 1 and Alternative 2 ....3.2-6
Table 3.2-3. Migratory Bird Treaty Act Species of Conservation Concern Known to Occur in the Vicinity of Alternative 1 and Alternative 2 ....3.2-10
Table 3.2-4. Vegetation Communities Potentially Removed under Alternative 1 ....3.2-16
Table 3.2-5. Vegetation Communities Potentially Removed under Alternative 2 ....3.2-20
Table 3.3-1. Seismic Parameters for Major Active Faults Within 60 Miles of the Project Site 3.3-2
Table 4.1-1. Related and Cumulative Projects 4-2
Table 4.3-1. Maximum Annual GHG Emissions from Alternative 1 4-8

Appendices

A Air Quality Technical Data
A-1 Emission Calculations for the P-236 Sewer Equalization Tanks at MCAS Miramar Project Alternatives
A-2 Record of Non-Applicability (RONA)
B Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet

Acronyms and Abbreviations

1	$\mu g/m^3$	micrograms per cubic meter
2	AB	Assembly Bill
3	ADT	average daily trips
4	Air Station	Marine Corps Air Station Miramar
5	AMJV	Accord MACTEC Joint Venture
6	APE	area of potential effects
7	ARB	California Air Resources Control Board
8	AST	above ground storage tank
9	AT&T	American Telephone and Telegraph Corporation
10	bhp	break horsepower
11	BMP	Best Management Practice
12	CAA	Clean Air Act
13	CDFW	California Department of Fish and Wildlife
14	CEQ	Council on Environmental Quality
15	CERCLA	Comprehensive Environmental Response Compensation and Liability Act
16	CFR	Code of Federal Regulations
17	CH_4	methane
18	CNEL	Community Noise Equivalent Level
19	CNG	compressed natural gas
20	CO	carbon monoxide
21	CO_2	carbon dioxide
22	CO_2e	carbon dioxide equivalent
23	CRAM	California Rapid Assessment Method
24	CWA	Clean Water Act
25	dB	decibel
26	DERP	Defense Environmental Restoration Program
27	DoD	Department of Defense
28	DoN	Department of the Navy
29	DPM	diesel particulate matter
30	EA	Environmental Assessment
31	EIS	Environmental Impact Statement
32	EO	Executive Order
33	EPA	Environmental Protection Agency
34	ESA	Endangered Species Act
35	FEMA	Federal Emergency Management Agency
36	FONSI	Finding of No Significant Impact
37	GHG	greenhouse gasses
38	GIS	geographic information systems
39	gpm	gallons per minute
40	GWP	global warming potential
41	HAP	hazardous air pollutant
42	HAZWOPER	hazardous waste operations and emergency response
43	I-	Interstate
44	INRMP	Integrated Natural Resources Management Plan
45	IR	Installation Restoration
46	IRP	Installation Restoration Program
47	KV	kilovolt

LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LNG	liquefied natural gas
LOS	level of service
MA	Management Area
Marine Corps	United States Marine Corps
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MCI	Marine Corps Installations
MCO	Marine Corps Order
mgpd	million gallons per day
MMRP	Military Munitions Response Program
MOU	Memorandum of Understanding
MR	Munitions Response
N_2O	nitrous oxides
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
NAVOSH	Naval Occupational Safety and Health
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NWP	Nation Wide Permit
O_3	ozone
OSHA	Occupational Safety and Health Administration
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
POL	Petroleum, Oil, and Lubricant
ppm	parts per million
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROG	reactive organic gases
ROI	Region of Influence
RONA	Record of Non-Applicability
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDCAPCD	San Diego County Air Pollution Control District
SDG&E	San Diego Gas and Electric
SDRWQCB	San Diego Regional Water Quality Control Board
SIP	State Implementation Plan
SPCC	Spill Prevention, Control, and Countermeasure
SR-	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TDS	total dissolved solids
TPH	total petroleum hydrocarbon

USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
USN	United States Navy
UST	underground storage tank
V/C	volume-to-capacity
VA	Department of Veterans Affairs
VOC	volatile organic compound

Executive Summary

The United States Marine Corps (USMC) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC) §§ 4321-4370h, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Marine Corps Order (MCO) P5090.2A, Change 3, Chapter 12, dated 26 August 2013, *Environmental Compliance and Protection Manual*, which establishes procedures for implementing NEPA.

This EA describes the potential environmental consequences resulting from a proposal by MCAS Miramar, San Diego, California to upgrade its existing sewer system to reduce the effluent flow into the City of San Diego's sewer system to less than the permitted limit of 1.6 million gallons per day (mgpd). The Proposed Action involves construction and operation of a storage tank with a holding capacity sufficient to temporarily retain excess sewage flow generated by a nominal 10-year 24-hour storm event (1.5 million gallons); an active flow control system to regulate the discharge flow; and associated piping, pumps, conduits, and access points. Additional supporting improvements include site access and utility infrastructure upgrades. Site improvements would include grading and clearing, demolition and repaving of the existing road surface and culverts, and restoration of disturbed areas, including Diegan Coastal Sage Scrub and the ephemeral streambed, to pre-construction conditions. Construction would occur over a 15-month period. Operation and maintenance of the facility would entail annual cleaning and inspection of the storage tank. The USMC has developed two action alternatives: Alternative 1 (De La Garza Road Gravity Tank) and Alternative 2 (De La Garza Road Pump Station and Holding Tank). The alternatives differ in the design and location of the storage tank.

The CEQ regulations, NEPA, and the USMC procedures for implementing NEPA specify that an EA should address only those resource areas potentially subject to impacts. In addition, the level of analysis should be equivalent with the anticipated level of environmental impacted. Based on this guidance, the following resource areas were evaluated for potential environmental consequences: Air Quality; Biological Resources; Geologic Resources; Public Health and Safety; Recreation; Transportation, Circulation, and Traffic; Utilities; and Water Resources. Results of the air quality analysis indicate the emissions would be less than the General Conformity Rule thresholds which would satisfy the condition of a Clean Air Act Record of Non-applicability (RONA) to be prepared. Several other resource areas have been reviewed for environmental impacts but have not been carried forward for detailed analysis in this EA because potential impacts were determined to be negligible, including aesthetics, cultural resources, environmental justice, land use, noise, public services, and socioeconomics.

The potential environmental consequences associated with implementation of the Alternative 1, Alternative 2, and the No-Action Alternative are summarized briefly in Table ES-1 and in greater detail in Table 2-1 in Chapter 2 of this EA. For a detailed description and analysis refer to Chapter 3. As shown in Table ES-1 and Table 2-1, implementation of the Alternative 1, Alternative 2, and the No-Action Alternative would not result in significant impacts to any resource area with the inclusion of Environmental Protection Measures. Based on the analysis presented in this EA, the USMC has identified Alternative 1 as the Preferred Alternative.

Table ES-1. Summary of Impacts			
Resource Area	**Alternative 1: De La Garza Road Gravity Tank**	**Alternative 2: De La Garza Road Pump Station and Holding Tank**	**No-Action Alternative**
Air Quality	NSI	NSI	NI
Biological Resources	NSI	NSI	NI
Geologic Resources	NSI	NSI	NI
Public Health and Safety	NSI; BI (Water Quality)	NSI; BI (Water Quality)	NI; I (Water Quality)
Recreation	NSI	NSI	NI
Transportation/Circulation/Traffic	NSI	NSI	NI
Utilities	NSI	NSI	NI
Water Resources	NI (Groundwater); NSI (Surface Water; Floodplains/Flooding); NSI/BI (Water Quality)	NI (Groundwater); NSI (Surface Water; Floodplains/Flooding); NSI/BI (Water Quality)	NI; I (Water Quality)
Notes: NSI = No Significant Impact; NI = No Impact; I = Impact; BI = Beneficial Impact			

1 Purpose of and Need for Proposed Action

1.1 Introduction/Background

This Environmental Assessment (EA) has been prepared by the United States Marine Corps Air Station Miramar (MCAS Miramar or Air Station) in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §§ 4321-4370h, as amended), the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), *United States Marine Corps (USMC) Environmental Compliance and Protection Manual* (Marine Corps Order [MCO] P5090.2A, Change 3, Chapter 12, dated 26 August 2013), and other applicable laws. NEPA encourages public involvement in the environmental review process. The development of this EA includes the publication of a Notice of Availability (NOA) informing interested parties or agencies of the existence of the report. Please refer to Section 1.7, *Public Involvement*, for additional information on the public participation process.

This EA describes the potential environmental consequences resulting from a proposal by MCAS Miramar, San Diego, California to upgrade its existing sewer system to reduce effluent flow into the City of San Diego's sewer system to less than the permitted limit of 1.6 million gallons per day (mgpd). MCAS Miramar's sewer system consists of approximately 38 miles of 6-inch to 16-inch lines originally built between 1953 and 1960. The MCAS Miramar sewer system discharges for treatment via an outfall to the City of San Diego's sewer collection system. The discharge is regulated by an Industrial User Discharge Permit (Number 05-1019-03-A), which limits the flow rate into the City's collection system to less than 1.6 mgpd. During significant rain events, stormwater infiltration and inflow into the Air Station's sewer system due to cracks in the existing system results in outflow in excess of the current discharge limits. The existing gravity collection sewer system does not have the capability to control the flow rate of discharge. The Proposed Action involves construction and operation of a storage tank with a holding capacity sufficient to temporarily retain excess sewage flow generated by a nominal 10-year 24-hour storm event (1.5 million gallons); an active flow control system to regulate the discharge flow; and associated piping, pumps, conduits, and access points. Additional supporting improvements include site access and utility infrastructure upgrades. Site improvements would include grading and clearing, demolition and repaving of the existing road surface and culverts, and restoration of disturbed areas, including Diegan Coastal Sage Scrub, to pre-construction conditions. Construction would occur over a 15-month period. Operation and maintenance of the facility would consist of annual cleaning and inspection of the storage tank.

1.2 Location

MCAS Miramar is located approximately 13 miles north of downtown San Diego (Figure 1-1). The Air Station is over 23,015 acres in size. The southern and western boundaries are generally defined by State Route 52 (SR-52) and Interstate 805 (I-805). The communities of Mira Mesa and Scripps Ranch have been built up to the northern limits of the Air Station. The communities of Tierrasanta and Clairemont are located to the south of the Air Station. The community of University City is located to the west. The eastern boundary of the Air Station abuts the City of Santee and an unincorporated area of San Diego County.

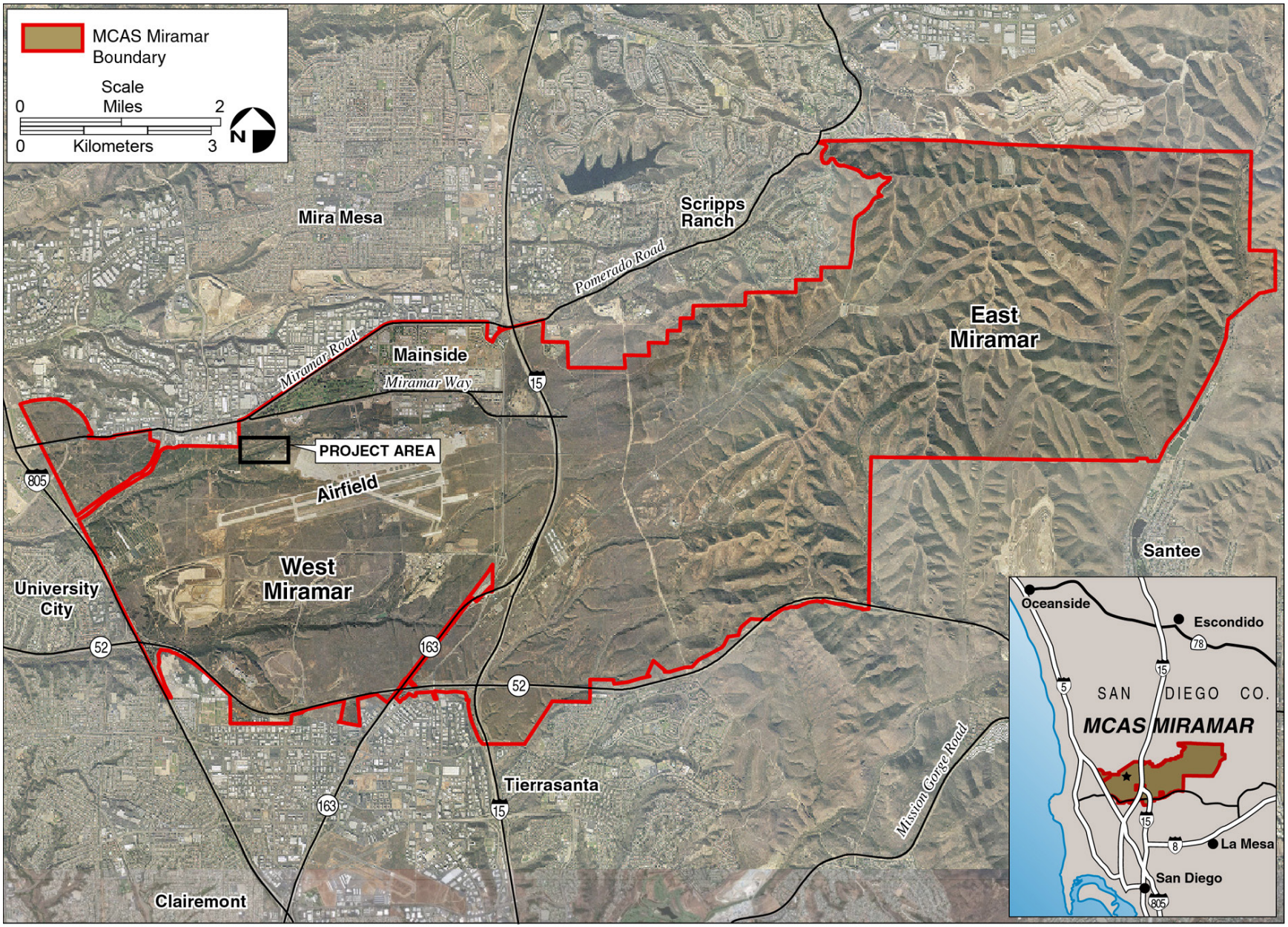

Figure 1-1. Regional Location Map

MCAS Miramar is bisected by I-15, which effectively divides the Air Station into three areas. The area west of I-15 is known as Mainside and West Miramar. Mainside contains the airfield, as well as commercial, administrative, and industrial uses; aviation support facilities; and housing areas. The City of San Diego leases land within the Air Station, just north of SR-52 in West Miramar, on which it operates a municipal landfill. The East Miramar area is mostly undeveloped and used for training. The Proposed Action would be implemented along De La Garza Road located on West Miramar (Figure 1-1).

1.3 Purpose and Need

The purpose of the Proposed Action is to reduce future effluent flow from MCAS Miramar into the City of San Diego's sewer system to less than the permitted limit of 1.6 mgpd.

The Proposed Action is needed because, during significant rainfall events, existing sewer infrastructure is not capable of metering effluent flow within the permitted limit of 1.6 mgpd.

1.4 Decision to Be Made

The first decision to be made as a result of the analysis in this EA is to decide if an Environmental Impact Statement (EIS) needs to be prepared. An EIS will need to be prepared if it is anticipated that the Proposed Action would have significant impacts on the human or natural environment. Should an EIS not be deemed necessary, the Proposed Action or an alternative action from this EA would be selected for implementation. This selection would be documented in a Finding of No Significant Impact.

1.5 Scope of Analysis

CEQ regulations, NEPA, Department of the Navy (DoN), and USMC procedures for implementing NEPA specify that an EA should address only those resource areas potentially subject to impacts. In addition, the level of analysis should be equivalent to the anticipated level of environmental impact. Resource areas analyzed in detail in this EA include the following:

- Air quality
- Biological Resources
- Geologic Resources
- Public Health and Safety
- Recreation
- Transportation, Circulation, and Traffic
- Utilities
- Water resources

Several other resource areas were considered, but not carried forward for detailed analysis in this EA because potential impacts from the alternatives would be non-existent or would be considered negligible. Resources not analyzed further include aesthetics, cultural resources, environmental justice, land use, noise, public services, and socioeconomics. These resources are detailed below.

Aesthetics: The Proposed Action would not adversely affect visual resources. The Proposed Action involves construction consistent with that of MCAS Miramar and the surrounding area. The Proposed Action would not result in an alteration of the current visual setting and would be conducted in accordance with MCAS Miramar's *Base Exterior Architecture Plan* (MCAS Miramar 2008). Therefore, impacts on aesthetics would not be expected to occur.

Cultural Resources: A cultural resource survey in the area of potential effects (APE) for the Proposed Action was completed by ASM in 2009. No archeological sites or isolates were identified within, or in close proximity to, the APE. Because the Proposed Action would involve redevelopment of previously

installed underground utilities and previously disturbed sites, no impacts on cultural resources or historic properties would be expected to occur.

Environmental Justice: The Proposed Action would comply with Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority and Low-income Populations*) and EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*). No communities, including low-income communities or minority communities, exist at the project site. Therefore, the Proposed Action would not result in disproportionate impacts to minority or low-income populations and would not result in environmental health or safety risks to children. As such, no impacts on environmental justice would occur.

Land Use: The Proposed Action would not result in a change to existing land uses and would be consistent with established land use development guidelines addressing safety, functionality, and environmental protection zones. Therefore, no impacts on land use would occur.

Noise: Operations of the Proposed Action are not expected to generate noise above existing levels. The Proposed Action would result in only temporary construction related increases in noise levels beyond those already present at the project site and surrounding areas. The amount of increased noise at the construction site would be representative of a typical construction site and would not exceed 85 decibels (dB). One sensitive noise receptor, a recreational area called the Fish Pond, is present in the vicinity of the Proposed Action. However, this site would be closed for use during the construction phase of the Proposed Action. Therefore, no noise impacts would be expected to occur.

Public Services: There would be no additional military, government, civilian, and/or contractor support personnel stationed at MCAS Miramar as a result of the Proposed Action. Consequently, the Proposed Action would not require any substantial increase in public services, and no impacts on public services would occur.

Socioeconomics: The Proposed Action would be located entirely within MCAS Miramar. There would be no additional military, government, civilian, and/or contractor support personnel stationed at MCAS Miramar during construction or operation of the Proposed Action. In addition, construction and operation of the Proposed Action would not have a noticeable effect on local population, employment, or income levels. Therefore, no impacts on socioeconomics would occur.

1.6 Regulatory Setting and Intergovernmental Coordination

This EA has been prepared in accordance with applicable federal regulations, instructions, and public law, including but not limited to those identified in Table 1-1.

As part of the NEPA compliance process, coordination and consultation with appropriate government agencies would be initiated to obtain regulatory input and guidance related to the Proposed Action. The purpose is to ensure that all applicable laws, regulations, and policies have been identified and the Proposed Action has been duly evaluated in light of these considerations. The agencies that would be consulted and the permits that may be required are listed in Table 1-2.

Table 1-1. Applicable Federal Regulations, Instructions, and Public Law

Name	Regulation
National Environmental Policy Act of 1969	42 USC §§ 4321-4370h
Council on Environmental Quality Regulations for Implementing the Procedural Provisions of National Environmental Policy Act	40 CFR Parts 1500-1508
Department of the Navy Procedures for Implementing National Environmental Policy Act	32 CFR Part 775
Environmental Compliance and Protection Manual Chapter 12	Marine Corps Order P5090.2A, Change 2
National Historic Preservation Act	16 USC §§ 470-470x-6
Clean Water Act	33 USC §§ 1251-1387
Clean Air Act, as amended, including 1990 General Conformity Rule	42 USC §§ 7401-7671q
Comprehensive Environmental Response Compensation and Liability Act	42 USC §§ 9601-9675
Resource Conservation and Recovery Act	42 USC §§ 6901-6992k
Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, 11 February 1994	EO 12898
Protection of Children from Environmental Health Risks and Safety Risks, 23 April 1997	EO 13045
Endangered Species Act	16 USC §§ 1531-1544
Migratory Bird Treaty Act	16 USC §§ 703-712
Responsibility of Federal Agencies to Protect Migratory Birds, January 11, 2001	EO 13186
Protection of Wetlands, 24 May 1977	EO 11990
Invasive Species	EO 13112
Native Americans Graves Protection and Repatriation Act	25 USC §§ 3001-3013 & 40 CFR Part 10
Federal Compliance with Pollution Control Standards	EO 12088
United Facilities Criteria for Low Impact Development	United Facilities Criteria 3-210-10
Strengthening Federal Environmental, Energy, and Transportation Management	EO 13423
Environmental and Natural Resources Program Manual	Office of the Chief of Naval Operations Instruction 5090.2C Change 2

Notes: USC = United States Code; CFR = Code of Federal Regulations; EO = Executive Order

Table 1-2. Intergovernmental Coordination and Permits

Agency	Required Permit
United States Army Corps of Engineers	Section 404 Permit
United States Fish and Wildlife Service	Biological Opinion
State Water Resources Control Board	2009-0009-DWQ Construction General Permit
San Diego Regional Water Quality Control Board	401 Water Quality Certification
San Diego County Air Pollution Control District	Permit to Operate

1.7 Public Involvement

MCAS Miramar published an NOA of the Draft EA for three consecutive days in the *San Diego Union Tribune* (Dates TBD). The notice described the Proposed Action, solicited public comments on the Draft EA, provided dates of the public comment period, instructions for providing comments, and announced that copies of the Draft EA would be available for public review on the MCAS Miramar website (TBD). The Draft EA will be available for review for 30 days. All applicable public comments will be taken into consideration in the development of the Final EA.

1.8 Organization of the Document

This EA is organized as follows: Chapter 1 defines the purpose of and need for the Proposed Action. Chapter 2 describes the alternatives for accomplishing the Proposed Action, including the No-Action Alternative, and other alternatives not carried forward for NEPA analysis. Chapter 3 describes the affected environment and analyzes the environmental consequences associated with each alternative. Chapter 4 examines the cumulative impacts of the Proposed Action and other projects in the area. Chapter 5 addresses various other considerations required by NEPA. This is followed by chapters on references, persons and agencies contacted, and a list of preparers and their qualifications.

2 Proposed Action and Alternatives

This chapter describes the Proposed Action and reasonable alternatives for accomplishing the Proposed Action. As required by NEPA and MCO P5090.2A Ch 3, this EA must identify and assess reasonable alternatives to the Proposed Action that would avoid or minimize adverse effects of these actions on the quality of the natural and human environment. This EA only carries forward for detailed analysis those alternatives that could meet the purpose of and need for the project as defined in Chapter 1 and the reasonable alternative screening criteria listed in Section 2.2.

2.1 Proposed Action

The Proposed Action addressed in this EA is the upgrade of the existing sewer system at MCAS Miramar to reduce effluent flow into the City of San Diego's sewer system to less than the permitted limit of 1.6 mgpd. The Proposed Action involves construction and operation of a storage tank with a holding capacity sufficient to temporarily retain excess sewage flow generated by a nominal 10-year 24-hour storm event (1.5 million gallons); an active flow control system to regulate the discharge flow; and associated piping, pumps, conduits, and access points. Additional supporting improvements include site access and utility infrastructure upgrades. Site improvements would include grading and clearing; demolition and repaving of the existing road surface and culverts; and restoration of disturbed areas, including Diegan Coastal Sage Scrub, to pre-construction conditions. Construction is anticipated to occur over a 15-month period. Operation and maintenance of the facility would entail annual cleaning and inspection of the storage tank.

2.2 Alternatives Development and Screening Criteria

MCAS Miramar identified several screening criteria to develop a reasonable range of alternatives that meet the purpose of and need for the Proposed Action. These factors include:

- A design with the ability to temporarily hold excess sanitary sewer volume and regulate flow to comply with the City of San Diego Industrial User Discharge Permit outfall limits of not more than 1.6 mgpd.
- Holding capacity sufficient to temporarily retain excess sewage flow generated by a nominal 10-year 24-hour storm event (1.5 million gallons).
- A design that minimizes complexity and operations and maintenance costs.
- A design that provides a single intercept solution (i.e., replaces one line rather than multiple lines).
- A location along the existing sewer line near the outfall.
- A location that avoids or minimizes potential impacts to sensitive natural resources and associated impacts to biological communities, including threatened and endangered species.

Based on a review of the screening criteria, two design options (the gravity tank and pump station/holding tank options) to be placed along De La Garza Road have been carried forward for evaluation in this EA. Alternative 1, Alternative 2, and the No-Action Alternative are described below.

2.3 Alternatives

2.3.1 Alternative 1: De La Garza Road Gravity Tank Alternative (Preferred Alternative)

Two sewer lines, United States Navy [USN] 9 and USN 10, currently exist within De La Garza Road. USN 9 is a 15-inch vitrified clay pipe located underneath De La Garza Road. USN 10 is a 16-inch polyvinyl chloride (PVC) pipeline that runs along the north side of De La Garza Road, parallel to the road. Alternative 1 (De La Garza Road Gravity Tank Alternative) would replace a portion (approximately 1,400 feet) of USN 9 with a gravity-fed equalization tank (Figure 2-1).

Alternative 1 would consist of demolishing approximately 1,400 feet of De La Garza Road, conducting any required contaminated soil cleanup, removing a portion of USN 9 and replacing it with a 1.5 million gallon gravity-fed sewer equalization tank, constructing ancillary support facilities (temporary sewer bypass system, sewer piping and valve controls, connection to existing electrical utility), and restoring the roadway and disturbed areas following construction. During construction, USN 10 would be utilized to bypass USN 9 to allow for the removal and replacement of USN 9 with the new sewer equalization tank. During operation, USN 10 would be retained and utilized as an emergency bypass to the new sewer equalization tank when it is full and during tank maintenance.

The following sections describe Alternative 1 in greater detail based on the current conceptual design (Accord MACTEC Joint Venture [AMJV] 2011a). In accordance with EO 13123 and other directives, sustainable features were integrated into the project design, development, and construction, as practical. Reuse of the demolished road pavement and removed sewer pipe was determined to be cost prohibitive.

Final construction plans would be developed under a design-build contract; therefore, minor deviations from the current conceptual site plan may be required during the final design phase. The conceptual project layout was designed to represent the maximum level of disturbance, and all areas potentially disturbed are included within the project boundaries. The project boundary minimizes the impact to native vegetation that occurs on either side of the existing road. Any design modifications would occur within the project boundary and would require review and authorization by MCAS Miramar.

2.3.1.1 Facilities and Components

Equalization Tank

The equalization tank would consist of a 1.5-million gallon gravity-fed box culvert (6-feet high by 24-feet wide by 1,400-feet long), which would replace approximately 1,400 feet of USN 9 under De La Garza Road (Figure 2-2). There would be a 16-foot difference in elevation from the upstream end (where sewage enters the tank) to the downstream end of the tank, allowing sewage to flow by gravity (as opposed to being pumped). The ceiling of the tank would serve as the foundation for new road pavement for the portion of De La Garza Road within the project site. Once complete, the road would be capable of handling normal, heavy traffic loads (16,000-pound wheel load or 32,000-pound dual spaced wheel load) (AMJV 2011a). The tank would have sufficient capacity to temporarily retain excess sewage flow generated by a nominal 10-year, 24-hour storm, and limit the rate of flow into the City of San Diego's sewer system to within the required permit limit of 1,111 gpm (1.6 mgpd) (AMJV 2011a). The tank would run parallel to USN 10, which would be retained as an emergency bypass.

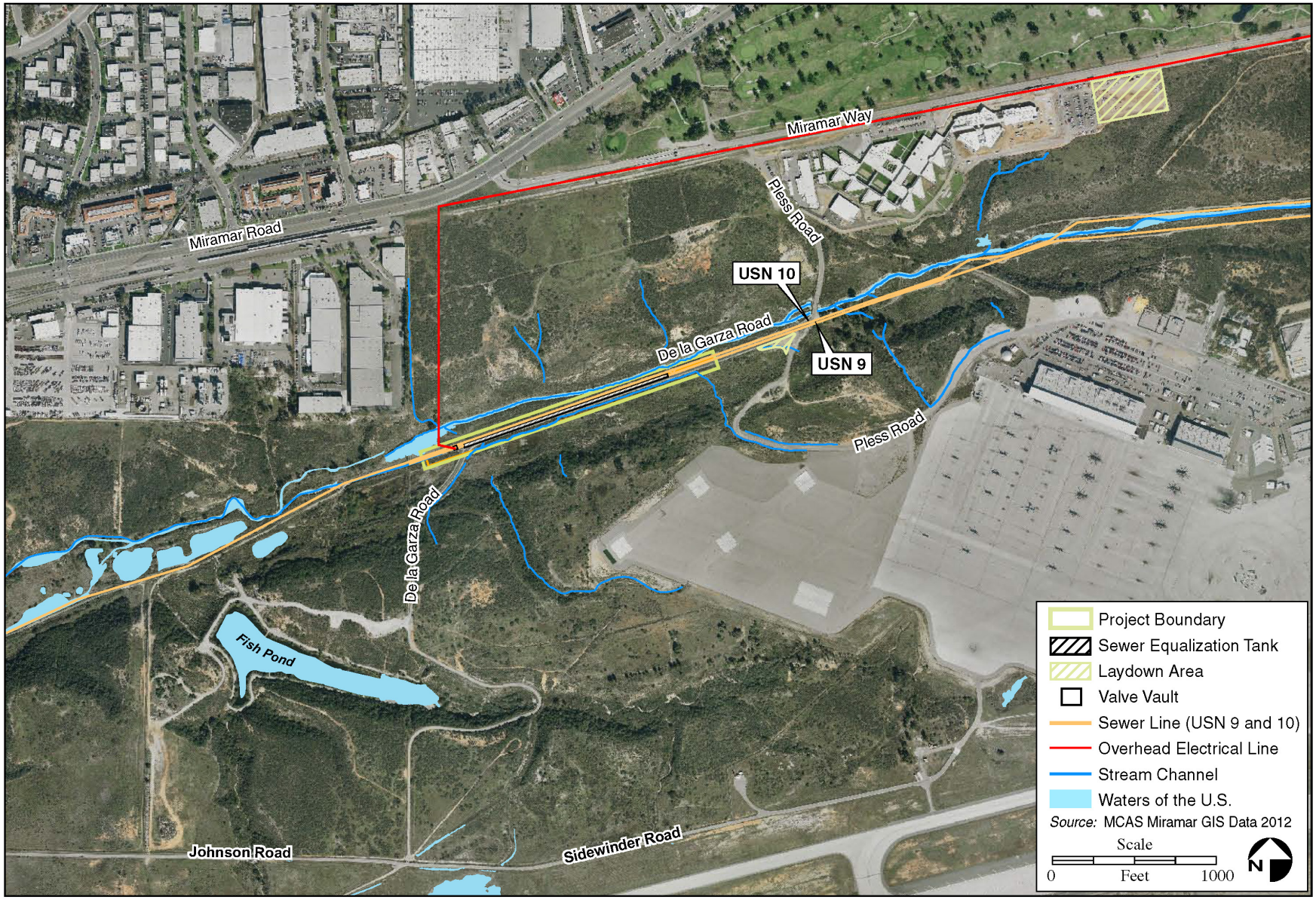

Figure 2-1. Conceptual Site Plan for the Alternative 1

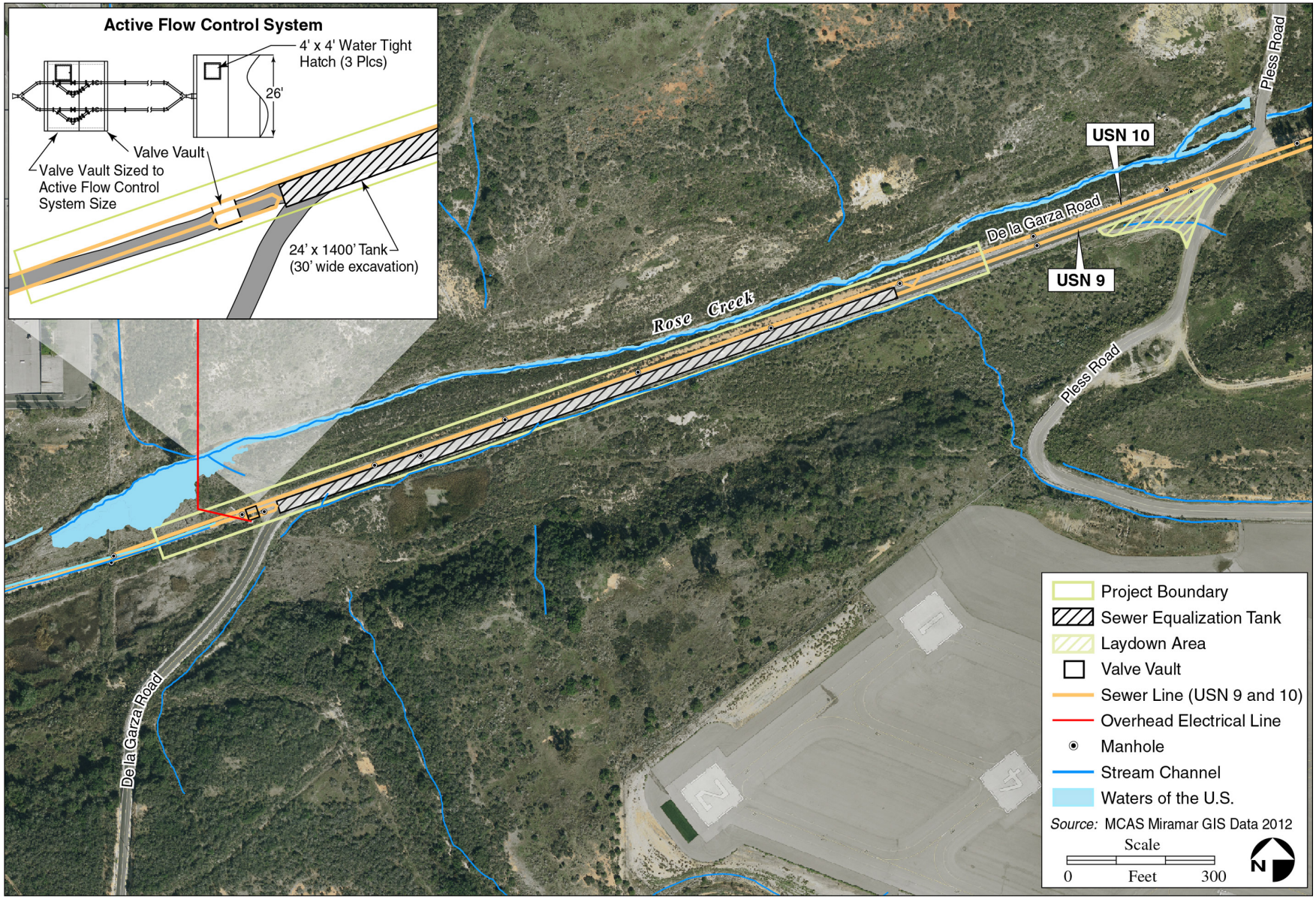

Figure 2-2. Conceptual Sewer Equalization Tank

Two manually-operated valves would be installed at the upstream end of the tank, one in USN 9 and one in USN 10 (Figure 2-3). During normal conditions, the valves would be positioned so that all flow from USN 9 and USN 10 would be diverted through the sewage equalization tank (valve to USN 9 would be open and the valve to USN 10 closed). During emergency conditions (e.g., when the tank is full) or maintenance activities, the valves would be switched to divert all flow into USN 10, bypassing the equalization tank (Figure 2-3). The control valves at the discharge end of the tank would be operated automatically by an active flow control system. The tank would have a 15-inch overflow line connecting to USN 10 that would remain open at all times (Figure 2-3).

The overflow line would also provide an escape route for sewer gases generated within the tank, and air displaced during the filling of the tank. In addition, a 6-inch vent would be located at the upstream end of the tank that would extend eight feet above ground (to keep it above flood water levels) to also allow for gas to escape. This vent would be equipped with a carbon filter to reduce objectionable odors.

A watertight, traffic-rated hatch would be located at both the upstream and downstream ends of the tank. These hatches would allow crews to access the tank for inspection and maintenance activities and would allow the entire length of the tank to be ventilated. The access hatches would be bolted shut when not in use.

Active Flow Control System

An active flow control system would be used to control the flow rate exiting the sewer equalization tank. The active control system would consist of a dual redundant system. One system would be active at all times and the active system would be rotated on a monthly basis to maintain functionality. Each system would consist of a magnetic flow meter, an electrically actuated valve, and a controller. In addition, the system would include a mechanical bypass valve to allow flow into the system to flush out the system's sediment trap. The active flow control system would be connected to an existing electrical supply at the site. A solar powered battery could be included as a viable redundant backup for valve control in case of a power outage, or in case the main power grid is offline.

The flow meter would measure the flow through the sewer line. If the flow through the system increases above 1,111 gpm (1.6 mgpd), the system would automatically close the valve at the discharge end of the tank to limit the flow to less than 1,111 gpm (1.6 mgpd). The excess flow would be retained in the sewer equalization tank. If the sewage flow exceeded the capacity of the tank, the overflow would bypass the active control system and discharge into USN 10 (Figure 2-3). The tank overflow would remain open at all times.

2.3.1.2 Construction

Site Preparation

Site preparation would include clearing and grubbing of native vegetation (Diegan Coastal Sage Scrub). The exact amount of native vegetation that could be disturbed would be determined during the final design phase. However, it is anticipated that up to approximately 0.73 acres of native vegetation (Diegan Coastal Sage Scrub) along the north and south sides of De La Garza Road could be temporarily disturbed by clearing and grubbing. In addition, the project would include excavating, stockpiling, and disposing of approximately 17,000 cubic yards of soil and road pavement. The number and type of heavy motorized equipment used for site grading and excavating would be developed during the final project design but would likely include scrapers, front-end loaders, dump trucks, water trucks, and an excavator or auger for the tank. Two laydown areas for equipment and materials would be utilized during construction. The primary laydown area would be located on Miramar Way and the second would be located on the south side of De La Garza Road at the intersection of Pless Road. Both locations are within currently disturbed areas (Figure 2-1).

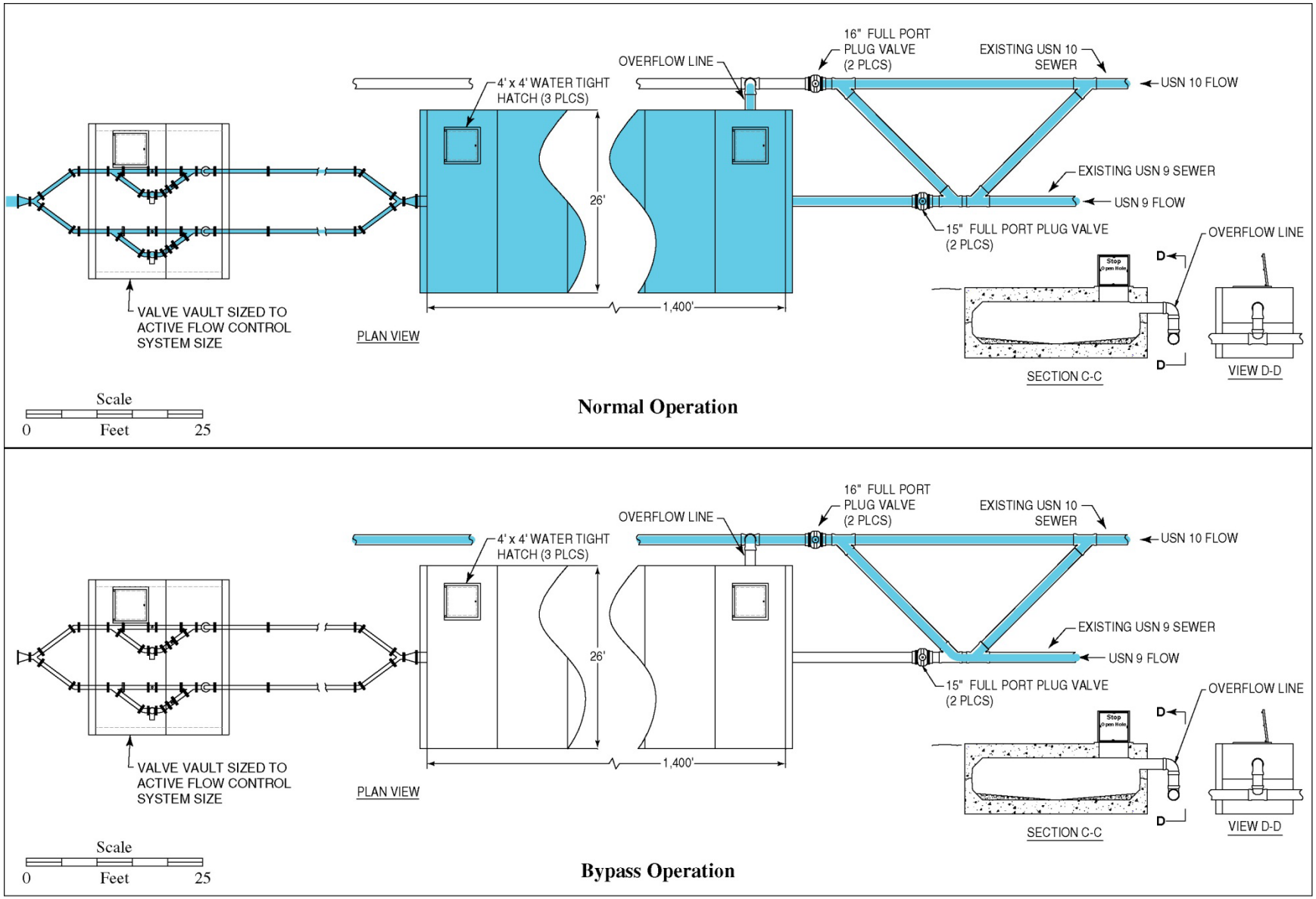

Figure 2-3. Equalization Tank and Active Flow System Detail

Construction would occur over approximately 15-months. Grubbing and/or removal of surface vegetation, would be conducted outside of the bird nesting season (15 February through 1 August), to the maximum extent feasible. Construction would occur during the bird nesting season as the rainy season allows. Construction would be conducted in accordance with Construction General Permit Order 2009-009-DWQ, which would be obtained from the State Water Resources Control Board (SWRCB) prior to the start of construction. In addition, a Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (SDRWQCB) could be required for potential indirect impacts to water quality in Rose Canyon Creek (Figure 2-1).

Following construction, the road surface would be repaved and culverts along the road would be reconstructed. Disturbed areas, including Diegan Coastal Sage Scrub, would be restored to pre-construction conditions.

Soil Management

The project site is located within the boundary of Installation Restoration (IR)[1] Site 2, Rose Canyon. Soil sampling was conducted to determine if Comprehensive Environmental Response Compensation and Liability Act (CERCLA) contaminants associated with IR Site 2 are present within the project site. Soil testing results indicated that CERCLA contaminants are not expected to be encountered and that the soil proposed to be excavated from the project site would not be classified as hazardous waste under either federal or state regulations (AMJV 2012). However, if prior to or during construction CERCLA contaminants are discovered removal actions would be subject to the requirements of CERCLA (40 CFR Part 300). In addition, project would be required to: 1) coordinate with MCAS Miramar Environmental Management Department, Installation Restoration Program Manager and 2) receive concurrence from the Remedial Project Manager at Naval Facilities Engineering Command (NAVFAC) and SDRWQCB prior to execution of the project to ensure conformance with CERCLA. CERCLA removal actions are exempted from the procedural requirements of NEPA. Therefore, any such actions conducted as part of this alternative are not evaluated in this EA.

Fuel-impacted soils (i.e., soils contaminated with petroleum hydrocarbons) are located within the project site (AMJV 2012). It is anticipated that up to one-third of the 17,000 cubic yards (5,667 cubic yards) of soils that would be excavated may be fuel-impacted. These soils are not considered hazardous waste, but do require special handling and disposal. Further studies of IR Site 2 will be conducted to determine the extent of contaminated soils.

The construction contractor would be responsible for proper management and disposal of hazardous waste generated during construction activities. Any contaminated soils excavated from the project site would be managed in accordance with conditions set forth in the SDRWQCB Order R9-2002-343, *Waste Discharge Requirement for the Disposal and/or Reuse of Petroleum Fuel Contaminated Soils in the San Diego Region*. Stockpiled soils would be properly characterized using procedures outlined in the *San Diego Department Manual of Environmental Health Site Assessment and Mitigation Manual*. If soil and/or construction debris were determined to be hazardous, they would be stored and transported into the appropriate waste disposal facility in accordance with 40 CFR and Title 22 regulations. Construction personnel would be trained for hazardous waste operations and emergency response (HAZWOPER) in accordance with Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1910.120 (e)). All hazardous waste generated from the project would be manifested through the Waste Management Division of the MCAS Miramar Environmental Management Department and be assigned an MCAS Miramar Generator Number (MCAS Miramar 2009). The project would also comply

[1] The DoD developed the IR Program to identify, evaluate, and clean up contamination from past operations on military bases worldwide. The IR Program is designed to ensure DoD compliance with federal and state regulations that protect the environment.

with the *Defense Environmental Restoration Program Manual* (DERP), USACE EM 385-1-4 (*U.S. Safety and Health Requirement Manual*), with regard to disposal of CERCLA waste, and MCO 5090.2A (*USMC Environmental Compliance and Protection Manual*).

2.3.1.3 Site Access

During construction, the portion of De La Garza Road located within the project site would be closed to through traffic. A construction traffic management and detour plan would be developed. This plan would specify necessary lane closures, detours, signage, lighting, flaggers, and other traffic control measures, as needed during construction. In addition, the plan would specify routes for emergency service vehicles in the event of an emergency. Sidewinder Road and Johnson Road would provide access to the Fish Pond for authorized MCAS Miramar personnel to conduct operation and maintenance activities while De La Garza Road is closed to through traffic (Figure 2-1).

2.3.1.4 Utilities

Electrical power and communication is provided by overhead electrical distribution lines that terminate in the western portion of the project site. The active flow control system would be connected to the existing electrical line at the project site. No other utility upgrades would be required.

2.3.1.5 Operation and Maintenance

The proposed sewer equalization tank is self-cleaning. However, annual inspection and maintenance of the tank would be required. Entry into the sewer equalization tank would require a confined space entry permit and would need to be conducted by qualified and specially trained personnel. A water truck and pressure washer would be used to wash down the tank on an annual basis.

2.3.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

2.3.2.1 Facilities and Components

Alternative 2 would include the construction of a holding tank and pump station intersecting and adjacent to USN 9 and USN 10 (Figure 2-4).

A 26-foot high, 100-foot diameter prefabricated steel tank would be located near the intersection of Pless Road and De La Garza Road and would sit on a concrete ring pad (100-feet in diameter by 2-feet wide by 3-feet deep) (Figure 2-4) (AMJV 2011b). The holding tank would include a valve vault to house an active flow control system as a means of regulating the discharge flow.

Ancillary facilities would include a wet well (comprised of a 26-foot by 52-foot box culvert), a pump station, a return pipe to USN 9, and an overflow tie-in to USN 10 (AMJV 2011b). The pump station would be housed in a building and would include one pump mounted on a stainless steel rail system controlled by a variable frequency drive and a dual redundant active flow control system. The active flow control system would be the same as described for Alternative 1.

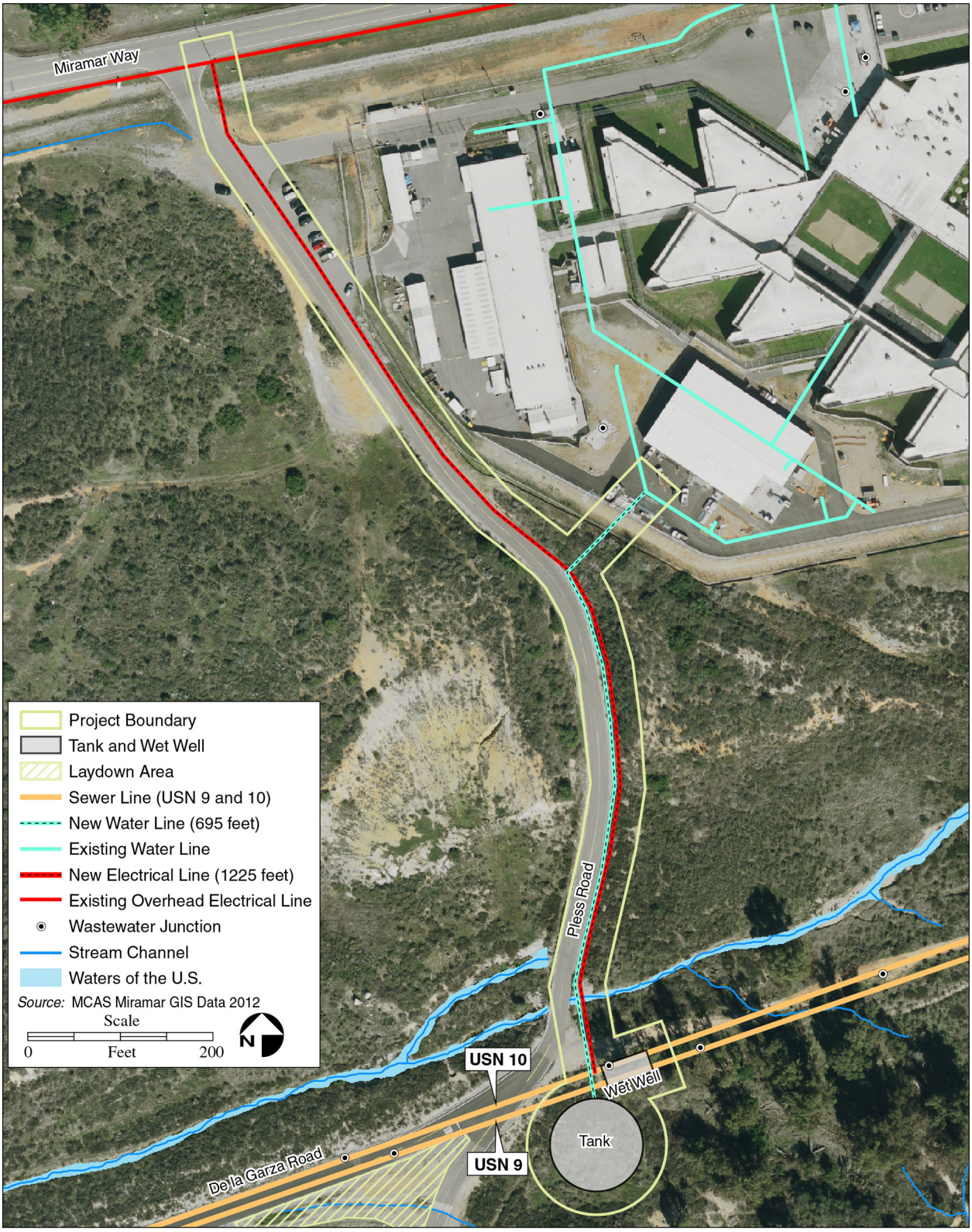

Figure 2-4. Conceptual Site Plan for Alternative 2

2.3.2.2 Construction

Site preparation would include clearing and grubbing of approximately 25,000 square feet of material, including the permanent (approximately 0.21 acres) and temporary removal (approximately 0.78 acres) of native vegetation (Diegan Coastal Sage Scrub). In addition, Alternative 2 would require the grading, excavating, stockpiling, and disposing of approximately 2,200 cubic yards of soil. Similar to Alternative 1, the project site is located within the boundary of IR Site 2. It is anticipated that up to one-third of the 2,200 cubic yards (733 cubic yards) of soils that would be excavated may be fuel-impacted. Soil excavation, stockpiling, handling, and disposal would be managed as described for Alternative 1.

Heavy motorized equipment used for site grading and excavating would be similar to that described for Alternative 1. The laydown area for construction equipment and materials would be in the same location as described for Alternative 1 (Figure 2-4).

Construction would to occur over approximately 15-months. Grubbing and/or removal of surface vegetation, would be conducted outside of the bird nesting season (15 February through 1 August), to the maximum extent feasible. Construction would occur during the bird nesting season, as the rainy season allows. Areas temporarily disturbed during construction, including those with Diegan Coastal Sage Scrub, would be restored to pre-construction conditions. Construction would be conducted in accordance with Construction General Permit Order 2009-009-DWQ, which would be obtained from the SWRCB prior to the start of construction.

2.3.2.3 Site Access

During construction of Alternative 2, the portion of De La Garza Road located within the project site would be closed to through traffic. In addition, Pless Road would be subject to closure during construction of the proposed water line. A construction traffic management and detour plan would be developed. This plan would specify necessary lane closures, detours, signage, lighting, flaggers, routes for emergency service vehicles in the event of an emergency, and other traffic control measures, as needed. As with Alternative 1, Sidewinder Road and Johnson Road would provide access to the Fish Pond for authorized MCAS Miramar personnel to conduct operation and maintenance activities while De La Garza Road is closed to through traffic.

2.3.2.4 Utilities

Alternative 2 would require utility system upgrades and modifications to support the holding tank and pumps. Approximately 1,400 feet of electrical transmission lines would be constructed to operate the pump station. The transmission line alignment would tie into the existing distribution system in Miramar Way, would be placed within the right-of-way along Pless Road, and would connect to the proposed pump station. During power outages a 150-kilowatt generator would be required to supply electricity to operate the pump system (AMJV 2011b). During the construction phase of this project, the contractor in consultation with the station's Environmental Management Department shall obtain the necessary air permit from the San Diego County Air Pollution Control District (SDAPCD) to install the emergency generator. In addition, the generator's fuel tank would meet applicable requirements of the Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR Part 112) and the California Fire Code.

Approximately 900 feet of 2-inch water distribution lines would be constructed to provide water to flush the system after each use. The new water line would connect from existing infrastructure within the Naval Consolidated Brig area and would be placed within the right-of-way along Pless Road connecting to the proposed water tank.

2.3.2.5 Operation and Maintenance

The tank would be flushed following each use, would be painted as needed, and would require replacement approximately every ten years. The pumps would be flushed and cleaned annually, which would require one water truck. Entry into the tank would require a confined space entry permit and would need to be conducted by qualified specially trained personnel.

2.3.3 No-Action Alternative

Under the No-Action Alterative, the existing sewer system within the project site would not be upgraded. Therefore, MCAS Miramar would be out of compliance with their sewer system discharge permit during substantial rainfall events.

The No-Action Alternative provides a measure of the baseline/existing conditions against which the impacts of the alternatives can be compared. In this EA, the No-Action Alternative is described in Chapter 3 as the Affected Environment.

2.3.4 Environmental Protection Measures

The following section describes the environmental protection measures that would be included in all the action alternatives (Alternative 1 and Alternative 2) unless otherwise noted. These measures would be included as contract requirements on all relevant project scoping, scheduling, and planning documents.

2.3.4.1 Air Quality

Measure 1. Fugitive Dust Control. The project proponent, construction oversight authority, or duly designated contractor shall ensure that fugitive dust emissions do not extend beyond the property line for more than 3-minutes in any 60 minute period and shall mitigate fugitive dust to minimize track out/carry out emissions during demolition, construction, and transport in accordance with the San Diego County Air Pollution Control District (SDCAPCD) Rule 55. The construction contractor shall implement the following measures, where applicable, to minimize fugitive dust emissions:

1. Use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the construction area.
2. Minimize the amount of disturbed ground area at a given time.
3. Minimize traffic speeds on all unpaved roads.
4. Install gravel pads at construction area access points to prevent tracking of soil onto paved roads.
5. Provide temporary wind fencing around sites being graded or cleared.
6. Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site. Stabilize all disturbed areas at this time.
7. Cover truck loads that haul dirt, sand, or gravel or maintain at least two feet of freeboard in accordance with Section 23114 of the California Vehicle Code.
8. After completion of clearing, grading, earthmoving, or excavation, treat the disturbed areas by watering, revegetation, or by spreading non-toxic soil binders until they are paved or otherwise developed to prevent dust generation.

9. Designate personnel to monitor the dust control program and to order increased watering, as necessary, to prevent the transport of dust off-site. Their duties would include holiday and weekend periods when work may not be in progress.

Measure 2. Construction Equipment Emission Control Measures. The construction contractor shall implement the following measures during proposed construction activities, where feasible.

1. Maintain equipment according to manufacturer specifications.
2. Restrict idling of equipment and trucks to a maximum of five minutes at any location.
3. Install diesel oxidation catalysts and/or catalyzed diesel particulate traps on equipment exhaust systems.
4. Use electricity from power poles rather than temporary diesel- or gasoline-powered generators.
5. Provide temporary traffic control, such as a flag person, during all phases of construction to maintain smooth traffic flow.
6. Keep construction equipment and equipment staging areas away from sensitive receptor areas (such as day care centers).
7. Re-route construction trucks away from congested streets or sensitive receptor areas.
8. Any equipment or operation requiring an operating permit from the SDCAPCD or other regulatory body shall be obtained by the owner/operator of that equipment/operation. Examples of such equipment and operations include non-mobile equipment utilizing an internal combustion engine greater than 50 break horsepower (bhp) (diesel-fueled electrical generators, lighting units, air compressors, etc.), rock crushing operation, and concrete batching operation. The use of off-road diesel vehicles during construction, such as loaders, crawler tractors, skid steers, backhoes, and forklifts with engines rated at 25 bhp or greater, shall comply with California Air Resources Control Board (ARB) regulations (CCR 13 Section 2449).
9. Use alternatively-fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric.

2.3.4.2 Biological Resources

Measure 3. Avoid, Minimize, and Compensate for Disturbance to Diegan Coastal Sage Scrub. The final project shall be designed to avoid/minimize impacts by reducing disturbance footprints to Diegan Coastal Sage Scrub to the maximum extent practicable. In addition, staging areas and/or other temporary construction-related requirements shall be located within the laydown areas.

Alternative 1 and Alternative 2 would result in temporary impacts to Diegan Coastal Sage Scrub. The temporary removal of Diegan Coastal Sage Scrub shall be compensated for through habitat restoration/creation and/or purchase of an equivalent amount of credits from an off-Station conservation bank. Consistent with the Integrated Natural Resources Management Plan (INRMP) (MCAS Miramar et al. 2011), temporary impacts to Diegan Coastal Sage Scrub occupied by or within the use area for the federally-listed coastal California gnatcatcher and located in MAs I and II would be mitigated at a 2:1 ratio. Impacts to Diegan coastal Sage Scrub not occupied by or within the use area for the federally-listed coastal California gnatcatcher would be mitigated at a 1:1 ratio to achieve no net loss of the habitat.

The Construction Contractor shall develop a Revegetation Plan that will be approved by MCAS Miramar before implementation. The Revegetation Plan shall address all revegetation efforts associated with the construction activities and include specific erosion control measures, irrigation requirements, species composition, seed mix origins and ratios, weed control, water regimes, maintenance activities, success criteria, and monitoring requirements. Seed mixes used for Diegan Coastal Sage Scrub revegetation shall be from locally collected sources. A suggested seed mix includes the following species: California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), broom baccharis (*Baccharis sarothroides*) black sage (*Salvia mellifera*), and deer weed (*Acmispon glaber*). The Plan components shall be implemented as soon as feasible after construction. The Revegetation Plan shall address all revegetation efforts associated with project activities and include specific erosion control measures, irrigation requirements, species composition, seed mix origins and ratios, weed control, water regimes, maintenance activities, success criteria, and monitoring requirements. Disturbed areas of Diegan Coastal Sage Scrub shall be replanted with appropriate native seed or plantings in accordance with the Revegetation Plan the first fall after the completion of construction activities and before the winter rainfall season to minimize the need for watering. Reseeding/replanting that becomes necessary after the start of the rainy season shall be done as soon as possible. The Revegetation Plan shall specify the final monitoring program duration and frequency, with a minimum of five years of monitoring post-restoration. Invasive weed control (e.g., hand removal, mechanical and herbicide control) shall be implemented in areas reseeded/replanted until the native vegetation is established. The Revegetation Plan will be approved by the MCAS Miramar Environmental Management Department prior to the start of construction activities. Areas impacted by construction shall be inspected by the MCAS Miramar Environmental Management Department within one year following the completion of construction, to determine whether any remedial measures are required. Remedial measures may include re-seeding/re-planting, weed control, watering, and/or erosion control.

Alternative 2 would result in permanent impacts to Diegan Coastal Sage Scrub that is not occupied by coastal California gnatcatcher and is located outside of the use area for this species. Consistent with the INRMP (MCAS Miramar et al. 2011), permanent impacts to Diegan Coastal Sage Scrub located in MAs I and II that does not provide habitat for federally listed species (i.e., the coastal California gnatcatcher) will be mitigated at a 1:1 ratio to achieve no net loss of habitat. Thus, the permanent removal of Diegan Coastal Sage Scrub associated with Alternative 2 shall be compensated for through habitat restoration/creation at a 1:1 ratio or purchase of an equivalent amount of credits from an off-Station conservation bank.

Measure 4. Invasive Plant Species Control. All equipment and/or vehicles shall be power-washed before entering MCAS Miramar property and the project site. While washing wheeled vehicles, the front wheels shall be turned lock-to-lock to allow for exposure of surfaces that may hold soil or weed seeds. This is to control the spread of invasive (non-native) weeds.

Measure 5. Conduct Vegetation Removal/Grubbing Outside of Nesting Season for Coastal California Gnatcatcher and Migratory Bird Treaty Act-Protected Species. Contractors shall comply with the Migratory Bird Treaty Act (MBTA). Due to the presence of habitat for the federally-listed coastal California gnatcatcher and other MBTA species within and in the vicinity of the project site, any grading, grubbing, mowing, and/or removal of surface vegetation, particularly Diegan Coastal Sage Scrub, shall not be scheduled between 15 February and 1 August to avoid potential impacts on nesting.

Measure 6. Biological Monitoring during Construction. A qualified Project Biologist will be retained by the Contractor for the duration of construction activities and will be on site at all times during clearing and grubbing of vegetation or habitats that have the potential to support listed species, specifically the coastal California gnatcatcher and San Diego fairy shrimp. The Project Biologist will identify work areas, monitor work activity, and provide “tailgate” sessions for the construction contractor, and will oversee

and execute the conservation protection measures pertaining to biological resources. The Project Biologist will have experience with threatened California coastal gnatcatcher and endangered San Diego fairy shrimp and will be approved by MCAS Miramar prior to the start of construction activities.

Measure 7. Utilize Designated Areas for Parking, Driving, and General Construction Use. Parking, driving, laydown, stockpiling, and storing vehicles and equipment shall be limited to existing roads and previously compacted and developed area. No off-road traveling is permitted outside the project boundary.

Measure 8. Monitoring/Avoidance of Vernal Pools and Other Seasonally Ponded Features Occupied by San Diego Fairy Shrimp. Occupied vernal pools and other seasonally ponded features in the immediate vicinity of the project site and vernal pool watersheds within the project site located upgradient of occupied features shall be clearly marked on construction plans and avoidance areas flagged or fenced prior to the start of construction activities. Consistent with the INRMP, any construction that could affect habitat for the San Diego fairy shrimp associated with vernal pools, seasonally ponded features, and vernal pool watersheds located upgradient of these features will occur outside of the rainy season (about 1 November to 1 June) and in dry conditions only. Following the initial clearing of features, ongoing construction activities can occur in the wet season with implementation of adequate erosion control Best Management Practices (BMPs) (e.g., jute netting, geotextiles, and other materials), as determined by the Project Biologist, to avoid an increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basins. Sedimentation into basin shall be prevented and soil-disturbing activities during rainy season or when ground is wet (about 1 November to 1 June) will be minimized.

2.3.4.3 Geologic Resources

No Environmental Protection Measures are required with respect to Geologic Resources. See Section 2.5.8 for measures pertaining to erosion.

2.3.4.4 Public Health and Safety

Measure 9. 40-Hour HAZWOPER Monitor. A monitor, with 40-Hour HAZWOPER training and experience in identifying contaminated soil and groundwater, will be present during excavation and grading.

2.3.4.5 Recreation

Measure 10. Fish Pond Access during Construction. Sidewinder Road and Johnson Road would provide non-recreation access to the Fish Pond for operation and maintenance activities while De La Garza Road is closed to through traffic.

2.3.4.6 Transportation/Circulation/Traffic

Measure 11. Avoid Peak-Hour Delivery. To minimize traffic congestion, the delivery of materials and equipment shall be outside of peak traffic hours (6:30 to 8:00 a.m. and 3:30 to 5:00 p.m.) unless otherwise approved by the Contracting Officer. All deliveries are to be via the East Gate on Miramar Way, unless previously approved by the Contracting Officer.

Measure 12. Construction Worker Ridesharing. To minimize traffic congestion, construction workers shall be encouraged to rideshare/carpool.

Measure 13. Construction Traffic Plan. A construction traffic management and detour plan would be developed. This plan would specify necessary lane closures, detours, signage, lighting, flaggers, and other traffic control measures, as needed. The traffic plan would specify routes for emergency service vehicles in the event of an emergency.

Measure 14. Road Traffic Load Signs. Warning signs indicating road load rating (16,000 pound wheel load or 32,000 pound dual space wheel load) shall be posted at the De La Garza entrance off Pless Road.

2.3.4.7 Utilities

No Environmental Protection Measures are required with respect utilities.

2.3.4.8 Water Resources

Measure 15. Temporary Sediment Control Measures. Temporary sediment control practices shall be applied throughout the construction phase within the project site and could include fiber roll and/or silt fence perimeter protection, fiber roll slope protection, gravel bag, check dam protection. The construction entrance shall be stabilized to minimize the tracking of mud and dirt onto roads by construction vehicles. If necessary, a sediment basin would be constructed at the downslope end of the construction area during construction activities to slow off-site surface flows and sediment transport.

Measure 16. Stockpile Management during Construction. Stockpiles of soil shall be properly contained to eliminate or reduce off-site sediment transport to receiving waters, including Rose Canyon Creek and downstream Mission Bay. Soil stockpiles shall be placed on top of heavy-duty plastic sheeting on areas with an improved asphalt or concrete surface. Potentially hazardous waste shall be stored in a designated area. All soil stockpiles shall be covered with material adequate to prevent soil transport by wind or rainwater runoff. Covers shall be maintained in good condition.

Measure 17. On-site Equipment and Vehicle Washing. Runoff from on-site equipment and vehicle washing shall be contained at the construction site and would not be discharged to receiving waters or the local storm drain system.

2.4 Alternatives Considered but Not Carried Forward for Detailed Analysis

The following alternatives, developed as part of a siting study conducted by MCAS Miramar (AMJV 2011b), were considered but not carried forward for detailed analysis in this EA as they did not meet the purpose of and need for the Proposed Action and/or did not satisfy the reasonable alternative screening criteria (Section 2.2).

2.4.1 Renovation/Modernization of Existing Sewer Lines

This alterative would renovate or modernize the existing sewer system at MCAS Miramar. However, renovation of sewer lines would not address the need to hold excess sanitary sewer volumes and regulate the discharge rate to the City of San City of San Diego's sewer system to comply with the designated permit limit. Therefore, this alternative would not satisfy two of the reasonable alternative screening criteria, and accordingly was eliminated from further consideration in this EA.

2.4.2 Gravity-fed Tank Pump on Rim of Rose Canyon

This alternative would involve the construction and operation of a gravity-fed sewer equalization tank on the rim of Rose Canyon, a pump station to lift sewage flow to the higher elevation, and an electrical connection and emergency power supply to the pump station. This alternative would require the removal of more than 42,000 square feet of sensitive Diegan Coastal Sage Scrub that has been identified as occupied California gnatcatcher habitat. In addition, this alternative would require significant costs associated with construction of the pump station and associated operation and maintenance costs. As such, this alternative does not meet the screening criteria to minimize operations and maintenance costs, minimize design complexity, and avoid or minimize potential impacts to sensitive natural resources and associated impacts to biological communities, including threatened and endangered species. Therefore, this alternative was eliminated from further consideration in this EA.

2.4.3 Multiple Gravity-fed Tank Locations

This alterative would involve the construction of four gravity-fed sewage equalization tanks on the four trunk lines contributing the largest quantity of sewage flow to the Rose Canyon sewer mains. The tanks would be located at: Rose Canyon North, east of Schlit Avenue; Rose Canyon South, east of Schlit Avenue; Anderson Avenue; and Flight Line West in vicinity of manhole B1-M17-3.

The proposed tank locations would not require alteration of existing structures, cause changes to planned future development, or result in permanent loss of natural habitat. However, the tie-in at each tank would require removal of approximately 20 feet by 150 feet of sensitive Diegan Coastal Sage Scrub that has been identified as occupied California gnatcatcher habitat. Diegan Coastal Sage Scrub disturbed during project activities would be revegetated at the completion of the project, resulting in no permanent loss of California gnatcatcher habitat.

This alternative is a multiple intercept solution and therefore does not meet the screening criteria for a single intercept solution. In addition, this alternative would not collect any groundwater infiltration occurring in the mains in Rose Canyon and thus may not meter total flows to below the required discharge limit. Therefore, the multiple gravity-fed tank locations alternative was eliminated from further consideration in this EA.

2.4.4 Pump Tank on West Side of Pless Road

This alternative would be similar in location and design to Alternative 2. However, the tank would be located on the west side of Pless Road rather than on the east side as proposed under Alternative 2. This alternative would result in the permanent loss of Diegan Coastal Sage Scrub vegetation identified as occupied by California coastal gnatcatcher. Therefore, this alternative does not meet the screening criteria to minimize potential impacts to sensitive natural resources and associated impacts to biological communities, including threatened and endangered species; accordingly, this alternative was eliminated from further consideration in this EA.

2.5 Summary of Impacts

Resource areas analyzed in this EA include the following: Air Quality; Biological Resources; Geologic Resources; Public Health and Safety; Recreation; Transportation/Circulation/Traffic; Utilities; and Water Resources. The environmental consequences associated with implementation of Alternative 1, Alternative 2, and the No-Action Alternative are presented and compared in Table 2-1. A detailed description of the affected environment and analysis of the environmental consequences is presented in Chapter 3.

Table 2-1. Summary of Potential Environmental Consequences			
Resource	**De La Garza Road Gravity Tank (Alternative 1)**	**De La Garza Road Pump Station and Holding Tank (Alternative 2)**	**No-Action Alternative**
Air Quality	Emissions from Alternative 1 would be below the Conformity Rule *de minimis* or the Prevention of Significant Deterioration thresholds and would satisfy the conditions of a Clean Air Act Record of Non-Applicability. Implementation of Special Conservation Measures 1 and 2 would minimize emissions of fugitive dust and construction equipment emission during construction. Additionally, due to the mobile and intermittent operation of proposed diesel-powered construction equipment over a large construction area, these sources would produce ambient concentrations of Toxic Air Contaminants in a localized area that would remain well below acceptable health risk standards. Therefore, significant impacts to air quality would not occur and no mitigation is required.	Under Alternative 2, impacts on air quality would be similar but slightly less than Alternative 1 because it would require less equipment usage for grading and construction of the new pump station and holding tank. Therefore, significant impacts to air quality would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. No impacts on air quality would occur and no mitigation is required.
Biological Resources	Alternative 1 would result in direct, temporary impacts during construction to 0.73 acres of Diegan Coastal Sage Scrub in two long, narrow strips along both sides of De La Garza Road that provides suitable habitat for the federally-listed coastal California gnatcatcher and for migratory bird species, including 19 species designated as Species of Concern under the Migratory Bird Treaty Act. Alternative 1 could result in temporary, indirect impacts to Rose Canyon Creek, associated jurisdictional wetlands, and several vernal pools and other seasonally ponded features in the project vicinity. With implementation of Environmental Protection Measures 3 through 8 including avoiding impacts on federally listed gnatcatcher, Migratory Bird Treaty Act-protected nesting bird species, and vernal pools; and avoiding and minimizing disturbance to Diegan Coastal Sage Scrub, significant impacts to biological resources would not occur.	Under Alternative 2, impacts on biological resources would be greater than Alternative 2 because construction of the pump station and holding tank would result in the temporary removal of 0.78 and the permanent removal of 0.21 acres of Diegan Coastal Sage Scrub which provides suitable habitat for the federally-listed coastal California gnatcatcher. In addition, Alternative 2 would result in direct, temporary impacts approximately 60 linear feet of Rose Canyon Creek. However, with implementation of Environmental Protection Measures 3 through 8 significant impacts to biological resources would not occur.	For the No-Action Alternative, the Proposed Action would not occur. There would be no change in existing conditions and no impacts on biological resources would occur.

Table 2-1. Summary of Potential Environmental Consequences			
Resource	**De La Garza Road Gravity Tank (Alternative 1)**	**De La Garza Road Pump Station and Holding Tank (Alternative 2)**	**No-Action Alternative**
Geologic Resources	With conformance to established plans and policies, Chapter 70 of the Uniform Building Code, *Naval Facilities Engineering Command P-355 Seismic Design Manual,* most stringent criteria identified in the latest design specifications of the Structural Engineering Association of California, MCAS Miramar requirements to prepare a site-specific geotechnical investigation with recommendations for design and construction, and the National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ; NPDES No. CAS000002), including implementation of standard Best Management Practices, and erosion control measures, significant impacts to geologic resources would not occur and no mitigation is required.	Under Alternative 2, impacts on geologic resources would be similar but slightly less than Alternative 1 because it would require less equipment usage for grading and construction of the new pump station and holding tank. Therefore, significant impacts to geologic resources would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. No impacts on geologic resources would occur and no mitigation is required.
Public Health and Safety	The project would comply with established plans and policies; the DoN Environmental Restoration Program; USACE EM 385-1-4 (*U.S. Safety and Health Requirement Manual*); MCO 5090.2A (*USMC Environmental Compliance and Protection Manual*), *San Diego Department Manual of Environmental Health Site Assessment and Mitigation Manual*, SDRWQCB Order R9-2002-343, *Waste Discharge Requirement for the Disposal and/or Reuse of Petroleum Fuel Contaminated Soils in the San Diego Region*; and EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). In addition, Special Conservation Measures 9 (40-Hour HAZWOPER monitoring) and 16 (Soil Stockpile Management) would minimize be implemented during construction. Therefore, significant impacts to public health and safety would not occur and no mitigation is required.	Under Alternative 2, impacts on public health and safety would be the same as those described for Alternative 1. Therefore, significant impacts to public health and safety would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. However, inadvertent discharge of wastewater to Mission Bay would continue to occur during some heavy precipitation events. As a result, public health impacts related to poor water quality would continue to occur in association with the No-Action Alternative.

Table 2-1. Summary of Potential Environmental Consequences			
Resource	**De La Garza Road Gravity Tank (Alternative 1)**	**De La Garza Road Pump Station and Holding Tank (Alternative 2)**	**No-Action Alternative**
Recreation	Access to the Fish Pond would be closed temporarily during construction. However, the reduction of available resources would be short-term and only affect a small non-public user group. Following construction, access to the Fish Pond would be the same as under the existing conditions. Non-recreation access to the Fish Pond for authorized personnel to conduct operation and maintenance activities would be provided by Sidewinder Road and Johnson Road for operation and maintenance activities while De La Garza Road is closed to through traffic (Measure 10). Therefore, no significant permanent impacts to recreation would occur during operation and no mitigation is required.	Under Alternative 2, impacts on recreation would be the same as those described for Alternative 1. Significant impacts to recreation would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. No impacts on recreation would occur.
Transportation, Circulation, and Traffic	Addition of the construction traffic during peak traffic hours would worsen the delays at the freeway ramps and intersections in the vicinity of the East Gate already operating at Level of Service (LOS) F and would contribute to already poorly performing freeway segments along I-15 in the vicinity of MCAS Miramar. Implementation of Measure 11 (rideshare/carpooling) would minimize impacts. In addition, construction of Alternative 1 would require the temporary closure of De La Garza Road. Implementation of Measure 14 Construction Traffic Management and Detour Plan would minimize impacts. Therefore, no significant impacts to transportation, circulation, and traffic would occur and no mitigation is required.	Under Alternative 2, impacts on transportation, circulation, and traffic would be the same as those described for Alternative 1 and significant impacts to would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. No impacts on transportation, circulation, and traffic would occur.

Table 2-1. Summary of Potential Environmental Consequences			
Resource	**De La Garza Road Gravity Tank (Alternative 1)**	**De La Garza Road Pump Station and Holding Tank (Alternative 2)**	**No-Action Alternative**
Utilities	Alternative 1 would not include the construction or operation of new water distribution mains, natural gas distribution lines, or communications lines, and would not result in an increase in demands of these utilities at MCAS Miramar. Alternative 1 would increase demands on sanitary sewer system, electricity, storm drainage system and solid waste disposal. However, the existing capacities of all utilities are adequate to accommodate Alternative 1. Therefore, significant impacts on utilities would not occur and no mitigation is required.	Alternative 2 would not include the construction or operation of new natural gas distribution lines or communications lines, and would not result in an increase in demands of these utilities at MCAS Miramar. Alternative 2 would increase demands on sanitary sewer system, water supply and distribution system, electricity, storm drainage system and solid waste disposal. However, the existing capacities of all utilities are adequate to accommodate Alternative 2. Therefore, significant impacts on utilities would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. No impacts on utilities would occur.
Water Resources	Alternative 1 would potentially discharge waste materials that would affect the quality of surface water during construction. These impacts would be managed through incorporation of Low Impact Development features into the project design, conformance with applicable requirements including the NPDES General Construction Activity Storm Water Permit, and the MCAS Miramar Storm Water Management Plan for non-industrial uses. In addition, Alternative 1 would include a number of Environmental Protection Measures and BMPs to prevent or minimize potential effects to water quality, increased sedimentation, and/or flooding potentials in Rose Canyon Creek and downstream Mission Bay, as specified by Environmental Protection Measures 15 through 17. Therefore, significant impacts to water resources would not occur and no mitigation is required.	Under Alternative 2, impacts on water resources would similar to but less than those described for Alternative 1 because a smaller area of disturbance would be required under this alternative. Therefore, significant impacts to water resources would not occur and no mitigation is required.	For the No-Action Alternative, the Proposed Action would not occur, and there would be no change in existing conditions. However, without the sewer upgrades, inadvertent discharge of wastewater to Rose Canyon Creek and Mission Bay would continue to occur during some heavy precipitation events. As a result, water quality would continue to be degraded in association with the No-Action Alternative.

3 Affected Environment and Environmental Consequences

This chapter describes the conditions of the existing environment and environmental consequences for resources potentially affected by implementation of Alternative 1 (De La Garza Gravity Tank), Alternative 2 (De La Garza Road Pump Station and Holding Tank), and the No-Action Alternative. The resources evaluated in detail in this chapter include Air Quality (Section 3.1), Biological Resources (Section 3.2), Geologic Resources (Section 3.3), Public Health and Safety (Section 3.4), Recreation (Section 3.5), Transportation, Circulation, and Traffic (Section 3.6), Utilities (Section 3.7), and Water Resources (Section 3.8).

3.1 Air Quality

3.1.1 Definition of Resource

Air quality in a given location is defined by pollutant concentrations in the atmosphere and is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). One aspect of significance is a pollutant's concentration in comparison to a national ambient air quality standard. Such standards represent the maximum allowable atmospheric concentrations that may occur while still protecting public health and welfare with a reasonable margin of safety. The Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except annual standards, which may never be exceeded. The NAAQS are shown in Table 3.1-1.

This section addresses baseline air quality conditions for MCAS Miramar and includes a description of air quality terminology, regulatory requirements applicable to Alternative 1 and Alternative 2, and current air quality conditions.

The main pollutants of concern considered in this air quality analysis include volatile organic compounds (VOCs), carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). Although VOCs and NO_x (other than nitrogen dioxide) have no established ambient standards, they are important as precursors to ozone (O_3) formation.

Toxic air contaminants (TACs) include air pollutants that can cause serious illnesses or increased mortality, even in low concentrations. TACs are compounds that generally have no established ambient standards, but are known or suspected to cause short-term (acute) and/or long-term (chronic non-carcinogenic or carcinogenic) adverse health effects. The ARB designates diesel particulate matter (DPM) from the combustion of diesel fuel as a TAC. Hazardous air pollutants (HAPs) are the term used by the federal Clean Air Act (CAA) for a set of air pollutants that are similar to TACs. The CAA identifies 187 substances as HAPs, such as benzene, formaldehyde, mercury, and toluene.

In addition to the criteria pollutants listed above, anthropogenic (caused by human activities) greenhouse gases (GHGs) have been identified as contributors to global climate change. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other trace gases that are present in trace amounts in the atmosphere. This is a developing area of scientific study with no established thresholds to determine significance of impacts under NEPA. The potential effects of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough on their own to have an appreciable effect on climate change. Therefore, the impact of proposed GHG emissions to climate change is discussed in the context of cumulative impacts in Chapter 4.

Table 3.1-1. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards [a]	
		Primary [b, c]	Secondary [b, d]
Ozone (O_3)	8-hour	0.075 ppm (147 µg/m^3)	Same as primary
Carbon monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	---
	1-hour	35 ppm (40 mg/m^3)	---
Nitrogen dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	Same as primary
	1-hour	0.10 ppm (188 µg/m^3)	---
Sulfur dioxide (SO_2)	3-hour		
	1-hour	0.075 ppm (196 µg/m^3)	---
PM_{10}	24-hour	150 µg/m^3	Same as primary
$PM_{2.5}$	Annual	15 µg/m^3	---
	24-hour	35 µg/m^3	---
Lead	Rolling 3-month average	0.15 µg/m^3	Same as primary
	Quarterly average	1.5 µg/m^3	Same as primary

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meters

a Standards other than the 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages are not to be exceeded more than once a year.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that states implementation plan is approved by the EPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Source: California Air Resources Board 2012

3.1.2 Region of Influence

The region of influence (ROI) for this air quality analysis is defined as all of San Diego County, which equates to the San Diego Air Basin (SDAB). Identifying the ROI for air quality requires knowledge of the types of pollutants being emitted, pollutant emission rates, topography, and meteorological conditions. The ROI for inert pollutants (pollutants other than ozone and its precursors) is generally limited to a few miles downwind from a source. The ROI for photochemical pollutants, such as O_3, can extend much farther downwind than for inert pollutants. Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone precursors are mainly VOCs and NO_x. In the presence of solar radiation, the maximum effect of VOCs and NO_x emissions on O_3 levels usually occurs several hours after they are emitted and many miles from the source.

3.1.3 Affected Environment

3.1.3.1 Baseline Air Quality

The EPA designates all areas of the U.S. in terms of having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Former nonattainment areas that have attained the NAAQS are designated as maintenance areas. Presently, the SDAB is in attainment of the NAAQS for all pollutants

except O_3. Additionally, the western portion of the SDAB (the portion of San Diego County generally west of the interior desert region) is also a maintenance area for CO.

Ozone concentrations are generally the highest during the summer months, coinciding with the period of maximum regional insolation. Maximum O_3 concentrations tend to be regionally distributed, since precursor emissions become homogeneously dispersed in the atmosphere. Inert pollutants, such as CO, tend to have the highest concentrations during the colder months of the year, when light winds and nighttime/early morning surface-based temperature inversions inhibit atmospheric dispersion. Maximum inert pollutant concentrations are usually found in direct proximity to an emission source.

3.1.3.2 Regional and Local Air Pollutant Sources

The SDCAPCD periodically updates emissions for the SDAB for purposes of forecasting future emissions, analyzing emission control measures, and for use in regional air quality modeling. The largest sources of VOCs, CO, and NO_x emissions within the region are on-road vehicles. The 2008 annual emissions inventory determined that on-road vehicles emitted 33 percent of the VOCs, 64 percent of the CO, and 56 percent of the NO_x emissions within the entire SDAB (ARB 2009). Other large contributors of VOCs within the region include the use of solvents and surface coatings. Combustive sources such as vehicles, diesel engines, and industrial facilities emit fine particulate matter ($PM_{2.5}$) and gaseous pollutants (such as NO_x), which can react in the atmosphere to produce secondary fine particulates. Coarser particles (PM_{10}) are directly emitted from soil-disturbing activities such as construction, mining, agriculture, and vehicular road dust.

Emission sources associated with existing uses at MCAS Miramar include civilian and military personal vehicles, commercial and military vehicles, aircraft engines, tactical support equipment, small stationary sources, and ongoing construction activities.

3.1.3.3 Greenhouse Gas Emissions

Greenhouse gases are gases that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The accumulation of GHGs in the atmosphere influences the long-term range of average atmospheric temperatures. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

The most common GHGs emitted from natural processes and human activities include CO_2, CH_4, and N_2O. Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons used in refrigerants and propellants, among other products) and sulfur hexafluoride. Each GHG is assigned a global warming potential (GWP), which equates to the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a GWP of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis. The total GHG emissions from a source are often expressed as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its GWP and adding the products together to produce a single, combined emission rate representing all GHGs.

Recent observed changes due to global warming include shrinking glaciers, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (Intergovernmental Panel on Climate Change 2007; United States Global Change Research Program 2009; and California Energy Commission 2012). Predictions of long-term environmental impacts due to global warming include

sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack. In California, global warming effects are predicted to include exacerbation of air quality problems, a reduction in municipal water supply from the Sierra snowpack, a rise in sea level that would displace coastal businesses and residences, damage to marine and terrestrial ecosystems, and an increase in the incidence of infectious diseases, asthma, and other human health problems (California Energy Commission 2012).

Federal agencies on a national scale address emissions of GHGs by reporting and meeting reductions mandated in federal laws, EOs, and agency policies. The most recent of these are EOs 13423 and 13514 and the *EPA Final Mandatory Reporting of Greenhouse Gases Rule*. Several states have promulgated laws as a means of reducing statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 (Assembly Bill 32) directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020. Groups of states also have formed regionally-based collectives (such as the Western Climate Initiative) to jointly address GHG pollutants.

In an effort to reduce energy consumption, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with the goals set by EOs and the Energy Policy Act of 2005, the Marine Corps and DoD have implemented a number of renewable energy projects (NAVFAC Southwest 2006a). The types of projects currently in operation within the southwest region include thermal and photovoltaic solar systems, geothermal power plants, and wind generators. The military also purchases one half of the biodiesel fuel sold in California and continues to promote and install new renewable energy projects within the southwest region.

On 18 February 2010, the CEQ proposed for the first time draft guidance on how federal agencies should evaluate the effects of climate change and GHG emissions for NEPA documentation (CEQ 2010). The CEQ does not provide a reference point as an indicator of a level of GHG emissions that may significantly affect the quality of the human environment. In the analysis of the direct effects of a proposed action, the CEQ proposes that it would be appropriate to: 1) quantify cumulative emissions over the life of the project; 2) discuss measures to reduce GHG emissions, including consideration of reasonable alternatives; and 3) qualitatively discuss the link between such GHG emissions and climate change. The CEQ is expected to issue its final guidance in the near future.

3.1.4 Applicable Regulations and Standards

The CAA of 1970 and its subsequent amendments establish air quality regulations, and the NAAQS delegate the enforcement of these standards to the states. In California, the ARB is responsible for enforcing air pollution regulations. In San Diego County, the SDCAPCD has this responsibility. Basic elements of the CAA include the NAAQS for criteria air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, and enforcement provisions.

The CAA establishes air quality planning processes and requires areas in nonattainment of a NAAQS to develop a State Implementation Plan (SIP) that details how the state will attain the standard within mandated time frames. The requirements and compliance dates for attainment are based on the severity of the nonattainment classification of the area. The following section provides a summary of the federal, state, and local air quality rules and regulations that apply to the Proposed Action and its alternatives.

3.1.4.1 Federal Regulations

Clean Air Act

Section 176(c) of the CAA, as articulated in the EPA General Conformity Rule, states that a federal agency cannot issue a permit or support an activity unless the agency determines that it will conform to the most recent EPA-approved SIP. This means that projects using federal funds or requiring federal approval in nonattainment or maintenance areas must not: 1) cause or contribute to any new violation of an NAAQS; 2) increase the frequency or severity of any existing violation; or 3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Emissions of attainment pollutants are exempt from the conformity rule. Actions would conform to a SIP if their annual emissions remain less than applicable *de minimis* thresholds. Formal conformity determinations are required for any actions that exceed these thresholds. Based on the present attainment status of the SDAB, the Proposed Action would conform to the most recent EPA-approved SIP if its annual construction or operational emissions do not exceed 100 tons of VOCs, CO, or NO_x. SDCAPCD Rule 1501 implements the EPA General Conformity Rule. The conformity evaluation for the Proposed Action is summarized in Section 3.1.5 and presented in complete form in Appendix A-1of this EA.

Executive Orders

The following EOs regulate air quality.

- EO 12088, *Federal Compliance with Pollution Control Standards*, requires federal agencies to comply with applicable pollution control standards and to cooperate with EPA, state, and local regulatory agencies.
- EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, sets goals to reduce GHG emissions by reducing energy intensity by 3 percent annually or 30 percent by 2015.
- EO 13432, *Cooperation Among Agencies in Protecting the Environment with Respect to Greenhouse Gas Emissions from Motor Vehicles, Nonroad Vehicles, and Nonroad Engines*, ensures the coordination between federal agencies to protect the environment with respect to GHG emissions from vehicles, engines, and motor vehicle fuels.
- EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, establishes sustainability goals for federal agencies. This EO requires federal agencies to increase energy efficiency, reduce GHG emissions, conserve water, reduce waste, support sustainable development, reduce petroleum consumption, and promote environmentally responsible products and technologies.

3.1.4.2 Local Regulations

The SDCAPCD is the local agency responsible for enforcement of air quality regulations in the project region. The SDCAPCD has developed air quality plans to reduce emissions to a level that will bring the SDAB into attainment of the ambient air quality standards (SDCAPCD 2013a). Control measures for stationary sources proposed in the air quality plans and adopted by the SDCAPCD are incorporated into the SDCAPCD Rules and Regulations (SDCAPCD 2013b).

3.1.5 Environmental Consequences

For the purposes of this air quality analysis and for air pollutants designated as in nonattainment or maintenance of an NAAQS and therefore subject to general conformity requirements, if the total

emissions estimated for the Proposed Action or alternative exceed a conformity *de minimis* threshold that triggers a conformity determination in the SDAB project region (100 tons per year of VOCs, CO, or NO_x), further analysis was conducted to determine whether impacts were significant. In such cases, if emissions conform to the approved SIP, then proposed impacts would not be determined significant. In the case of a criteria pollutant for which the SDAB is in attainment of its NAAQS (SO_2, PM_{10}, and $PM_{2.5}$), the analysis used the EPA Prevention of Significant Deterioration (PSD) threshold for new major sources of 250 tons per year as an indicator of significance of air quality impacts from the Proposed Action or alternative. Although the PSD permitting program is not applicable to mobile sources, PSD thresholds are used as criteria for measuring air quality impacts under NEPA.

Air quality impacts from the Proposed Action or alternative would occur from: 1) combustive emissions due to the use of fossil fuel-powered equipment; and 2) fugitive dust emissions (PM_{10} and $PM_{2.5}$) during site preparation and the operation of equipment on exposed soils. Factors needed to derive proposed construction source emission rates were obtained from the *Compilation of Air Pollution Emission Factors, AP-42, Volume I* (EPA 1995), *EMFAC2011 Model* for on-road vehicles (ARB 2013a), and the *In-Use Off-Road Equipment 2011 Inventory Model* for off-road construction equipment (ARB 2013b). The equipment activity data needed to estimate emissions from proposed construction were based on past construction projects that are similar to the Proposed Action. Appendix A-1 includes data and assumptions used to calculate proposed construction emissions. As a conservative approach, the analysis assumed that all construction would occur within one calendar year.

3.1.5.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Table 3.1-2 summarizes the annual and total emission estimations for the construction of Alternative 1. These data show that annual VOC, CO, NO_x, SO_2, PM_{10}, and $PM_{2.5}$ emissions generated from Alternative 1 would only be small fractions of their applicable conformity de minimis or PSD threshold. As a result, Alternative 1 would not produce significant air quality impacts and no mitigation is required. Implementation of standard fugitive dust and construction equipment emission control measures (Special Conservation Measures 1 and 2) would minimize emissions of PM_{10} and $PM_{2.5}$.

Proposed construction equipment would emit TACs that could potentially impact public health. The main source of TACs would occur in the form of particulates from the combustion of diesel fuel. Due to the mobile and intermittent operation of proposed diesel-powered construction equipment over a large construction area, these sources would produce ambient concentrations of TACs in a localized area that would remain well below acceptable health risk standards. As a result, Alternative 1 would not produce significant impacts to public health and no mitigation is required.

Operational activities associated with Alternative 1 would produce a minor amount of air emissions due to the occasional consumption of electricity and the use of a water truck and pressure washer to maintain the tank on an annual basis. Therefore, operation of Alternative 1 would not produce significant air quality impacts and no mitigation is required.

The results of air quality analysis indicate that proposed emissions from Alternative 1 would not exceed their applicable conformity *de minimis* thresholds. Appendix A-2 of this EA includes a CAA Record of Non-Applicability (RONA) documentation for Alternative 1.

Table 3.1-2. Annual and Total Emissions Due to Construction of the Sewer Equalization Tanks at MCAS Miramar – Alternative 1 and Alternative 2

Alternative/Activity	Air Pollutant Emissions (Tons)						
	VOC	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e
Alternative 1							
Site Preparation/Backfill	0.04	0.12	0.48	0.00	1.13	0.13	62.34
Construct Sewer Tank	0.01	0.03	0.13	0.00	0.10	0.01	15.64
Pave De la Garza Road	0.00	0.00	0.02	0.00	0.02	0.00	1.98
Total Emissions – Alternative 1	**0.05**	**0.15**	**0.63**	**0.00**	**1.24**	**0.15**	**79.96**
Alternative 2							
Site Preparation	0.01	0.02	0.07	0.00	0.05	0.01	8.99
Construct Steel Tank/Box Culvert	0.01	0.01	0.07	0.00	0.04	0.01	8.28
Utilities Installation	0.00	0.01	0.03	0.00	0.01	0.00	3.59
Total Emissions – Alternative 2	**0.02**	**0.04**	**0.17**	**0.00**	**0.10**	**0.02**	**20.87**
NEPA Significance Thresholds	**100[2]**	**100[2]**	**100[2]**	**250[3]**	**250[3]**	**250[3]**	**NA**

Notes: CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NA = not available; NEPA = National Environmental Policy Act; NO_x = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_2 = sulfur dioxide

1. Assumes all emissions would occur within a calendar year.
2. Conformity *de minimis* threshold.
3. Environmental Protection Agency Prevention of Significant Deterioration (PSD) threshold.

3.1.5.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Table 3.1-2 summarizes the annual and total emission estimations for the construction of Alternative 2. These data show that annual VOC, CO, NO_x, SO_2, PM_{10}, and $PM_{2.5}$ emissions generated from Alternative 2 would be only small fractions of their applicable conformity de minimis or PSD thresholds. As a result, Alternative 2 would not produce significant air quality impacts and no mitigation is required. Implementation of standard fugitive dust and construction equipment emission control measures (Special Conservation Measures 1 and 2) would minimize emissions of PM_{10} and $PM_{2.5}$.

Proposed construction equipment would emit TACs that could potentially impact public health. The main source of TACs would occur in the form of particulates from the combustion of diesel fuel. Due to the mobile and intermittent operation of proposed diesel-powered construction equipment over a large construction area, these sources would produce ambient concentrations of TACs in a localized area that would remain well below acceptable health risk standards. As a result, Alternative 2 would not produce significant impacts to public health and no mitigation is required.

Operational activities associated with Alternative 2 would produce a minor amount of air emissions due to the occasional consumption of electricity and the use of a water truck to maintain the tank on an annual basis. During power outages, a 150-kilowatt diesel-powered generator would supply electricity to operate the pump system. The generator would operate under an SDCAPCD air permit and would produce minor air quality impacts. Therefore, operation of Alternative 2 would not produce significant air quality impacts and no mitigation is required.

3.1.5.3 No-Action Alternative

Under the No-Action Alternative, none of the proposed upgrades to the existing sewer system would occur. Therefore, no impacts on air quality would occur and no mitigation is required.

This page intentionally left blank.

3.2 Biological Resources

3.2.1 Definition of Resource

For the purposes of this EA, biological resources are defined as plant communities, plant species, wildlife species, habitat linkages, and special status communities and species that may be affected by implementation of the Proposed Action and alternatives. These resources are divided into four major categories: vegetation communities, general wildlife, special status species, and wetlands and other Waters of the U.S.

Vegetation communities include all existing terrestrial plant communities, with the exception of special status plant species.

General Wildlife includes all animals with the exception of these identified as special status species. Wildlife includes invertebrates, fish, amphibians, reptiles, birds, and mammals.

Special status species are defined as those listed as threatened or endangered, proposed for listing as threatened or endangered, or are candidates for such listing under the Endangered Species Act (ESA). ESA protects federally-listed threatened and endangered plant and animal species. Federal species of concern are protected by law; however, these species could become listed, and thus protected, at any time. Although DoN policy encourages cooperation to protect state and state-listed species; there is no statutory mandate for protection by federal entities. Also included in this category are species protected by the Bald Eagle Protection Act, federal Migratory Bird Treaty Act [MBTA], and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.

The following data sources were consulted/developed to support the analysis present in this chapter:

- MCAS Miramar INRMP (MCAS Miramar *et al.* 2011);
- MCAS Miramar geographic information systems (GIS) resource database (MCAS Miramar GIS Data 2012) and site visits conducted on 13 October 2012 and 10-12 April 2013;
- MCAS Miramar Natural Resource Division staff and NAVFAC Southwest natural resource and planning staff have provided additional relevant information and technical reports;
- Rare plant survey data (Dossey and Associates 2006 and 2008);
- Coastal California gnatcatcher survey data (Haas 2010; Tierra Data Inc. 2013; personal communication, Dr. Chuck Black 2013);
- Dry season protocol vernal pool fairy shrimp species survey data (MCAS Miramar 2012; site visits conducted by SAIC on 13 October 2012 and 10 - 12 April 2013; personal communication Dr. Chuck Black 2013); and
- Wetlands/Waters of the U.S. surveys (Lichvar and Dixon 2008; SAIC 2013).

Wetlands are defined under Clean Water Act (CWA) regulations (33 CFR 328) as, “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas.”

Jurisdictional wetlands exist when the following three criteria are present: wetland hydrology, hydric soils (i.e., soil that formed under conditions of saturation, flooding or ponding long enough during the growing

season to develop anaerobic conditions in the upper part), and hydrophytic vegetation (i.e., plant-life that thrives in wet conditions).

3.2.2 Region of Influence

The ROI for biological resources is defined as areas wherein biological resources may be directly or indirectly affected due to ground disturbance during construction activities. For the purposes of this project, this includes the project sites for Alternative 1 and Alternative 2 and immediately adjacent areas.

3.2.3 Affected Environment

3.2.3.1 Vegetation Communities

The vegetation communities described in this EA are based on data from the MCAS Miramar GIS database depicting the vegetation communities found within and adjacent to the project site for Alternative 1 and Alternative 2 (MCAS Miramar 2012 GIS Data) and a site visit in 2013. The description of vegetation communities in this EA follows the Oberbauer *et al.* (2008) classification system, which expands upon the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Scientific nomenclature for plants follows *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin *et al.* 2012).

Vegetation communities that occur in Rose Canyon surrounding the project site include: Chamise Chaparral, Coastal and Valley Fresh Water Marsh, Diegan Coastal Sage Scrub, Scrub Oak Chaparral, Southern Mixed Chaparral, Disturbed, and Developed. However, only four vegetation communities are present within the project site: Diegan Coastal Sage Scrub, Disturbed Diegan Coastal Sage Scrub, Disturbed, and Developed. Figure 3.2-1 depicts vegetation communities identified within the project site for Alternative 1, which is located immediately adjacent to De La Garza Road. Figure 3.2-2 shows vegetation communities within the project site for Alternative 2, which is located immediately adjacent to De La Garza Road and Pless Road. Table 3.2-1 provides the amount of each vegetation community located within the project site for Alternative 1 and Alternative 2. A detailed description of each community is provided in Oberbauer *et al.* (2008) and a general description of each community in relation to the project site is provided below.

Table 3.2-1. Existing Vegetation Communities within the Project Site for the Alternative 1 and Alternative 2

Vegetation Community	Alternative 1 (acre)	Alternative 2 (acre)
Diegan Coastal Sage Scrub	0.67	0.99
Disturbed Diegan Coastal Sage Scrub	0.06	0
Developed	1.32	1.02
Disturbed	0	0.29
Total	**2.05**	**2.30**

Source: MCAS Miramar GIS Data 2012; SAIC 2013

Diegan Coastal Sage Scrub

Diegan Coastal Sage Scrub within the ROI consists of low, soft woody subshrubs. California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and broom baccharis (*Baccharis sarothroides*) are dominant species. Less common plant species include black sage (*Salvia mellifera*), and deer weed (*Acmispon glaber*). The understory varies from barren with a rocky substrate to a mix of non-native grasses and forbs including rye grass (*Festuca* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), wild oats (*Avena* spp.), red brome (*Bromus madritensis* ssp. *rubens*),

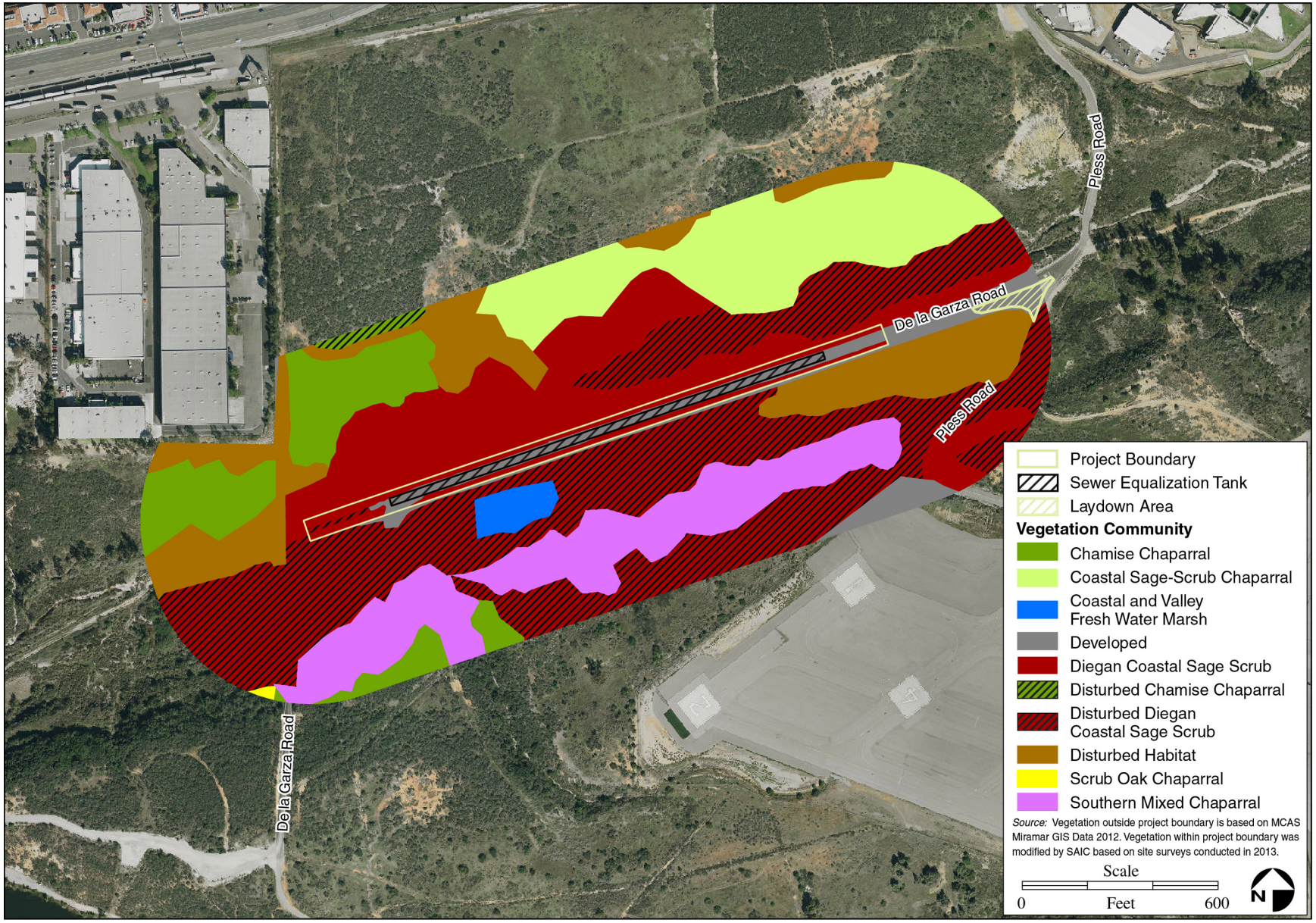

Figure 3.2-1. Vegetation Communities in the Vicinity of Alternative 1

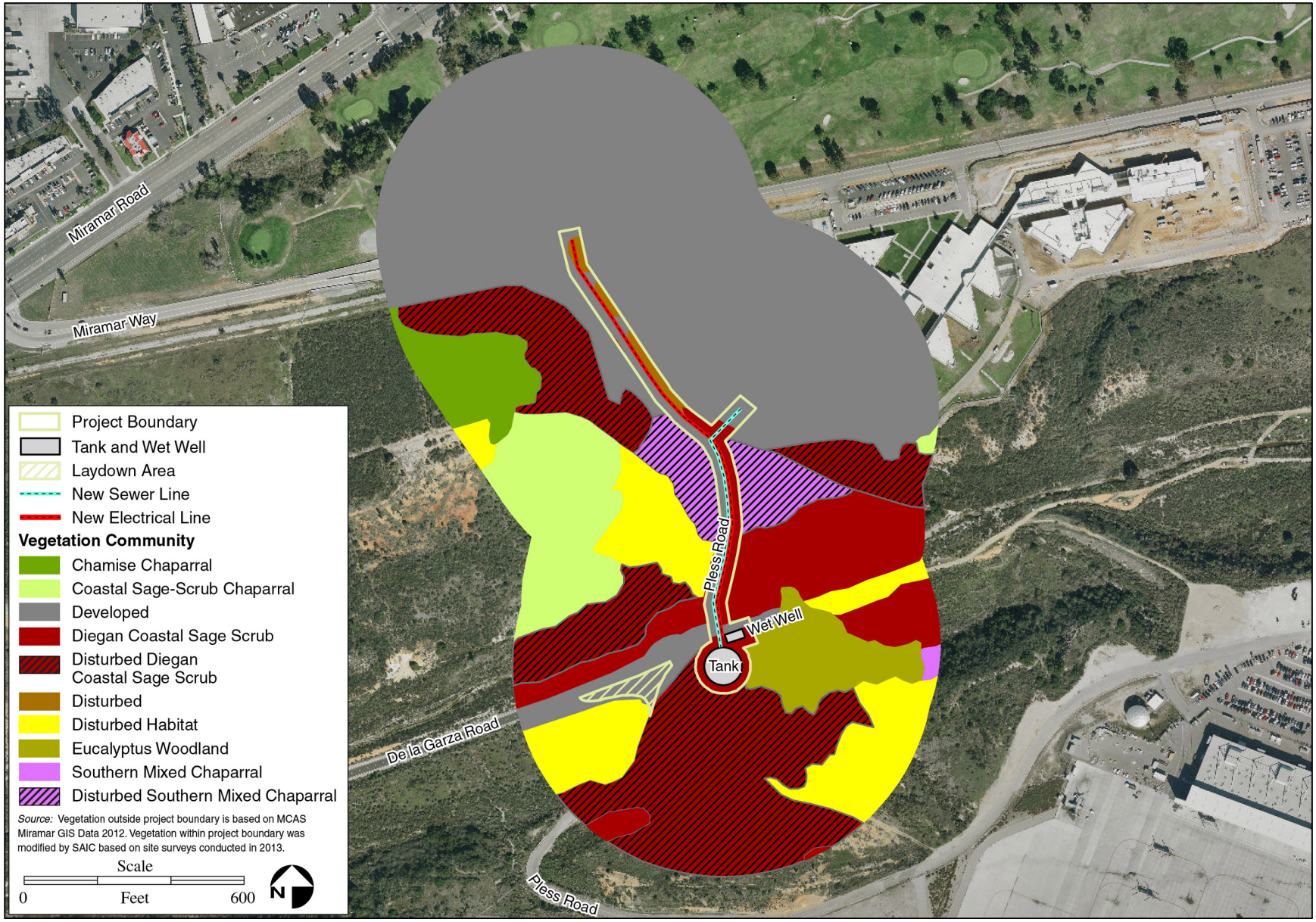

Figure 3.2-2. Vegetation Communities in the Vicinity of Alternative 2

spotted spurge (*Chamaesyce maculata*), cut leaf plantain (*Plantago coronopus*), and erodium (*Erodium* spp.). Diegan Coastal Sage Scrub borders De La Garza Road.

A total of approximately 0.73 acres of Diegan Coastal Sage Scrub (0.67 acres of Diegan Coastal Sage Scrub and 0.06 acres of Disturbed Diegan Coastal Sage Scrub) is present within the project site for Alternative 1 in two long narrow strips along both sides of De La Garza Road. A total of approximately 0.99 acres of Diegan Coastal Sage Scrub is present within the project site for Alternative 2 in one narrow strip along the east side of Pless road and to the south of De La Garza Road.

Developed

Developed communities have been constructed upon or physically altered to an extent that native vegetation is no longer supported. Developed areas within the project site are characterized by permanent or semi-permanent structures, pavement, or hardscape and comprise a majority of the project site for both alternatives. De La Garza Road and Pless Road and other existing roads are developed areas.

Disturbed

Areas classified as disturbed are those where past or present physical disturbance (e.g., brushing, tilling, or vehicle disturbance) is prevalent, with more than half of the area covered by species adapted to disturbance, especially forbs, or by bare ground. Disturbed areas have the potential to support native vegetation if left undisturbed or are subjected to active restoration actions. Disturbed land is located on the east side of Pless Road within the project site for Alternative 2.

3.2.3.2 General Wildlife and Wildlife Corridors

MCAS Miramar supports habitat for a wide variety of wildlife species including seven species of amphibians, 30 species of reptiles, over 200 species of birds, and 39 species of mammals (MCAS Miramar *et al*. 2011). A complete list of wildlife species known to occur on MCAS Miramar is provided in the INRMP (MCAS Miramar *et al*. 2011). Many of these wildlife species are adapted to Diegan Coastal Sage Scrub and Chaparral vegetation communities, which are the two most common vegetation communities found on MCAS Miramar.

The ROI is representative of wildlife habitats common on MCAS Miramar and the greater San Diego region. On West Miramar, in the project vicinity, a variety of common wildlife species are expected to occur based on the presence of suitable habitat and in association with the vegetation communities in the area. Species likely present at the project site include: fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), California king snake (*Lampropeltis getula californiae*), western scrub-jay (*Aphelocoma californica*), red-winged blackbird (*Agelaius phoeniceus*), California towhee (*Melozone crissalis*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), Anna's Hummingbird (*Calypte anna*), bobcat (*Felis rufus*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus fuliginita*), and California ground squirrel (*Spermophilus beecheyi*).

In addition, Rose Canyon serves as one of two primary east-west corridors for wildlife movement on MCAS Miramar and provides connectivity to habitat patches west of the Air Station (MCAS Miramar *et al*. 2011). Mule deer and bobcat use has been documented in Rose Canyon.

3.2.3.3 Special Status Species

For the purposes of this assessment, special status species are those listed as threatened or endangered, proposed for listing as threatened or endangered, or are candidates for such listing under the ESA. Also included in this category are species protected by the Bald and Golden Eagle Protection Act and the

MBTA. There are six special status plant species and five special status wildlife species known to occur at MCAS Miramar. Bald and golden eagles are not known to occur in the ROI and are not discussed further.

Federally-Listed Species

No federally-listed plant species are known to occur within the ROI. Two federally listed wildlife species, San Diego fairy shrimp (*Branchinecta sandiegonensis*) and coastal California gnatcatcher (*Polioptila californica californica*) are known to occur within the ROI (Figures 3.2-3 and 3.2-4; Table 3.2-2) and are discussed below.

Critical habitat, as defined under the ESA, has not been designated on MCAS Miramar because the United States Fish and Wildlife Service (USFWS) has determined that the MCAS Miramar INRMP provides a conservation benefit for the species.

Table 3.2-2. Federally Listed Threatened and Endangered Species Known to Occur in the Vicinity of Alternative 1 and Alternative 2

Species	Status	Habitat/ Occurrence in Project Footprint
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE	San Diego fairy shrimp may be present in seasonally astatic (flooded) vernal pools and other (non-vernal pool) seasonally ponded features in coastal areas within grassland, agriculture, coastal sage scrub, and chaparral habitats. This species is known to occur in all 10 vernal pool habitat management units on MCAS Miramar. Occupied vernal pools and other (non-vernal pool) seasonally ponded features are located in the vicinity of the project site for Alternative 1 and Alternative 2, but not within the project boundaries. However, a portion of mapped watersheds associated with these San Diego fairy shrimp-occupied features are located within and adjacent to the project sites for Alternative 1 and Alternative 2 - in some cases downslope from the occupied features.
coastal California gnatcatcher (*Polioptila californica californica*)	FT, CSC	This species is locally abundant on MCAS Miramar where suitable habitat exists. Coastal California gnatcatchers activity and use areas occur in Rose Canyon and in the vicinity of the project area (MCAS 2012; Haas 2010; Tierra Data Inc. 2013; personal communication Dr. Chuck Black 2013). Gnatcatchers have been observed in the project vicinity in 1998, 2007, 2009, and 2013.

Status:
Federal Status (determined by USFWS):
FE Federally Listed Endangered
FT Federally Listed Threatened

State Status (determined by California Department of Fish and Wildlife [CDFW]):
CSC California Special Concern Species

San Diego Fairy Shrimp

San Diego fairy shrimp were listed as endangered on 3 February 1997 (USFWS 1997). A Recovery Plan for Vernal Pools of Southern California (that includes San Diego fairy shrimp) was finalized in 1998 (USFWS 1998). Critical habitat has been designated in the region for San Diego fairy shrimp; however, as noted above, the USFWS has determined that the MCAS Miramar INRMP provides a conservation benefit for the species beyond that which would be afforded by critical habitat designation. A complete description of the regulatory and natural history for this species can be found in the *Federal Register* (65 FR 63 63438; USWFS 2007) and www.ecos.fws.gov.

San Diego fairy shrimp occur in vernal pools and other (non-vernal pool) seasonally ponded features (herein referred to as other seasonally ponded features). Habitat for this species is from 2 to 12 inches deep with water temperatures from 50 to 68 degrees Fahrenheit, and water chemistry is one of the most important factors in determining species' distribution (USFWS 1997). The vast majority of vernal pool habitat on MCAS Miramar is encompassed within Level I Management Areas (MA), which connotes the highest conservation priority on the Air Station (MCAS Miramar *et al*. 2011).

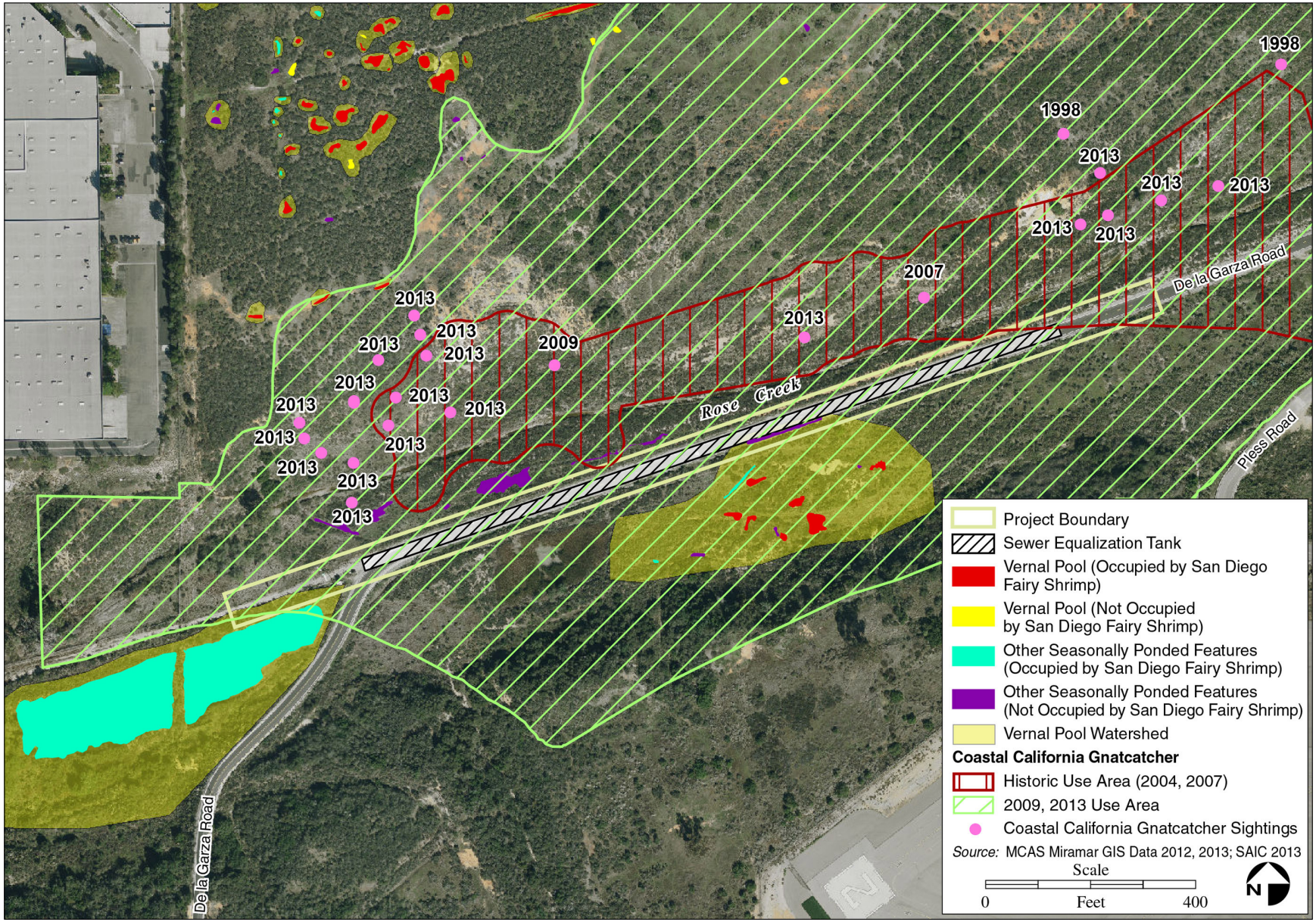

Figure 3.2-3. Federally Listed Species Known to Occur in the Vicinity of Alternative 1

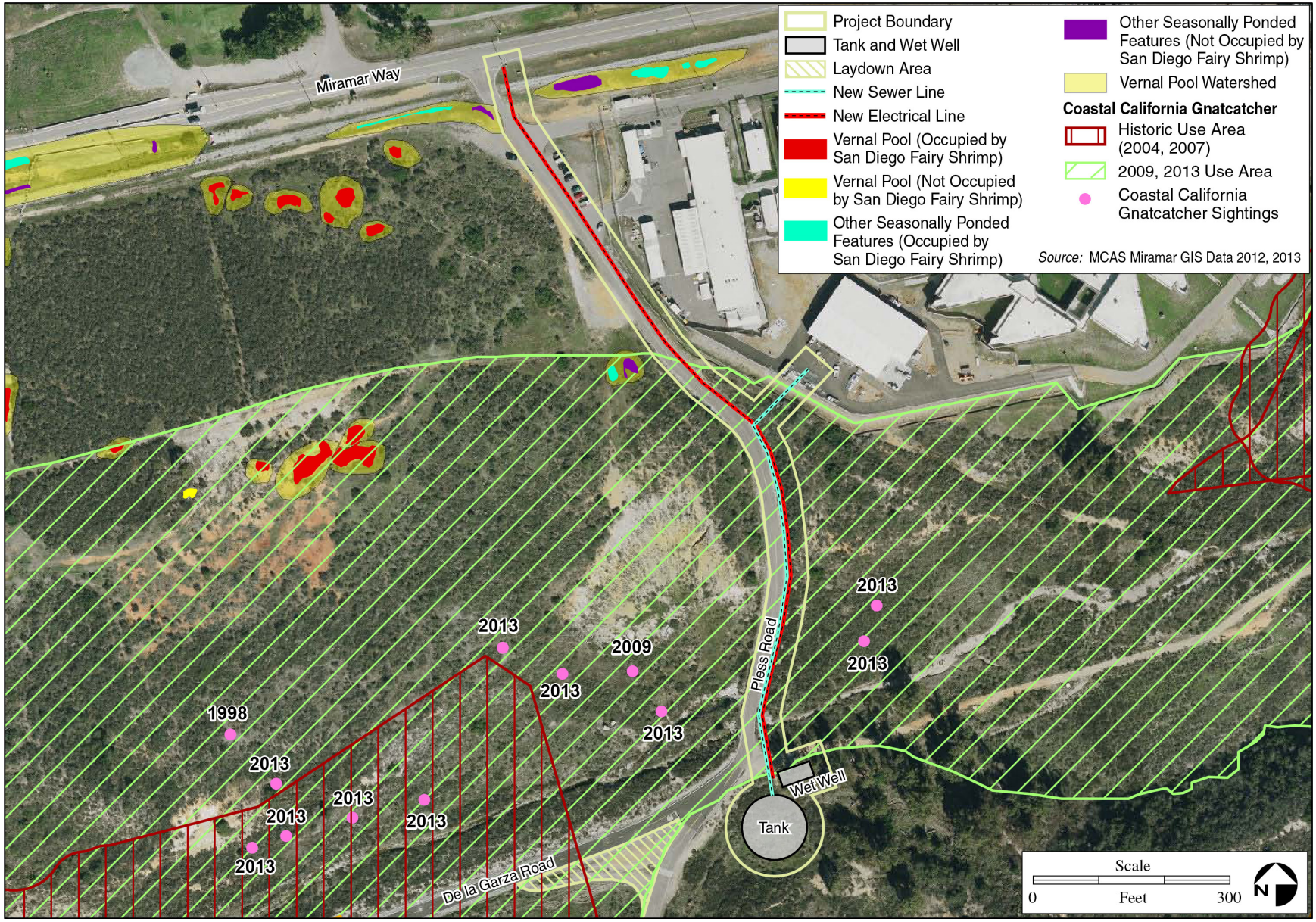

Figure 3.2-4. Federally Listed Species Known to Occur in the Vicinity of Alternative 2

MCAS Miramar maintains a GIS resource database including data on vernal pools and other seasonally ponded features occupied by San Diego fairy shrimp. This database was reviewed for occurrences in the ROI. In addition, dry season protocol vernal pool fairy shrimp species surveys were conducted within the ROI in 2013 (personal communication Dr. Chuck Black 2013). Occupied San Diego fairy shrimp habitat has been documented in several vernal pools and other seasonally ponded features near the project site for Alternative 1 (Figure 3.2-3). Occupied San Diego fairy shrimp habitat has also been documented in several vernal pools and other seasonally ponded features near the project site for Alternative 2 (Figure 3.2-4). Alternative 1 is located within MA Level II (Non-vernal pool threatened/endangered species). MA Level I (Vernal pools and associated watersheds), which has the highest conservation priority on MCAS Miramar, is located outside the project boundaries (and upslope/upstream). Alternative 2 is located within MA Level I along Pless Road, Level II (Non vernal pool threatened/endangered species), and Level V (Developed Areas). Some isolated, high value natural resources (e.g., vernal pool habitat and costal California gnatcatcher habitat) occur within these MAs, which also require appropriate management and conservation considerations.

Coastal California gnatcatcher

The coastal Californian gnatcatcher was federally listed as threatened on 30 March 1993. As noted above, essential coastal California gnatcatcher habitat occurs on MCAS Miramar but all these lands are excluded from critical habitat designation because the Air Station has a legally operative INRMP (MCAS Miramar *et al.* 2011). The completed federal listing and detailed information on the coastal California gnatcatcher regulatory history, range, life history, habitat, and abundance can be found in the *Federal Register* 58(59): 16742 and 65(206):63680-63743 (USFWS 1993, 2000).

This subspecies is generally described as coastal sage scrub-obligate; however, investigations suggest that coastal California gnatcatchers also use chamise chaparral near coastal sage scrub as nesting habitat. On MCAS Miramar coastal California gnatcatcher surveys have been conducted periodically since the species was listed, and focused surveys have been carried out since 1994 to determine home range and dispersal (Haas 2010). However, in 2003 the Cedar Fire burned an estimated 17,600 acres of the total 23,015 acres on the Air Station. Since then, surveys have occurred in 2004, 2007, 2009, and 2013. In 2004, 21 coastal California gnatcatcher pairs and one solitary male were documented on MCAS Miramar (Haas 2010). In 2007, surveys identified 34 pairs, three solitary males, and eight individuals. In 2009, pairs were identified at 71 locations and 30 solitary birds were observed (Haas 2010). Since 2007, historic surveys have included sightings in Rose Canyon in the project vicinity (Figure 3.2-3 and 3.2-4). In 2013, coastal California gnatcatcher surveys identified two pairs and two nests in Rose Canyon (Tierra Data Inc. 2013). Coastal California gnatcatchers were observed using suitable habitat in the project vicinity and these use areas are consistent with historic documentations (Figure 3.2-4).

Migratory Bird Treaty Act Species

The MBTA is an international agreement among the United States, Canada, and Mexico that protects designated species of birds. Specifically, the MBTA controls the taking of these birds, their nests, eggs, parts, or products. Virtually all birds are protected under the MBTA, with only a few exceptions, such as the California quail. A complete list of all species of all migratory birds protected by the MBTA is in the *Federal Register* (50 CFR 10.13). EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs federal agencies to take actions to further implement the MBTA. A Memorandum of Understanding (MOU) between the DoD and the USFWS was developed under EO 13186 to promote the conservation of migratory birds. Nineteen bird species designated a Species of Concern under the MBTA have the potential to occur in the project vicinity (Table 3.2-3).

Table 3.2-3. Migratory Bird Treaty Act Species of Conservation Concern Known to Occur in the Vicinity of Alternative 1 and Alternative 2

Common Name	Scientific Name
HERONS, SPOONBILLS	
Least Bittern	*Ixobrychus exilis*
Black-crowned Night Heron	*Nycticorax nycticorax*
VULTURES, HAWKS, FALCONS	
Peregrine Falcon	*Falco peregrinus*
PIGEONS	
White-winged Dove	*Zenaida asiatica*
Mourning Dove	*Zenaida macroura*
RAILS, LIMPKINS, CRANES	
American Coot	*Fulica americana*
Virginia Rail	*Rallus limicola*
SWIFT, HUMMINGBIRDS	
Costa's Hummingbird	*Calypte costae*
Rufous Hummingbird	*Selasphorus rufus*
Allen's Hummingbird	*Selasphorus sasin*
SONGBIRDS	
FLYCATCHERS	
Willow Flycatcher	*Empidonax traillii*
SHRIKES, VIREOS	
Loggerhead Shrike	*Lanius ludovicianus*
LARKS, WRENS, GNATCATCHERS	
California Horned Lark	*Eremophila alpestris*
Marsh Wren	*Cistothorus palustris*
Coastal California Gnatcatcher	*Polioptila californica californica*
Bewick's Wren	*Thryomanes bewickii*
NEW-WORLD WARBLERS	
Yellow Warbler	*Dendroica petechia*
SPARROWS	
Sage Sparrow	*Amphispiza belli*
BLACKBIRDS	
Tricolored Blackbird	*Agelaius tricolor*

3.2.3.4 Wetlands and Other Waters of the United States

Determinations regarding jurisdiction discussed in this EA are preliminary and subject to verification and approval by the USACE. Project-specific surveys were completed to determine the occurrence of wetlands and other bodies of water that may be subject to the regulatory jurisdiction of the USACE under Sections 401 and 404 of CWA (33 CFR parts 320–330). In addition, non-jurisdictional wetlands including vernal pool and other (non-vernal pool) seasonally ponded features, as defined by MCAS Miramar, were identified during the surveys. Potential federal CWA jurisdictional wetlands, other Waters of the U.S., and non-jurisdictional wetland features are present in the ROI (Figure 3.2-5 and Figure 3.2-6). Wetland forms, site photos, and a plant species list are provided in the Wetland Delineation Report (SAIC 2013).

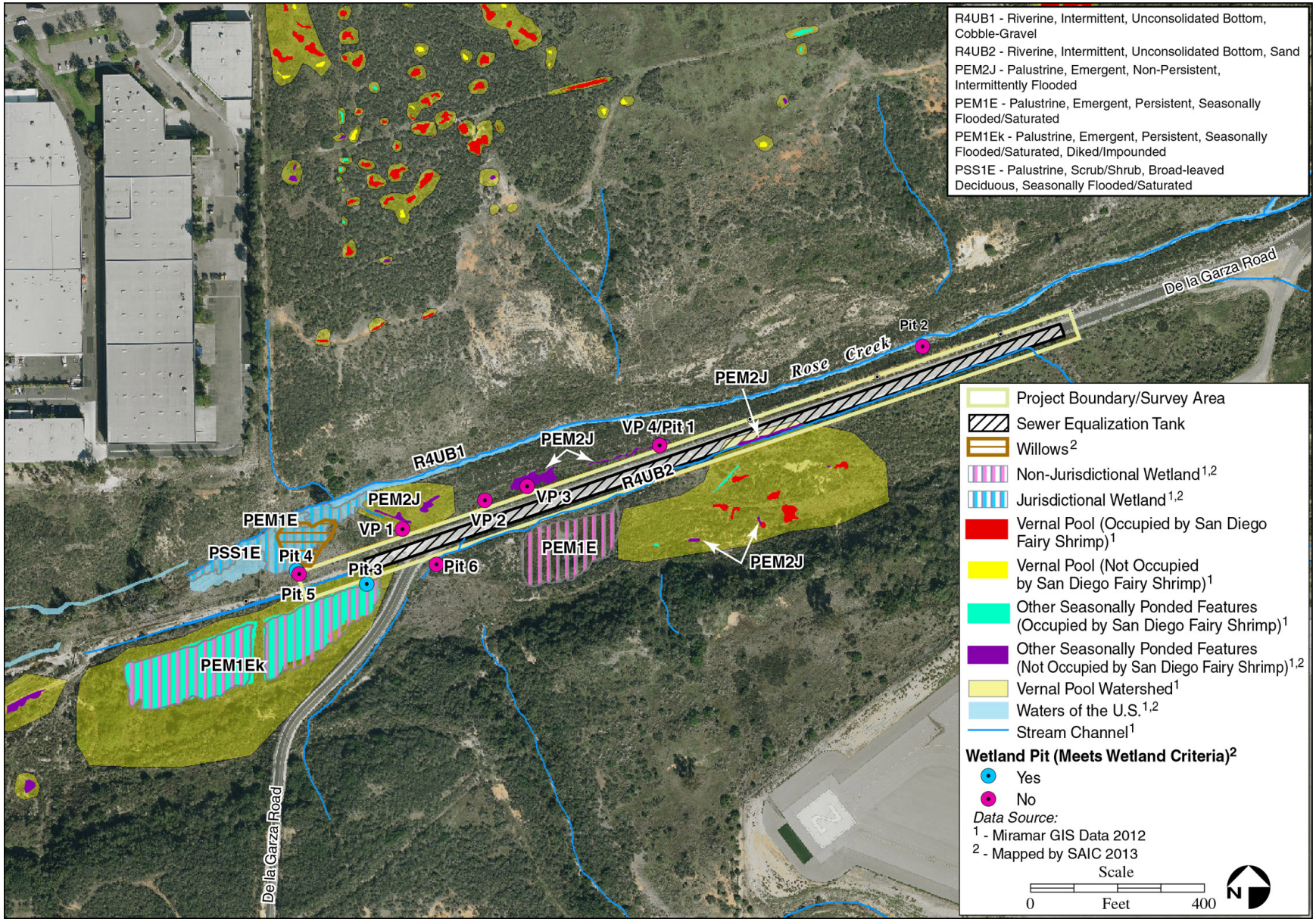

Figure 3.2-5. Wetlands, Waters of the U.S., Vernal Pools, and Other (Non-Vernal Pool) Seasonally Ponded Features in the Vicinity of Alternative 1

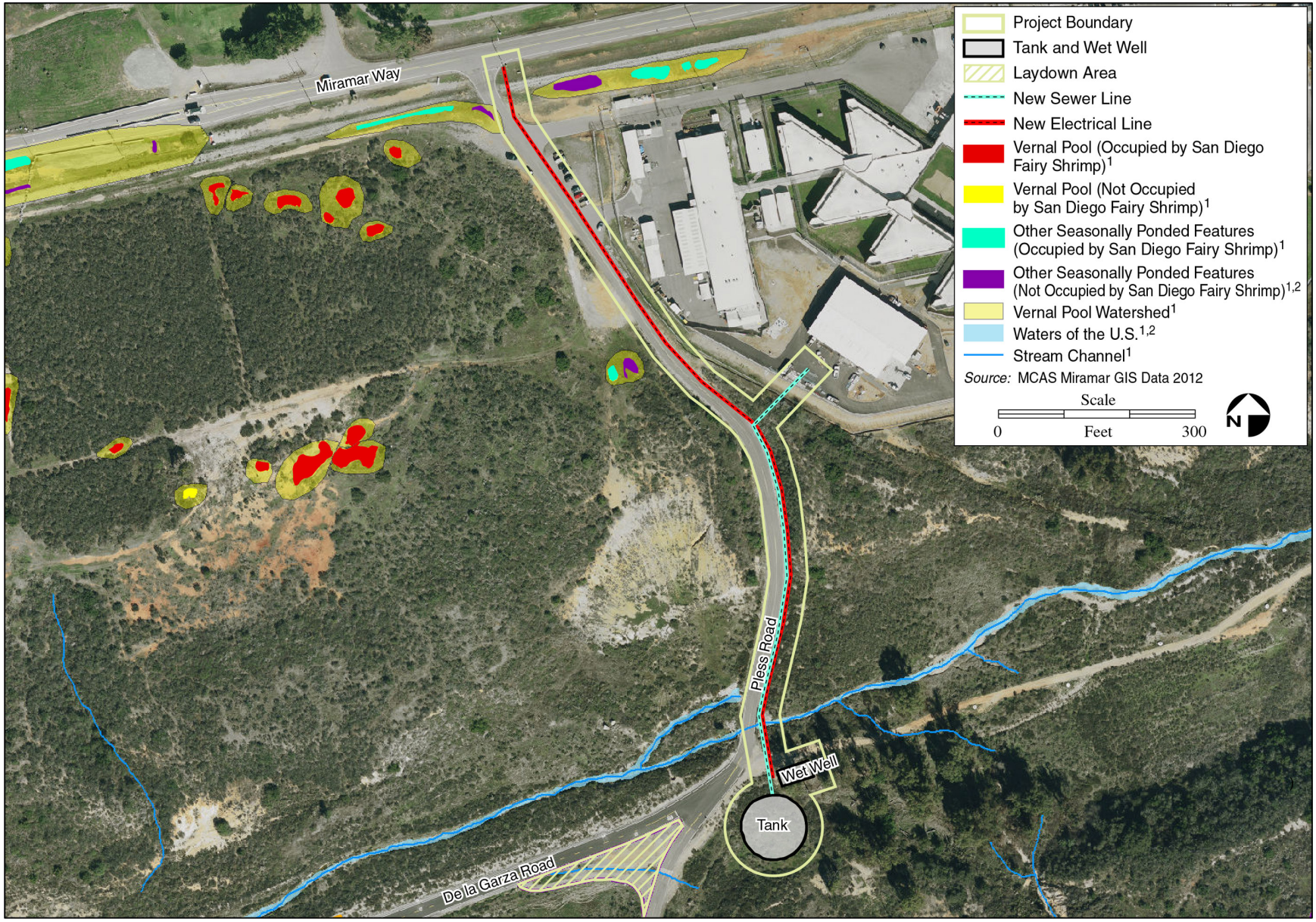

Figure 3.2-6. Wetlands, Waters of the U.S., Vernal Pools, and Other (Non-Vernal Pool) Seasonally Ponded Features in the Vicinity of Alternative 2

In addition, a California Rapid Assessment Method (CRAM) assessment was conducted to determine the condition of Rose Canyon Creek. A detailed explanation of the regulatory environment, methods applied, and results are provided in Attachment D of the Wetland Delineation Report (SAIC 2013).

Jurisdictional Wetlands and Other Waters of the United States

Frequently the term "wetlands and other Waters of the U.S." is used when describing areas under USACE jurisdiction. Waters of the U.S. are those that have been, are, or may be used in interstate or foreign commerce, all interstate waters, and all other waters the use, degradation, or destruction of which could affect interstate or foreign commerce. Under Section 404 of the CWA, wetlands are defined as areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (40 CFR 230.3 and 33 CFR 328.3). Jurisdictional wetlands are a subset of Waters of the U.S., which in addition to wetlands as defined above, include areas subject to the ebb and flow of the tide and areas that are within the limits of the ordinary high water mark. EO 11990, (dated 24 May 1977 and amended by EO 12608 on 9 September 1987, and MCO P5090.2A), requires federal agencies to minimize the destruction, loss, or degradation of wetlands and to enhance their natural and beneficial values.

No potentially jurisdictional wetlands occur within the project site for Alternative 1. One other seasonally ponded feature (a ditch not occupied by San Diego fairy shrimp that has intermittent standing water) is located within the project site. Since this ditch conveys water to an isolated wetland, and not to Rose Creek, it does not meet the USACE definition of jurisdictional Waters of the U.S.; however, this determination is pending USACE verification. No other Waters of the U.S. are located within the project site. Several likely Waters of the U.S. are located in the project vicinity including Rose Canyon Creek and an associated vernal marsh wetland. Rose Canyon Creek is located within the project site for Alternative 2. Rose Canyon Creek and this associated wetland are regulated and protected under Section 404 of the CWA.

Vernal Pools

Vernal pools are seasonal wetlands that develop on a variety of soils, usually underlain by an iron-silica hardpan, typically on coastal terraces (MCAS Miramar *et al.* 2011). Vernal pools develop during seasonal rains that begin in late fall or early winter and extends into the spring. Year-to-year variation in the time and duration of precipitation affects the depth, and extent of standing water. In dry years many pools do not fill. Vernal pools features can provide habitat for federally listed fairy shrimp species, as discussed in Section 3.2.3.3.

Vernal pool habitat typically occurs on the costal terraces of MCAS Miramar in the western half of the Air Station. Vernal pools are not uniformly distributed, but occur in groups or clusters on mesas where soil and topographic conditions favor their development. Historically, vernal pool clusters were separated from each other by a system of canyons trending in a northeast/southwest direction and draining towards the ocean. Three of these large canyons drain MCAS Miramar: Rose Canyon, San Clement Canyon, and Murphy Canyon.

No vernal pools are present in the project site for Alternative 1 or Alternative 2 (Figure 3.2-5 and Figure 3.2-6); however, a vernal pool complex is located immediately south of the project site for Alternative 1 and a portion of the watershed associated with the complex[1] is within the project site (Figure 3.2-5). Some of these vernal pools are occupied by San Diego fairy shrimp and discussed in Section 3.2.3.3.

[1] Note that the locations of vernal pool watersheds are estimated based on MCAS Miramar GIS data.

Vernal pools are also located near the project site for Alternative 2 on the western side of Pless Road south of Miramar Road (Figure 3.2-6). Some of these vernal pools are occupied by San Diego fairy shrimp and discussed in Section 3.2.3.3.

Other (Non-Vernal Pool) Seasonally Ponded Features

Other seasonally ponded features areas are depressions that hold water following a series of rainfall events, but have not been identified by Miramar Natural Resource Division as true vernal pools. Other seasonally ponded features are assigned "type" descriptors (e.g., puddle, road rut, ditch, marsh, watercourse, and impoundment), based on their origin and disturbance.

Other seasonally ponded features occur within and adjacent to the project site for Alternative 1. A drainage ditch that has intermittent standing water is located on the south side of Del La Garza Road within the project site (Figure 3.2-5). This ditch was determined be isolated from Rose Canyon Creek and non-jurisdictional during the 2013 wetland delineation survey (SAIC 2013). However, confirmation by the USACE is required.

Other seasonally ponded features located outside of but near the project site include several puddles, ditches, and marshes. Immediately north of De La Garza Road there are several puddles, two ditches within the generalized vernal pool watershed area, and a marsh. Three marshes are located just south of De La Garza Road, two of the marshes are located southwest and one marsh just south of the road. The wetland delineation survey conducted in May 2013 concluded that these other seasonally ponded features are not considered jurisdictional wetlands as defined by the USACE. However, confirmation by the USACE is required. The marsh, located north of De La Garza Road, is a jurisdictional wetland (as defined by the USACE), as discussed above.

No other seasonally ponded features are located within the project site for Alternative 2; however, several are located in the project vicinity. Two other seasonally ponded features, within a generalized vernal pool watershed area, are located to the west of the project site near the intersection of Pless Road and Miramar Way. One of the features is occupied by San Diego fairy shrimp (discussed in detail in Section 3.2.3.3). Four additional other seasonally ponded features, all within the same generalized vernal pool watershed area, are located to the east of the project site near the intersection of Pless Road and Miramar Way. Three of these features are occupied by San Diego fairy shrimp. Finally, two other seasonally ponded features within one generalized vernal pool watershed area are located to the west of the project site. One of the features is occupied by San Diego fairy shrimp (Figure 3.2-6).

3.2.4 Environmental Consequences

Several types of impacts on biological resources could result from construction of Alternative 1 and Alternative 2 including permanent and temporary impacts, as well as direct and indirect impacts. The definitions of the four types of impacts to biological resources are described below.

- *Direct Impact.* Any alteration, disturbance, or destruction of biological resources (specifically through vegetation/habitat removal) that would result from project-related activities and occur in at the same time and place as the action is considered a direct effect.
- *Indirect Impact.* As a result of project-related activities, biological resources may also be impacted in an indirect manner. Indirect impacts are defined as those impacts that are caused by, or would result from, a proposed project and are later in time, but are still reasonably certain to occur.

- *Temporary Impact.* Any impact to biological resources that are considered reversible can be viewed as temporary. Examples include the generation of fugitive dust during construction or the removal of plant communities for construction activities and subsequent revegetation of the affected area.
- *Permanent Impact.* Any impacts that result in the irreversible removal of biological resources are considered permanent. Examples include construction a building or permanent road on an area containing biological resources.

The significance of potential impacts on a biological resource is based on:

- Unmitigated permanent or long-term temporary impact to federally listed species, including significant loss of occupied habitats;
- Unmitigated adverse impact to populations of migratory birds listed as Species of Concern under the MBTA;
- Unmitigated loss or impact to large quantities of wetlands in federal CWA jurisdictional Waters of the U.S.;
- Unmitigated effects to important quantities of regionally- and declining-populations (i.e., federal species of special concern and species considered rare and threatened or endangered by the State of California).
- Unmitigated loss of important quantities of declining vegetation communities that are considered rare, both locally and regional;
- Alteration of regionally- and locally-important wildlife corridors that would severely and permanently limit their use by wildlife species; and/or,
- Substantial, unmitigated erosion resulting in loss of site integrity to support vegetation and degradation of downstream water quality by sediment loading.

3.2.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Vegetation Communities

Direct impacts would include the temporary clearing and grubbing of approximately 0.73 acres of Diegan Coastal Sage Scrub in two long, narrow strips along both sides of De La Garza Road (Table 3.2-4). However, following construction disturbed areas of Diegan Coastal Sage Scrub would be restored in place to existing or better conditions in accordance with the Revegetation Plan described in Measure 3. Therefore, direct impacts to Diegan Coastal Sage Scrub would not be significant.

Indirect impacts to Diegan Coastal Sage Scrub could occur due to the establishment of invasive plants within this community, which could decrease the overall quality of habitat by out-competing native species, contributing to reduced diversity and structure, and reduced habitat functions and values. The potential for establishment of invasive plants would be minimized through implementation of invasive weed control (e.g., hand removal, mechanical, and herbicide control) in areas reseeded/replanted until the native vegetation is established (Measure 3) and equipment washing would occur prior to delivery to the project site (Measure 17). Therefore, Alternative 1 would not have significant indirect impacts to Diegan Coastal Sage Scrub and no mitigation is required.

Activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to Diegan Coastal Sage Scrub and no mitigation is required.

Table 3.2-4. Vegetation Communities Potentially Removed under Alternative 1		
Vegetation Community	**Temporary Impact (acres)**	**Permanent Impact (Acres)**
Diegan Coastal Sage Scrub	0.67	0
Disturbed Diegan Coastal Sage Scrub	0.06	0
Developed	0.55	0.77
Total	**1.28**	**0.77**

General Wildlife and Wildlife Corridors

Alternative 1 would result in the direct, temporary disturbance of approximately 0.73 acres of Diegan Coastal Sage Scrub in two long, narrow strips along both sides of De La Garza Road, which provides habitat for common wildlife species. Following construction disturbed areas of Diegan Coastal Sage Scrub would be restored to existing conditions according to the Revegetation Plan of Measure 3. Construction activities could also result in the direct loss of common, less-mobile wildlife species such as lizards and rodents. However, the number of individuals that could be lost would be inconsequential to populations present on MCAS Miramar. Therefore, direct impacts to general wildlife species would not be significant and no mitigation is required.

Temporary, indirect impacts to wildlife species may occur within adjacent habitat due to an increase in dust, noise, or other construction-related disturbances. Temporary disturbances due to noise associated with grubbing, as well as an increase in the general activity and human presence could mask bird vocalizations, invoke stress in birds and reduce breeding success, and cause common bird and wildlife species to avoid the work area during construction periods. Although the adjacent lands primarily consist of suitable habitat for wildlife, the common species in the vicinity of the project site have adapted to ongoing human activity and elevated noise associated with traffic along De La Garza Road, aircraft operations at the nearby flightline including takeoff and landings, general military industrial use, and recreational use associated with the nearby Fish Pond. As a result, indirect impacts would not be significant. Potential effects should be avoided by following seasonal restrictions outlined in Measure 5. Therefore, based on adherence to seasonal timing restrictions and restoration requirements, indirect impacts to general wildlife species would not be significant and no mitigation is required.

Activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to general wildlife species and no mitigation is required.

Special Status Species

San Diego Fairy Shrimp

There are no known features occupied by San Diego fairy shrimp within the project site. Therefore, Alternative 1 would not result in direct impacts to this species.

The project site for Alternative 1 would impact a roadside ditch not occupied by San Diego fairy shrimp. A small portion of a generalized vernal pool watershed area drawn for this ditch and a number of occupied vernal pools and other seasonally ponded features to the south of the ditch would also be impacted. A linear berm and small scale topographical features isolate the occupied pools and their associated generalized vernal pool watershed area from the area that would be impacted by project activities. Nonetheless, Alternative 1 incorporates implementation of avoidance of occupied vernal pools outside the project site and seasonal avoidance of construction activity within watersheds upgradient of occupied vernal pools (Measure 8), implementation of temporary sediment control measures (Measures 8 and 15), and stockpile management during construction (Measure 16). In addition, action would be taken to minimize soil loss and the runoff of soil laden stormwater from the project site through conformance with the requirements outlined in the National Pollutant Elimination System (NPDES) Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance

(Order No. 2009-009-DWQ; NPDES No. CAS000002), including implementation of Best Management Practices (BMPs) (e.g., silt fences, fiber rolls, siltation basins, gravel bags, or other controls as appropriate). Impacts to water quality resulting from soil erosion are discussed in detail in Section 3.3 and in Section 3.8. With implementation of the identified environmental protection measures and conformance with requirements outlined in the Construction General Permit, Alternative 1 would not result in significant impacts to San Diego fairy shrimp during construction.

Activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to San Diego fairy shrimp or occupied habitat for this species and no mitigation is required.

No permanent removal of habitat for the San Diego fairy shrimp is proposed under Alternative 1, and no temporary or permanent removal or degradation of any occupied habitat is proposed. In addition, because the project site and nearby habitats occur on federal land, all future actions that are reasonably certain to occur in the project vicinity and that would have the potential to affect San Diego fairy shrimp would subject to ESA consultation and permitted as required by the USFWS. As a result, the cumulative effects identified for San Diego fairy shrimp from Alternative 1, in conjunction with other projects on MCAS Miramar and in the regional vicinity, would not be cumulatively significant.

Coastal California Gnatcatcher

Alternative 1 would temporarily remove approximately 0.73 acres of Diegan Coastal Sage Scrub and Disturbed Diegan Coastal Sage Scrub located in two long, narrow strips along both sides of De La Garza Road. This habitat is designated by MCAS Miramar as MA II and is occupied by or within the use area of the coastal California gnatcatcher (Figure 3.2-3). Vegetation removal or clearing would result in a direct, temporary impact to the coastal California gnatcatcher as this habitat would be unavailable until it is restored to existing conditions following construction. However, this temporary habitat loss would primarily consist of impacts along a linear footprint, minimizing the potential that any pairs or individuals will be displaced from their territory. In addition, given the small amount of area that would be disturbed and the large amount of suitable habitat outside the project site, pairs and individuals would be expected to utilize suitable habitat that lies adjacent to the project site during the construction period and during restoration of disturbed areas.

Removal of Diegan Coastal Sage Scrub during nesting season could result in reduced nesting success. The potential for temporary impacts to nesting due to construction and direct removal of suitable Diegan Coastal Sage Scrub habitat should be avoided by not removing/grubbing vegetation during nesting season (15 February to 1 August) (Measure 5). In addition, a Project Biologist would monitor all grading, grubbing, mowing, and/or removal of surface vegetation, particularly Diegan Coastal Sage Scrub, during construction activities (Measure 6). Diegan Coastal Sage Scrub impacted by construction activities would be restored to existing conditions following construction according to the Revegetation Plan of Measure 3. Therefore, with implementation of measures that have been incorporated into the project, Alternative 1 would not result in significant direct, temporary impacts on costal California gnatcatcher.

Indirect, temporary impacts to coastal California gnatcatcher may occur within suitable habitat due to an increase in noise, dust, and increased human activity during construction. Proposed construction activities could affect the behavior of coastal California gnatcatchers located in the project vicinity by masking calls, causing stress, or disturbing food gathering or nesting activities. However, the project site and the nearest observations of coastal California gnatcatchers are located within the departure corridor of current aircraft operations and immediately adjacent to a road, and subject to noise associated with general military industrial use. Additional temporary noise associated with construction activities would be within normally occurring levels and negligible compared to the other frequent noise sources. Potential impacts to coastal California gnatcatcher would be further minimized though implementation of Measure 5.

Therefore, Alternative 1 would not result in significant indirect, temporary impacts on coastal California gnatcatcher.

After construction and site restoration is completed, activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to coastal California gnatcatcher or suitable habitat for this species and no mitigation is required.

Alternative 1 would result in the temporary removal of suitable habit for the coastal California gnatcatcher located in two long, narrow strips along both sides of De La Garza Road within the project site. However, all temporarily removed habitat would be restored in place following construction. During construction and restoration, existing habitat adjacent to the road would not be available to individual gnatcatchers for nesting, foraging, or protection. Once restoration is complete, all functions and values would return. In addition, all future actions that are reasonably certain to occur in the project vicinity and that would affect this species would be subject to ESA consultation and permitted as required by the USFWS.

Migratory Bird Treaty Act Species

The project site supports suitable habitat for migratory bird species, including 19 species designated as Species of Concern. Alternative 1 would temporarily remove approximately 0.73 acres of Diegan Coastal Sage Scrub and Disturbed Diegan Coastal Sage Scrub that provides habitat for MBTA species along two long, narrow strips along both sides of De La Garza Road. Following construction disturbed areas of Diegan Coastal Sage Scrub would be restored to existing conditions according to the Revegetation Plan of Measure 3. Due to the small amount of area that would be disturbed and the large amount of suitable habitat outside the project site, MBTA species would be expected to utilize suitable habitat that lies adjacent to the project site during the construction period and during restoration of disturbed areas. Therefore, no significant direct impacts to populations of migratory birds, including Species of Concern, listed under the MBTA would occur.

Temporary, indirect impacts to MBTA species may occur within adjacent habitat due to an increase in dust, noise, or other construction-related disturbances. Impacts to MBTA species would be similar to those described above for general bird species and for the coastal California gnatcatcher. The potential for construction activities to adversely modify behavior of MBTA species is unlikely, particularly because of the temporary nature of the activity and the proximity to the active flightline and general military industrial uses. Habitat clearing activities would be timed to avoid the nesting season (Measure 5). Implementation of this measure should avoid the potential for impacts to migratory bird species and temporary, indirect impacts to populations of migratory birds, including Species of Concern, listed under the MBTA. Therefore, construction of Alternative 1 would not result in significant impacts to MBTA species and no mitigation is required.

After construction and site restoration is completed, activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to MBTA species or suitable habitat for these species and no mitigation is required.

Wetlands and Other Waters of the United States

Jurisdictional Wetlands and Other Waters of the United States

Rose Canyon Creek (Waters of the U.S.) and an associated vernal marsh (jurisdictional wetland) are located near but outside of the project site on the north side of De La Garza Road. Alternative 1 would not result in direct impacts to these features.

Temporary, indirect impacts to Rose Creek and the jurisdictional wetland could occur if construction activities alter or degrade water quality in these features due to sediment loading or accidental release of

pollutants. Any areas impacted would be returned to existing conditions following construction according to the Revegetation Plan of Measure 3. Implementation of Measure 15 (Temporary Sediment Control) and Measure 16 (Stockpile Management) would minimize soil loss and the runoff of soil laden stormwater from the project site. In addition, because Alternative 1would result in a disturbance of greater than one acre, the project would require a NPDES Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ; NPDES No. CAS000002) from the State Water Resources Control Board (SWRCB) in accordance with Section 402 of the CWA. Alternative 1 would comply with the requirements of the Construction General Permit, including implementation of a Storm Water Pollution Prevention Plan (SWPPP) including BMPs (e.g., silt fences, siltation basins, gravel bags, or other controls) to protect storm water runoff, a visual monitoring program, a chemical monitoring program for "non-visible pollutants, and sediment monitoring plan (if applicable). Therefore, Alternative 1 would not result in significant temporary, indirect impacts to federal CWA jurisdictional wetlands or Waters of the U.S.

Activities associated with operation and maintenance of Alternative 1 would not result in significant impacts to jurisdictional wetlands or other Waters of the U.S. and no mitigation is required.

Vernal Pools and Other (Non-Vernal Pool) Seasonally Ponded Features

No vernal pools are located within the project site. One other seasonally ponded feature (a roadside ditch on the south side of De La Garza Road not occupied by San Diego fairy shrimp that has intermittent standing water) is located within the project site. Construction of Alternative 1 would result in direct impacts to approximately 60 linear feet (0.15 acre) of the ditch. However, the area would be returned to existing conditions following construction according to the Revegetation Plan of Measure 3. In the event that the USACE determines that this other seasonally ponded feature is jurisdictional, coverage under Nationwide Permit (NWP) 12 and/or NWP 33 and a Section 401 Water Quality Certification would be required prior to construction. Therefore, Alternative 1 would not result in a significant direct impact to vernal pools and other seasonally ponded features during construction.

Several vernal pools and other seasonally ponded features (some of which are occupied by San Diego fairy shrimp) are located adjacent to the project site. A linear berm and small-scale topographical features isolate the pools and their associated generalized vernal pool watershed area from the area that would be impacted by project activities. Nonetheless, as described in the discussion for San Diego fairy shrimp, sediment control (Measures 8 and 15), stockpile management (Measure 16), and avoidance and monitoring of occupied vernal pools, other seasonally ponded features, and watersheds (Measure 8) would avoid potential impacts to any vernal pools and other seasonally ponded features located adjacent to the project site. Therefore, construction of Alternative 1 would not result in significant impacts to vernal pools, generalized vernal pool watershed areas, or other seasonally ponded features.

Activities associated with operation and maintenance of Alternative 1 would not result in impacts to vernal pools or other seasonally ponded features and no mitigation is required.

3.2.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Vegetation Communities

Alternative 2 includes the construction of a pump station and holding tank and the extension of utility lines along Pless Road. Construction activities (clearing and grubbing) would result in the temporary disturbance of 0.78 acres of Diegan Coastal Sage Scrub in one long, narrow strip along the east side of Pless Road and to the south of De La Garza Road (Table 3.2-5). Temporary direct (removal of habitat) and indirect (invasive species) impacts due to construction would be similar to but slightly greater than those discussed for Alternative 1 because construction activities would remove additional habitat and

increase the potential for the establishment of invasive species. Implementation of Measure 3 (revegetation of disturbed areas), Measure 4 (invasive plant species control), and Measure 5 (avoiding impacts on coastal California gnatcatcher and habitats) would ensure no net loss of this vegetation community. Therefore, Alternative 2 would not result in significant temporary impacts to Diegan Coastal Sage Scrub during construction.

Construction and operation of Alternative 2 would result in permanent, direct impacts to 0.21 acres of Diegan Coastal Sage Scrub located to the south of De La Garza Road due to placement of the holding tank and pump station. This habitat is not occupied by coastal California gnatcatcher and is located outside of the use area for this species. Enhancement or compensation for permanent impacts to Diegan Coastal Sage Scrub would be implemented at a 1:1 ratio off-site in Level I and II MAs targeting Diegan Coastal Sage Scrub or purchase of an equivalent amount of credits from an off-Station conservation bank to ensure no net loss (Measure 3). Therefore, Alternative 2 would not result in significant impacts to Diegan Coastal Sage Scrub.

Table 3.2-5. Vegetation Communities Potentially Removed under Alternative 2

Vegetation Community	Temporary Impact (Acres)	Permanent Impact (Acres)
Diegan Coastal Sage Scrub	0.78	0.21
Developed	1.02	0
Disturbed	0.29	0
Total	**2.09**	**0.21**

General Wildlife and Wildlife Corridors

Alternative 2 would result in the direct, temporary disturbance of approximately 0.78 acres of Diegan Coastal Sage Scrub in one long, narrow strip along the east side of Pless Road and to the south of De La Garza Road, which provides habitat for general wildlife species. Temporary direct (loss of habitat) and indirect (disturbance due to increased noise, dust, and human activity) impacts due to construction would be similar to but slightly greater than those discussed for Alternative 1 because construction activities would remove additional habitat. Construction activities could also result in the direct loss of common, less-mobile wildlife species such as lizards and rodents. Similar to Alternative 1, the number of individuals that could be lost would be inconsequential to the populations present on MCAS Miramar. Therefore, temporary direct and indirect impacts to general wildlife species would not be significant and no mitigation is required.

Construction and operation of Alternative 2 would result in permanent, direct impacts to 0.21 acres of Diegan Coastal Sage Scrub to the south of De La Garza Road due to placement of the holding tank and pump station. The loss of this community would represent a reduction in habitat available to general wildlife species. However, enhancement or compensation for permanent impacts to Diegan Coastal Sage Scrub would be implemented at a 1:1 ratio off-site in Level I and II MAs targeting Diegan Coastal Sage Scrub or purchase of an equivalent amount of credits from an off-Station conservation bank (Measure 3). Therefore, construction and operation Alternative 2 would not result in significant impacts to general wildlife species.

Special Status Species

San Diego Fairy Shrimp

Impacts to San Diego fairy shrimp would be similar to those discussed for Alternative 1. There are no occupied vernal pools or other seasonally ponded features within the project site. One generalized vernal pool watershed area that contains occupied habitat for San Diego fairy shrimp intersects the project site along the west side of Pless Road at the intersection of Miramar Road. With avoidance of occupied features and seasonal avoidance of generalized vernal pool watershed areas located upgradient of occupied features (Measure 8), no impacts to occupied habitat would occur. Therefore, Alternative 2 would not result in significant impacts to San Diego fairy shrimp.

After construction and site restoration (Measure 3) is completed, activities associated with operation and maintenance of Alternative 2 would not result in impacts to San Diego fairy shrimp or occupied habitat for this species.

Alternative 2 would not result in significant impacts to San Diego fairy shrimp. In addition, all future actions that are reasonably certain to occur in the project vicinity and that may affect San Diego fairy shrimp would subject to ESA consultation and permitted as required by the USFWS. As a result, Alternative 2, in conjunction with other projects on MCAS Miramar and in the regional vicinity, would not result in cumulatively significant impacts on San Diego fairy shrimp.

Coastal California Gnatcatcher

Alternative 2 would result in the direct, temporary disturbance of approximately 0.78 acres of Diegan Coastal Sage Scrub in one long, narrow strip along the east side of Pless Road and south of De La Garza Road, some of which is occupied by or within the use area for coastal California gnatcatcher. Temporary direct (loss of habitat) and indirect (disturbance due to increased noise, dust, and human activity) impacts due to construction would be similar to but slightly greater than those discussed for Alternative 1 because construction activities would remove additional habitat. Based on the limited removal of quality habitat, short-term nature of dust and noise producing construction activities, exiting noise environment within the project site, as well as implementation of Measures 3 and 5, Alternative 2 would not result in significant temporary, direct and indirect impacts on coastal California gnatcatcher.

Construction and operation of Alternative 2 would result in permanent, direct impacts to 0.21 acres of Diegan Coastal Sage due to placement of the holding tank and pump station. This habitat is not occupied by or within the use area of coastal California gnatcatcher (Figure 3.2-4). Therefore, construction and operation Alternative 2 would not result in significant impacts to coastal California gnatcatcher. However, enhancement or compensation for permanent impacts to Diegan Coastal Sage Scrub would be implemented at a 1:1 ratio off-site in Level I and II MAs targeting Diegan Coastal Sage Scrub or by purchase of an equivalent amount of credits from an off-Station conservation bank (Measure 3) to ensure no net loss of this habitat.

Alternative 2 would not result in significant temporary or permanent impacts to suitable habit for the coastal California gnatcatcher. In addition, all future actions that are reasonably certain to occur in the project vicinity and that would affect this species would subject to ESA consultation and permitted as required by the USFWS. As a result, the cumulative impacts identified for coastal California gnatcatcher from Alternative 2, in conjunction with other projects on MCAS Miramar and in the regional vicinity, would not be cumulatively significant.

Migratory Bird Treaty Act Species

Alternative 2 would result in temporary impacts to 0.78 acres and permanent impacts to 0.21 acres of suitable habitat (Diegan Coastal Sage Scrub) for MBTA species. These impacts would be similar to but greater than Alternative 1 because construction activities would remove additional habitat. Implementation of Measures 5 should avoid temporary construction impacts to migratory birds and populations of migratory birds, including Species of Concern, listed under the MBTA and no significant impacts would occur.

Wetlands and Other Waters of the United States

Jurisdictional Wetlands and Other Waters of the United States

Rose Canyon Creek, a Waters of the U.S., is present at the project site. Approximately 60 linear feet (0.007 acre) would be temporarily affected by project construction. Coverage under NWP 12 and/or NWP 33 and a Section 401 Water Quality Certification would be required prior to construction. Permitting actions and/or consultation with regulatory agencies are coordinated through the Environmental Management Department. In addition, any areas impacted would be returned to existing conditions following construction according to the Revegetation Plan of Measure 3. Therefore, no net loss Waters of the U.S. would occur. Implementation of Measure 15 (Temporary Sediment Control) and Measure 16 (Stockpile Management) would minimize soil loss and the runoff of soil laden stormwater from the project site. In addition, Alternative 2 would conform to the requirements outlined in the NPDES Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ; NPDES No. CAS000002), including implementation of BMPs (e.g., silt fences, siltation basins, gravel bags, or other controls). Therefore, construction of Alternative 2 would not result in significant impacts to Waters of the U.S.

After construction and site restoration is completed, activities associated with operation and maintenance of Alternative 2 would not result in impacts to wetlands and other Waters of the U.S. and no mitigation is required.

Vernal Pools and Other (Non-Vernal Pool) Seasonally Ponded Features

No vernal pools or other seasonally ponded features are located within project site. Several other seasonally ponded features are located adjacent to the project site on the west and east sides of Pless Road at the intersection of Miramar Way. Similar to Alternative 1, construction activities could result in temporary, indirect impacts to these features caused by downstream sedimentation and decreased water quality. Implementation sediment control (Measure 15), stockpile management (Measure 16), and vernal pool protection measures (Measure 8) should avoid potential impacts. Therefore, construction of Alternative 1 would not result in significant impacts to other seasonally ponded features.

After construction and site restoration is completed, activities associated with operation and maintenance of Alternative 2 would not result in impacts to vernal pools and other seasonally ponded features and no mitigation is required.

3.2.4.3 No-Action Alternative

For the No-Action Alternative, the Proposed Action would not occur. There would be no change in existing conditions, and no impacts to biological resources would occur.

3.3 Geologic Resources

3.3.1 Definition of Resource

Geologic resources are defined as the geology, soils, and general topography of a given location. The term geology encompasses surface and subsurface bedrock units (e.g., formations), as well as associated structural elements (e.g., faults) and related hazards (e.g., seismicity). Soils are generally defined as the unconsolidated materials overlying bedrock deposits, and may be derived directly from bedrock (e.g., decomposed granite), or subject to chemical and/or physical alteration (e.g., topsoil or hardpan). Topography is generally described to include factors such as elevation, slope, aspect, and landform type. The described resources can exhibit scientific, economic, and/or recreational value, as well as hazards and constraints to development from conditions such as steep slopes, expansive soils, erosion, or liquefaction (i.e., the process by which soils become liquid when subject to seismically induced ground shaking).

3.3.2 Region of Influence

The ROI for geologic resources includes applicable portions of the project site where ground disturbance (e.g., clearing and grading) and construction activities are proposed, as well as on- and off-site areas that could potentially be affected by project-generated conditions such as erosion.

3.3.3 Affected Environment

3.3.3.1 Topography

MCAS Miramar is located on a gently sloping mesa surface dissected by Rose Canyon, San Clemente Canyon, and their tributary canyons. The canyons drain primarily to the west. Elevations at the Air Station range from approximately 1,000 to 1,200 feet in the east to 200 feet in the west. The project site lies within the base of the gently sloping Rose Canyon, at an elevation of 336 to 352 feet above mean sea level. Moderately sloping canyon walls define the canyon to the north and south of the project site (NAVFAC 2006b).

3.3.3.2 General Geology

Stratigraphy

The project site is underlain by alluvium and slopewash at the base of Rose Canyon. The canyon walls immediately to the north and south of the project site consist of slopewash, sandstone, conglomerates of the Lindavista Formation, and conglomerates of the Stadium Conglomerate (NAVFAC 2006b).

Soils

The soils in the vicinity of MCAS Miramar have been mapped as Redding gravelly loam or Redding cobbly loam (NAVFAC 2006b). These soils are generally not susceptible to settlement, but have a moderate to high expansion potential, and a severe potential for erosion (United States Department of Agriculture Soil Conservation Service 1973).

3.3.3.3 Faulting and Seismicity

A fault that has exhibited surface displacement within the Holocene Epoch (the last 11,000 years) is defined as active by the California Geological Survey. A fault that has exhibited surface displacement during the Pleistocene Epoch (which began about 1.6 million years ago and ended about 11,000 years ago) is defined as potentially active. Pre-Pleistocene faults are considered inactive.

MCAS Miramar is located in southern California, which is a highly seismic region. However, no known active or potentially active faults underlie MCAS Miramar, and the Air Station has not experienced major seismic activity. Major regional faults in the vicinity of MCAS Miramar, capable of affecting the site in terms of ground shaking, include the Elsinore, San Jacinto, Rose Canyon, Coronado Bank, and San Clemente faults (Table 3.3-1). The San Andreas Fault, a major active fault that traverses much of the length of California, is located approximately 80 miles northeast of the project site.

Table 3.3-1. Seismic Parameters for Major Active Faults Within 60 Miles of the Project Site

Fault	Distance to Project Area (miles)	Maximum Credible Earthquake (Richter Magnitude)
Elsinore	37	7.5
San Jacinto	60	7.5
Coronado Bank	12	6.75
Rose Canyon	4	7.0
San Clemente	55	7.65
Sources: Greensfelder 1974; California Division of Mines and Geology 1994		

3.3.3.4 Geologic Hazards

Potential geologic hazards at the project site include soil expansion and erosion (Section 3.3.3.2), and seismically induced ground shaking (Section 3.3.3.3). The majority of MCAS Miramar, including the project site, has a very low potential for liquefaction and compaction of soils during seismic events because of the well-consolidated and dense nature of the earth materials and the lack of a shallow groundwater table (NAVFAC 1996).

3.3.4 Environmental Consequences

3.3.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Topography and Slope Stability

The project site is located within Rose Canyon, the base of which is relatively broad and gently sloped. The Proposed Action would require demolition, excavation, stockpiling of soil, and subsequent grading to restore the current grade. The laydown areas for construction equipment and materials would be located within currently disturbed areas (Figure 2-1). The side slopes of the canyon would not be disturbed and the existing road grade would not change; therefore, the existing topography and slopes would not be altered. Excavations for the proposed sewer equalization tank would result in temporary steep to possibly vertical slopes, up to 15 feet deep. However, these temporary excavations would be shored to prevent slope failure and possible injury to construction personnel, and subsequently backfilled with compacted soil to existing grade. All excavations, grading, and construction would be completed in accordance with Chapter 70 of the Uniform Building Code requirements. Therefore, no significant topographic and slope stability impacts would occur as a result of Alternative 1.

Soils and Erosion

Although the slope gradient within the project site is relatively gentle, soils exhibit a high erosion potential. Proposed demolition and excavation activities along the 1,400 feet of roadway associated with the proposed sewer equalization tank would result in removal of existing pavement and vegetation, and associated soil disturbance. This would temporarily exacerbate the potential for erosion-induced sedimentation of Rose Canyon Creek and downstream water bodies. Rose Canyon has been identified as a source of high concentrations of organically rich fine sediments draining into Mission Bay, aggravating silting of the bay and degrading bottom sediment quality (MCAS Miramar *et al*. 2011).

While disturbed portions of De La Garza Road would be stabilized through installation of hardscape (pavement) and temporary areas of disturbance along the road would be revegetated, erosion potential would be higher in the short-term than for existing conditions. Short-term erosion and sedimentation impacts would be mitigated through implementation of BMPs, compliance with established plans and policies, and incorporation of standard erosion control measures into the project design. MCAS Miramar is required to manage its lands to control and prevent soil erosion and preserve natural resources by conducting surveys and implementing soil conservation measures. MCO 5090.2A states, "Construction projects shall be designed to eliminate post construction and soil erosion, and altered or degraded landscapes and associated habitats shall be restored and rehabilitated whenever practicable" (MCAS Miramar Natural Resources Division et al. 2011).

More specifically, because project construction would disturb more than one acre, the construction contractor would be required to obtain coverage under the NPDES Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ; NPDES No. CAS000002) before the start of construction activities. Specific conformance requirements include submittal of a Notice of Intent to the SWRCB before the start of construction, and submittal of a Notice of Termination upon completion of construction and related stormwater activities. The construction contractor would be required to implement all appropriate BMPs for erosion and sedimentation control, as well as for revegetation, as identified in Order # 99-08-DWQ and specified in the Notice of Intent to the SWRCB. The contractor would complete a risk determination and prepare a Stormwater Pollution Prevention Plan (SWPPP), in accordance with the risk level requirements in the General Permit. The SWPPP would include appropriate BMPs (e.g., silt fences, siltation basins, gravel bags, or other controls) necessary to stabilize the soil in denuded or graded areas during the construction and revegetation phases of this alternative. This plan would be written in accordance with the relevant section of the *Stormwater Best Management Practice Handbook: Construction* (California Stormwater Quality Association 2011). All construction contracts on MCAS Miramar are completed in accordance with standard BMPs, referring specifically to erosion control and management. The SWPPP and risk determination would be submitted to the MCAS Miramar Water Quality Program Manager, who would be responsible for ensuring that the SWPPP is implemented.

Due to implementation of BMPs, compliance with established plans and policies, and incorporation of standard erosion control measures into project design and construction, significant erosional impacts associated with project construction would not occur. Following construction, the road surface would be repaved and culverts along the road would be restored; therefore, operation of the project site would be similar to existing conditions. As a result, no significant erosional impacts associated with project operations would occur and thus implementation of Alternative 1 would not have a significant impact to geologic resources.

Seismicity

MCAS Miramar is not underlain by any active or potentially active faults. Active faults located within 60 miles of MCAS Miramar (Table 3.3-1) could result in strong seismically induced ground motion and associated ground shaking. However, the proposed sewer equalization tank would be designed and constructed to comply with the seismic design criteria identified in the Uniform Building Code, the *NAVFAC P-355 Seismic Design Manual*, and the most stringent criteria identified in the latest design specifications of the Structural Engineering Association of California. In addition, construction and design measures for construction activities at MCAS Miramar include the preparation of a site-specific geotechnical investigation that includes recommendations for design and construction. Therefore, implementation of Alternative 1 would not have a significant impact with respect to seismic risk.

Accordingly, implementation of Alternative 1 would not have a significant impact to geologic resources and no mitigation is required.

3.3.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Under Alternative 2, construction activities would be confined to the existing right-of-way along Pless Road, and at the proposed holding tank and associated pump station. No substantial cut and fill activities would be required during construction, thus minimizing potential temporary slope instability. Construction could temporarily increase the potential for erosion-induced sedimentation of Rose Canyon Creek and downstream water bodies. Potential erosion impacts would be reduced with implementation of the standard erosion control measures as identified in the SWPPP (e.g., silt fences, siltation basins, gravel bags, or other controls), as required by the NPDES Construction General Permit (Order No. 2009-009-DWQ; NPDES No. CAS000002), and compliance with established plans and policies. Structures built under Alternative 2 would have the potential to be subject to seismically-induced ground movement. In addition, construction would be completed in accordance with provisions of the Uniform Building Code, the *NAVFAC P-355 Seismic Design Manual*, the most stringent criteria identified in the latest design specifications of the Structural Engineering Association of California, and MCAS Miramar requirements to prepare a site-specific geotechnical investigation with recommendations for design and construction. Thus, impacts from geotechnical hazards such as slope instability, expansive soils, and earthquakes would be minimized. Accordingly, implementation of Alternative 2 would not have a significant impact to geologic resources and no mitigation is required.

3.3.4.3 No-Action Alternative

Under the No-Action Alterative, upgrades to the existing sewer system would not occur. Therefore, there would be no significant impacts to geologic resources under the No-Action Alternative.

3.4 Public Health and Safety

3.4.1 Definition of Resources

This section addressees issues that could potentially affect the safety of personnel at MCAS Miramar. Specifically, safety issues associated with hazardous materials and hazardous wastes, including IR and Munitions Response (MR) sites, are addressed in this section.

Hazardous materials and wastes include substances that pose a potential hazard to human health and safety or the environment due to their quantity, concentration, and/or physical and chemical properties. Hazardous materials and wastes are characterized by their ignitability, corrosiveness, reactivity, and toxicity. Hazardous materials and wastes include any material that due to its quantity, concentration, physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality, serious irreversible illness, incapacitating reversible illness, or genetic changes that may pose a substantial threat to human health or the environment when improperly treated, stored, transported, disposed, or otherwise managed.

The management of hazardous materials and wastes at MCAS Miramar is guided by Station Order 5090.5 (*MCAS Hazardous Waste Management Plan*), Station Order 5100.1 (*OSHA Manual*), and the MCAS Miramar Installation Restoration Program (IRP), in accordance with CERCLA (42 USC 9601 *et seq.*). The Air Station's IRP is a program for the evaluation and cleanup of sites where past practices at MCAS Miramar resulted in the contamination of soils, groundwater, or other media by hazardous substances. NAVFAC administers the IRP at MCAS Miramar. An Initial Assessment Study to identify areas of contamination was originally conducted in 1984. Since that time, the IRP has performed ongoing response actions to investigate the release of hazardous substances, pollutants, and contaminates into the environment and to select and implement appropriate remedial and removal actions addressing such releases.

The Military Munitions Response Program (MMRP) was established in 2001 to manage the environmental, health, and safety issues presented by Munitions and Explosives of Concern at MCAS Miramar. The MMRP is an element of the DERP and adheres to the CERCLA process. Munitions and Explosives of Concern distinguishes specific categories of military munitions that may pose unique explosives safety risks; these include: 1) Unexploded Ordnance (UXO) (munitions used for their intended purpose but failed to function); 2) Discarded Military Munitions (items abandoned without proper disposal); and 3) Munitions Constituents (munitions present in sufficient concentrations to constitute an explosive hazard).

3.4.2 Region of Influence

The ROI for hazardous materials is the project site, which corresponds to the geographic area in which hazardous materials are involved in the construction and operation of the proposed facilities.

3.4.3 Affected Environment

3.4.3.1 Protection of Children (Executive Order 13045)

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children)*, was issued in 1997. This order requires each federal agency to "…make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall…ensure that its policies, programs, activities and standards address disproportionate risks to children…"

The project site is located in a sparsely populated area of MCAS Miramar, near the northwest end of the northwest-southeast trending runway. Recreational areas in the vicinity of the site include the Fish Pond, located approximately 0.1 miles south of the site, and a golf course located approximately 0.25 miles north of the project site. Facilities used frequently by children, such as family housing units, schools, or childcare centers, are located at least 1.5 miles northeast of the project site (NAVFAC 2006b).

3.4.3.2 Hazardous Materials and Waste Disposal

Industrial and hazardous wastes are accumulated at 60-day sites within the Air Station for temporary storage and are picked up weekly by materials handlers and disposed of at permitted hazardous waste disposal facilities in accordance with local, state, and federal regulations.

3.4.3.3 Installation Restoration Program

The project site is located within the boundary of IR Site 2 (Rose Canyon), which encompasses most of Rose Canyon within MCAS Miramar (Figure 3.4-1). IR Site 2 is a result of concentrated industrial waste that was discharged into Rose Canyon via storm drains during the 1940s through the 1960s. Wastes included oil, grease, hydraulic fluid, fuel, solvent, paint thinner, plating waste water, corrosive waste, and beryllium dust. A site investigation is in process.

Because the project site has not been evaluated to-date under the CERCLA program, soil sampling and analysis was conducted to evaluate the potential for soil contamination. Fourteen borings were drilled to a maximum depth of 16 feet and samples were analyzed for various petroleum hydrocarbons, metals, hexavalent chromium, cyanide, and pesticides. The sampling and analysis plan focused on the environmental quality of the soil to be removed during the construction of the proposed wastewater equalization tank, potential impacts to construction worker health and safety, and waste classification and volumes (AMJV 2012). Analytical results were compared to project-specific screening levels to identify potential construction worker health and safety concerns. Most constituent concentrations were below screening levels with few exceptions. Total petroleum hydrocarbon (TPH), as motor oil, was detected above guidance levels provided by the SDRWQCB (SDRWQCB 2002) in 9 of 37 samples analyzed, with a maximum concentration of 1,400 ppm, at a depth of 15 feet below ground surface. Arsenic was detected at concentrations in excess of screening levels for all 37 samples; however, these concentrations are typical of natural background arsenic concentrations on MCAS Miramar. No other metals were detected at concentrations in excess of project-specific screening levels (AMJV 2012).

3.4.3.4 Military Munitions Response Program

A total of 12 MR sites have been identified at MCAS Miramar. However, no MR sites are located at or near the project site. The closest MR site is located approximately 2,000 feet east of the project site (Figure 3.4-1) (MCAS Miramar 2012). Therefore, the MMRP is not discussed further in this EA.

3.4.3.5 Resource Conservation and Recovery Act Petroleum, Oil, and Lubricants Sites

The Resource Conservation and Recovery Act (RCRA) sets forth a framework for the management of Petroleum, Oil, and Lubricant (POL) sites, which are regulated under the Underground Storage Tank/Aboveground Storage Tank (UST/AST) program at MCAS Miramar. However, there are no RCRA POL sites at or near the project site; the closest UST site is approximately 1,000 feet northeast of the project site, and the closest AST site is approximately 2,000 feet east of the project site (Figure 3.4-1). Therefore, RCRA POL sites are not discussed further in this EA.

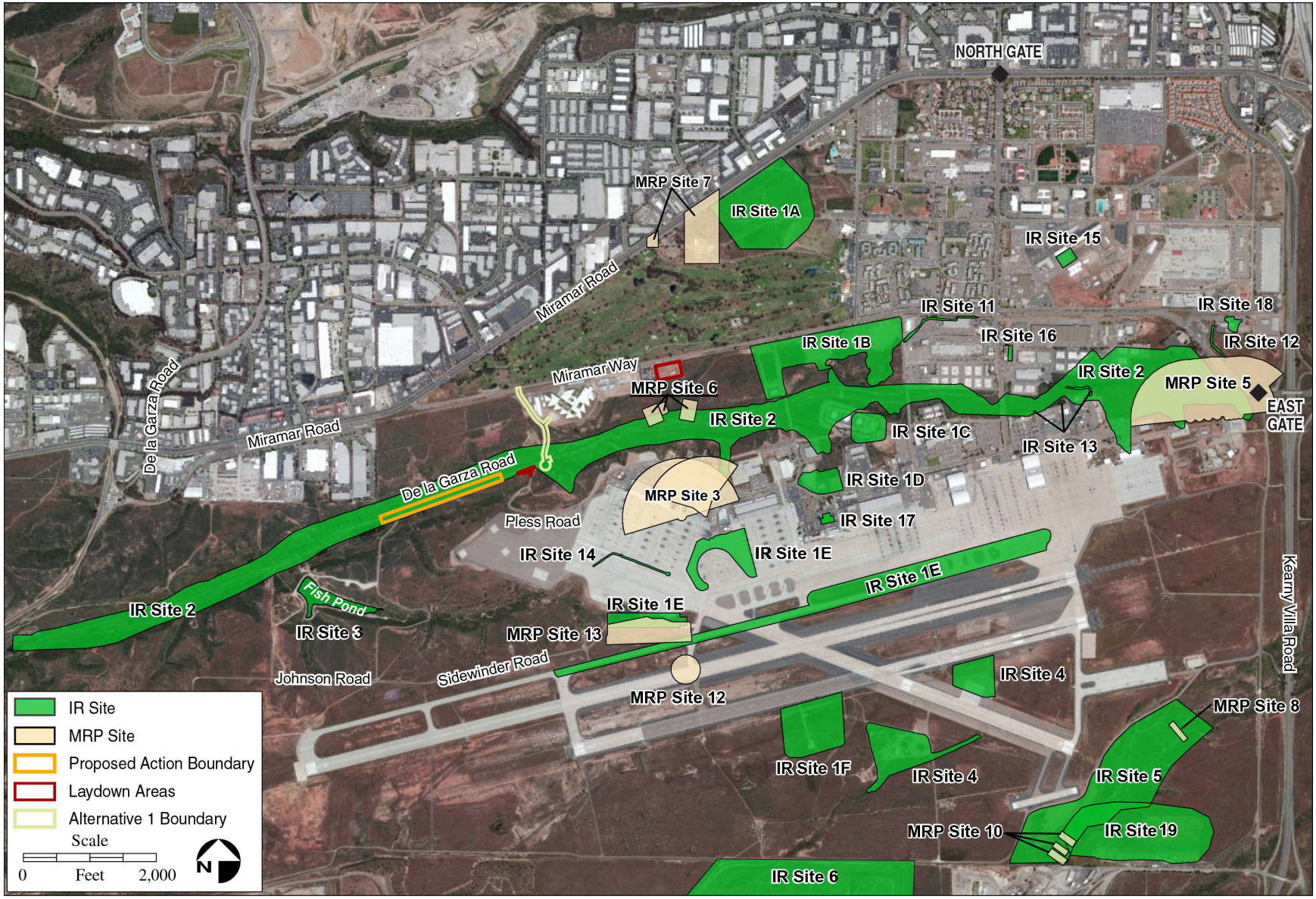

Figure 3.4-1. IR and MR Sites at MCAS Miramar

3.4.3.6 Other Federal Health and Safety Requirements

The DoN maintains health and safety programs to protect its personnel and property. Occupational health is an element of the overall Navy Occupational Safety and Health (NAVOSH) program, which includes explosive, nuclear, aviation, industrial, and off-duty safety.

All proposed construction and operation activities must meet the requirements of EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). These requirements are intended to ensure, wherever feasible, that pollution would be prevented or reduced at the source; pollution that cannot be prevented or recycled would be treated in an environmentally safe manner; and disposal or other releases to the environment would be employed as a last resort. These requirements are contained in all contractual documents pertaining to new construction at MCAS Miramar.

3.4.4 Environmental Consequences

3.4.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Protection of Children (Executive Order 13045)

Although children may occasionally recreate at the Fish Pond and golf course, these sites are located approximately 0.25 miles from the project site. No schools, daycare centers, or family housing units which would be frequented by children are located in the vicinity of the project site. Therefore, no children would be exposed to environmental conditions or military activities at or in the project vicinity. Accordingly, implementation of Alternative 1 would not have a significant impact to the protection of children and no mitigation is required.

Hazardous Materials and Waste Disposal

Construction and operation of Alternative 1 would require the use, transport, and storage of hazardous materials or waste. The transport, management, and disposal of soil excavated during construction is discussed in the following section. Any hazardous waste disposal associated with construction or operation demands would be adequately addressed by existing regulations for storage, transportation, and disposal of hazardous wastes. All hazardous waste generated from the project would be manifested through the Waste Management Division of the MCAS Miramar Environmental Management Department. The project would also comply with DERP, USACE EM 385-1-4 (*U. S. Safety and Health Requirement Manual*), with regard to disposal of CERCLA waste, and MCO 5090.2A (*USMC Environmental Compliance and Protection Manual*). Therefore, no significant hazardous waste related impacts would occur in association with Alternative 1 and no mitigation is required.

Installation Restoration Program

The Proposed Action would require demolition, excavation, stockpiling of soil, and off-site disposal of up to 17,000 cubic yards of soil. Excavations would be completed up to 15 feet deep and 24 feet wide, over a distance of 1,400 feet. The project site is located within the boundary of IR Site 2, Rose Canyon. Based on the results of soil sampling completed at the project site, MCAS Miramar does not expect that the soil proposed to be excavated from the project site would be classified as hazardous waste under either federal or state regulations (AMJV 2012). However, if prior to or during construction CERCLA contaminates are discovered, removal actions would be subject to the requirements of CERCLA (40 CFR Part 300) and RCRA (40 CFR 260). In addition, the project would: 1) coordinate with MCAS Miramar Environmental Management Department, Installation Restoration Program Manager; and 2) receive concurrence from the Remedial Project Manager at NAVFAC and SDRWQCB prior to execution of the project to ensure conformance with CERCLA. CERCLA remedial actions are exempted from the procedural requirements of NEPA. Therefore, any such actions conducted as part of this alternative are not evaluated in this EA.

Although soils classified as hazardous waste are not likely present, petroleum-impacted soils (i.e., soils contaminated with petroleum hydrocarbons) are located within the project site. Up to approximately 5,667 cubic yards of excavated soil (approximately one third of total volume of soil [17,000 cubic yards]) may require special handling and disposal (AMJV 2012). Construction personnel would be trained for HAZWOPER, in accordance with OSHA requirements (29 CFR 1910.120 (e)). In addition, a monitor with 40-hour HAZWOPER training, and experience in identifying contaminated soil and groundwater, would be present during grading and excavations to identify and properly segregate potentially contaminated soil from uncontaminated soil (Measure 9). The monitor would sample the stockpiled soil to determine final disposition of the soil (i.e., hazardous, nonhazardous/ petroleum contaminated, or clean). Stockpiled soils would be characterized using procedures outlined in the *San Diego Department Manual of Environmental Health Site Assessment and Mitigation Manual*. Any contaminated soils excavated would be managed in accordance with Measure 16 and conditions set forth in the SDRWQCB Order R9-2002-343, *Waste Discharge Requirement for the Disposal and/or Reuse of Petroleum Fuel Contaminated Soils in the San Diego Region*; would be stored and transported in accordance with 40 CFR and Title 22 regulations; and would be in coordination with an approval from the Remedial Project Manager and SDRWQCB. All hazardous waste generated from Alternative 1 would be manifested through the Waste Management Division of the MCAS Miramar Environmental Management Department and be assigned an MCAS Miramar Generator Number (MCAS 2009). With implementation of proper soil disposal and health and safety protocols, Alternative 1 would not have a significant hazardous waste related impact to public health and safety.

Other Federal Health and Safety Requirements

The proposed requirements of EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*) would be specified in construction contractor contracts and implemented with standard BMPs associated with Alternative 1. Therefore, construction of Alternative 1 would not have a significant impact to public health and safety associated with environmental health risks.

The Proposed Action would not result in a change in operational activities that would potentially affect the health and safety of personnel operating and maintaining the sewer system. Consequently, there would be no increase in potential public health and safety impacts. Therefore, operation of Alternative 1 would not have a significant impact to public health and safety.

As discussed in Section 3.8, post-construction water quality would be improved as a result of Alternative 1, as the proposed sewer equalization tank would prevent the discharge of excess wastewater from the sewer system, during heavy rain events, into Rose Canyon creek and downstream Mission Bay. The existing sewer infrastructure is not capable of metering effluent flow within permitted levels and the sewer does not have the capability to limit the rate of discharge. Therefore, Alternative 1 would result in beneficial impacts with respect to water quality and its effect on public health. Accordingly, implementation of Alternative 1 would not have a significant impact to public health and safety and no mitigation is required.

3.4.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

For Alternative 2, safety and environmental health impacts would generally be the same as those described for Alternative 1. Accordingly, implementation of Alternative 2 would not have a significant impact to public health and safety and no mitigation is required. In addition, as described for Alternative 1, beneficial public health impacts would occur as a result of improved water quality.

3.4.4.3 No-Action Alternative

Under the No-Action Alterative, potential construction related impacts would not occur. However, upgrades to the existing sewer system and inadvertent discharge of wastewater to Rose Canyon Creek and downstream Mission Bay would continue to occur during some heavy rain events. As a result, public health impacts related to poor water quality would continue to occur in association with the No-Action Alternative.

3.5 Recreation

3.5.1 Definition of the Resource

Recreation, as defined for the purposes of this EA, includes both facility and land based recreation activities. Facility-based recreation activities are defined as a building or facility that provides a particular recreational use such as swimming pools, gymnasiums, and bowling alleys. Land-based recreation activities are defined as areas that provide a particular recreational use such as golf courses, playing fields/outdoor courts, parks, open space, riding stables, and hunting and fishing areas.

3.5.2 Region of Influence

The ROI for recreation encompasses the project site as well as recreational facilities in the project vicinity that would be affected by Alternative 1 and alternative.

3.5.3 Affected Environment

One recreational facility, the Fish Pond, is located in the project vicinity. The Fish Pond is a 7-acre pond located approximately 0.1 mile south of the project site off De La Garza Road. The facility is maintained by MCAS Miramar as a recreational fishery and is stocked with largemouth bass, channel catfish, and bluegill (MCAS Miramar 2013). Access to the Fish Pond is limited to authorized Miramar Marine Corps Community Services patrons including active duty, reservists, retirees, DoD civilian employees of MCAS Miramar, and family members (NAVFAC 2006b). Management of the Fish Pond is accomplished jointly, with the Miramar Marine Corps Community Services managing the recreational aspects and the Environmental Management Department providing technical support regarding fishery and water quality issues (NAVFAC 2006b).

Use of the Fish Pond for recreational fishing was estimated based on the number of annual fishing permits issued between 2010 and 2012. The number of fishing permits that were issued for the Fish Pond in 2010, 2011, and 2012 were 319, 326, and 268, respectively. In addition, it is estimated that 15 to 50 people per day utilize the Fish Pond for jogging and physical training. Because individuals do not have to check-in to use the Fish Pond, the number of users for other recreational activities such as picnics is unknown (R. Maynard, personal communication, 3 January 2013).

3.5.4 Environmental Consequences

3.5.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Access to the Fish Pond would be closed during the 15-month construction period. No recreational activities would occur during this time, resulting in temporary impacts to recreational use of the facility. Sidewinder Road and Johnson Road would provide non-recreation access to the Fish Pond for authorized MCAS Miramar personnel conducting operation and maintenance activities while De La Garza Road is closed to through traffic (Measure 10) (Figure 2-1).

Although access to the Fish Pond would be closed temporarily during construction, the reduction of available resources would be short-term and only affect a small non-public user group. Following construction, access to the Fish Pond would be the same as under the existing conditions. Therefore, no significant permanent impacts to recreation would occur during operation and no mitigation is required.

3.5.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Temporary impacts to recreation under Alternative 2 would be the same as described for Alternative 1. Following construction, access to the Fish Pond would be the restored to existing conditions. Therefore, no significant permanent impacts to recreation would occur during operation and no mitigation is required.

3.5.4.3 No-Action Alternative

Under the No-Action Alternative, upgrades to the existing sewer system would not occur and access to Fish Pond would not be temporarily closed during construction. Existing conditions would remain as described in Section 3.5.1. Therefore, no impacts to recreation would occur under the No-Action Alternative.

3.6 Transportation, Circulation, and Traffic

3.6.1 Definition of Resource

Transportation, circulation, and traffic refer to the movement of vehicles on roadways and through intersections. Operational conditions for roadways and intersections are typically defined in terms of average daily trips (ADT) and level of service (LOS). These factors indicate the ability of the roadway network to adequately accommodate existing and future traffic needs.

LOS is a letter designation that ranges from A through F and describes the range of possible operating conditions on a particular type of roadway facility. LOS is based on speed, freedom to maneuver, driving comfort, and convenience. Intersection analysis is based on the time that a vehicle is delayed at an intersection. LOS for signalized intersections is based on the average time (in seconds) that vehicles entering the intersection are delayed. LOS for unsignalized, two-way, stop-controlled intersections is based on the delay for the worst movement (e.g., crossing and left or right turns). LOS A for intersections indicates operations with very low delay and few stopped vehicles; LOS E indicates operations with significant delay and extensive queuing; and LOS F represents operations that are unacceptable to most drivers. LOS for freeway segments is determined by volume-to-capacity (V/C) ratios, which reflect the fraction of capacity represented by the traffic flow.

3.6.2 Region of Influence

The ROI for transportation, traffic, and circulation includes the roadways and major intersections found on MCAS Miramar in the vicinity of the project site. Freeway segments in the vicinity of MCAS Miramar also are included within the ROI for transportation, traffic, and circulation. Based on their proximity to the project site and the likely travel patterns to regional facilities, the following freeways and roads were determined to be within the ROI: I-15, I-805, SR-52, Miramar Way, Miramar Road, Kearny Villa Road, De La Garza Road, and Pless Road.

3.6.3 Affected Environment

Regional access to MCAS Miramar is provided by a network of freeways and arterial roads. The freeways include I-15, I-805, and SR-52. The arterial street network within MCAS Miramar includes Miramar Way, Miramar Road, and Kearny Villa Road. I-15 serves as the major regional interstate highway that provides access to MCAS Miramar, intersecting the Air Station and dividing it into two areas (West Miramar and East Miramar). SR-52 traverses the southern boundary of the Air Station and I-805 is located along the western boundary of the Air Station. Miramar Way is the prime internal east-west arterial road, ranging from two to four lanes and located north of the project site. West of I-15, Miramar Road is a prime arterial road that forms the northern boundary of the Air Station until its intersection with Miramar Way approximately three miles west of I-15. Kearny Villa Road runs generally north to south along the east side of West Miramar, west of I-15. The project site is located on De La Garza Road approximately 0.5 miles south east of the West Gate, 2.3 miles southwest of the North Gate, and 2.3 miles southwest of the East Gate. The site is accessed via Miramar Way.

The principal roadways that serve the project site are described below.

I-805 is an eight-lane freeway running in a north/south direction along the western boundary of MCAS Miramar. Freeway on-ramps and off-ramps in the vicinity of the Air Station are located at Sorrento Valley Road, Genesee Avenue, La Jolla Village Drive (becomes Miramar Road at I-805), Nobel Drive, Gilman Drive, Governor Drive, SR-52, and Claremont Mesa Boulevard. I-805 currently carries an

ADT volume of 196,000 to 215,600 vehicles in the area (San Diego Association of Governments [SANDAG] 2012a).

I-15 is an eight-lane freeway running in a north/south direction through MCAS Miramar. Freeway on-ramps and off-ramps are located at Mira Mesa Boulevard, Carroll Canyon Road, Miramar/Pomerado Road, Miramar Way, SR-163, and SR-52. I-15 currently carries an ADT volume of 161,400 to 314,100 vehicles in the vicinity of the Air Station (SANDAG 2012a). The intersection of I-15 Southbound and Miramar Way at the westbound left-turn approach operates at LOS A during peak morning, noon, and afternoon conditions (TranSystems 2012). The intersection of I-15 Southbound and Miramar Way at the southbound approach operates at a LOS F during peak morning conditions, LOS C at peak noon conditions, and LOS B during peak afternoon conditions (TranSystems 2012).

Miramar Road runs primarily in an east/west direction along the north boundary of MCAS Miramar, and provides access to the North and West Gates of the Air Station. It becomes Pomerado Road east of I-15. Miramar Road from I-805 and Eastgate Mall is a six-lane prime arterial with a capacity of 60,000 ADT at LOS E (SANDAG 2012b). Miramar Road between Miramar Place and Camino Santa Fe is a four-lane major arterial with a capacity of 50,000 ADT at LOS E (SANDAG 2012b). Miramar Road between Miramar Way and Kearny Mesa Road is a six-lane prime arterial with a capacity of 60,000 ADT at LOS E (SANDAG 2012b). Miramar Road currently carries an ADT volume of 42,200 to 73,000 vehicles between I-805 and I-15 (SANDAG 2012b). The intersection of Miramar Way and Miramar Road near the West Gate operates at a LOS B during peak morning, noon, and afternoon hours (TranSystems 2012).

The North Gate is located off Miramar Road at Mitscher Way and is one of the primary entrances to the Air Station along with the East Gate. The gate operates on a 24-hour a day 7 days a week basis. Approximately 700 vehicles enter the North Gate during morning peak hours (0615 to 0715), averaging 13 vehicles per minute (TranSystems 2012).

The West Gate is located off Miramar Road and Miramar Way and is a secondary entrance to the Air Station. The gate operates between 0530 and 1830 on weekdays and is closed on weekends. Approximately 280 vehicles enter the gate during peak morning hours (0630 to 0730), averaging five vehicles per minute (TranSystems 2012).

Kearny Villa Road is a four-lane major arterial running in a north/south direction through MCAS Miramar, and provides access to the East Gate of the Air Station. Kearny Villa Road in the vicinity of the Air Station currently carries an ADT volume of 11,000 to 26,100 vehicles from north of Miramar Road to SR-52 (SANDAG 2012b). The existing capacity of Kearny Villa Road is approximately 40,000 ADT at LOS E (SANDAG 2012b). The southbound intersection of Kearny Villa Road and Miramar Way operates at LOS A from the westbound left-turn approach during peak morning, noon, and afternoon conditions, while the southbound approach operates at LOS D during peak morning conditions, LOS D during peak noon conditions, and LOS F during peak afternoon conditions. The northbound intersection of Kearny Villa Road and Miramar Way operates at LOS C during peak morning conditions and at LOS A during peak noon and afternoon conditions from the eastbound left-turn approach. The southbound approach at this intersection operates at a LOS F during peak morning conditions and LOS C during peak noon and afternoon conditions (TranSystems 2012).

The East gate is located off Kearny Villa Road at H Avenue and provides primary access to the Air Station along with the North Gate. All heavy trucks are required to enter and leave MCAS Miramar by the East Gate. The gate operates on a 24-hour a day 7 days a week basis. Approximately 1,881 vehicles enter the gate during peak morning conditions, averaging about 33 vehicles per minute (TranSystems 2012).

Miramar Way is a major arterial running in an east/west direction through MCAS Miramar, and provides access to the East Gate of the Air Station. Miramar way is a two-lane road between Miramar Road and Anderson Avenue on the west and then becomes a four-lane road between Anderson Avenue to the East Gate. Miramar Way in the vicinity of the Air Station carries an ADT volume of 14,700 to 18,900 vehicles (SANDAG 2012b). The intersection of Miramar Way and Miramar Road operates at LOS B during peak morning, noon, and afternoon hours (TranSystems 2012). The heaviest traffic volumes on MCAS Miramar are on Miramar Way. The traffic volumes on Miramar Way peak at about 21,000 vehicles per day at the East Gate, dropping down to about 14,000 east of Mitscher Way, 9,300 west of Mitscher Way, and down to around 2,600 at the West Gate (TranSystems 2012).

Pless Road is a two-way roadway running in a north/south direction, and provides access to the project site. Specific traffic data are not available for this road. However, the capacity of a two-lane roadway is generally 15,000 to 20,000 vehicles per day (TranSystems 2012). During the morning peak period there is a heavy pattern of traffic turning from Miramar Way onto roadways feeding the flightline.

De La Garza Road is a two lane road running in an east/west direction in the project site. Specific traffic data are not available for this road. However, the capacity of a two-lane roadway is generally 15,000 to 20,000 vehicles per day (TranSystems 2012).

3.6.4 Environmental Consequences

3.6.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Implementation of Alternative 1 would temporary affect the local road network through the delivery of materials to the project site during construction and by temporarily closing De La Garza Road to through traffic. Because increases in traffic volumes associated with the construction activities would be temporary, no long-term impacts to the regional transportation network would occur. Heavy construction vehicles would generally remain onsite for the duration of their use. Thus, increases in traffic volumes would mainly result from construction workers traveling to and from the project site and trucks delivering materials including soil to and removing materials from the project site. A maximum of approximately 50 vehicle round trips per day would be required during proposed construction activities including 35 equipment round trips per day and 15 worker round trips per day. All construction equipment and material hauls would access the Air Station through the East Gate unless otherwise approved by MCAS Miramar.

Addition of the construction traffic during peak traffic hours would worsen the delays at the freeway ramps and intersections in the vicinity of the East Gate already operating at LOS F and would contribute to already poorly performing freeway segments along I-15 in the vicinity of MCAS Miramar. The increases in traffic volumes from construction of Alternative 1 would be temporary (lasting for the 15-month construction period) and would vary daily depending on the construction schedule. To minimize traffic congestion, delivery of materials and equipment would occur outside of peak traffic hours (6:30 to 8:00 a.m. and 3:30 to 5:00 p.m.) as described in Measures 11 (Section 2.3.3.6) and construction workers would be encouraged to rideshare/carpool (Measure 12).

Construction of Alternative 1 would require the temporary closure of De La Garza Road. De La Garza Road is a minor service road that provides access only to limited facilities at the Air Station. The construction contractor would be required to implement a Construction Traffic Management and Detour Plan as detailed in Measure 13. Following construction, De La Garza Road would be repaved and returned to its pre-construction configuration. A sign indicating the road load rating would be posted at the start of De La Garza Road near the intersection of Pless Road (Measure 14). Therefore, temporary impacts to transportation, circulation, and traffic during construction would not be significant.

There would be no additional military, government, civilian, and/or contractor support personnel stationed at MCAS Miramar as a result of Alternative 1. Consequently, operation of Alternative 1 and would not increase overall traffic volumes or circulation patterns within the Air Station. Therefore, no significant impacts to traffic, transportation, or circulation would occur and no mitigation is required.

3.6.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Alternative 2 would have similar impacts to Alternative 1, but would result in slightly less construction vehicle trips. Construction and operation of Alternative 2 would require a maximum of approximately 15 vehicle round trips per day during proposed construction activities including five equipment round trips per day and 10 worker round trips per day. As with Alternative 1, Alternative 2 would temporarily worsen the peak hour delays at the freeway ramps and intersections in the vicinity of the East Gate already operating at LOS F and would contribute to an already poorly performing freeway segments along I-15 in the vicinity of MCAS Miramar during the construction period. As with the Alternative 1, Measures 11 and 12 would be implemented to minimize traffic congestion. Therefore, temporary impacts to transportation, circulation, and traffic during construction would not be significant.

Construction of the Alternative 2 would require the temporary closure of De La Garza Road and Pless Road. The contractor would be required to implement a Construction Traffic Management and Detour Plan (Measure 13). Following construction, De La Garza Road and Pless Road would be repaved and returned to pre-construction conditions. Consequently, no significant impacts to traffic, transportation, or circulation would result from construction of the Alternative 2 and no mitigation is required.

Alternative 2 operation would be the same as Alternative 1 and would not increase overall traffic volumes or circulation patterns within the Air Station. Therefore, no significant impacts to traffic, transportation, or circulation would occur and no mitigation is required.

3.6.4.3 No-Action Alternative

Under the No-Action Alternative, upgrades to the existing sewer system would not occur. Existing conditions would remain as described in Section 3.6.1 and existing traffic levels and circulation patterns would remain unchanged. Therefore, no significant impacts to transportation, circulation, and traffic would occur and no mitigation is required.

3.7 Utilities

3.7.1 Definition of Resources

Utilities, as defined for the purposes of this EA, include electrical distribution systems (including power lines and substations), telecommunication systems, natural gas, potable water supply and distribution systems, sanitary sewer system, storm drainage systems, and solid waste disposal. Hazardous material disposal is discussed in Section 3.4.

3.7.2 Region of Influence

The ROI for utilities encompasses the project site, as well as on- and off-site areas that contain utility lines and/or infrastructure that would be affected by potential changes to existing conditions.

3.7.3 Affected Environment

3.7.3.1 Electrical Distribution System

Electrical power for MCAS Miramar is purchased from the regional utility company, San Diego Gas and Electric (SDG&E). Electricity is provided through a 12-kilovolt (KV) underground connection originating at the SDG&E substation located on Miramar Road, which connects to Miramar's 12 KV switching station (substation No. 4). Power is distributed by a 12-KV loop that feeds five additional substations and more than 90 miles of transmission lines. Emergency power is provided by SDG&E's Miramar Power Block combustion turbines and by fixed standby generators (NAVFAC 2006b). Electrical power is provided at the western end of the project site by underground electrical distribution lines (Figure 2-1).

3.7.3.2 Communication System

Communication services for MCAS Miramar are provided by American Telephone and Telegraph Corporation (AT&T) through a network of aboveground and underground lines. The system was installed in December 1986 and has a capacity of 5,000 lines. Currently, there are approximately 2,500 working lines (NAVFAC 2006b). Communication service to the project site is provided by an overhead communication line strung on the same transmission poles as the electrical distribution lines.

3.7.3.3 Natural Gas

Natural gas for MCAS Miramar is purchased from SDG&E and supplied through a gas main located in Maxam Avenue. Natural gas is distributed to the Air Station through approximately 11 miles of 2-inch and 3-inch gas lines (NAVFAC 2006b). All lines are located on the northern part of MCAS Miramar. Two propane gas tanks and associated distribution systems also supply gas to the Air Station in a limited capacity. No natural gas lines are located within the project site. The closest lines are located approximately 0.25 miles north of the project site in Miramar Way.

3.7.3.4 Water Supply and Distribution System

Potable water for MCAS Miramar is purchased from the City of San Diego. The City of San Diego imports approximately 80 to 90 percent of its water, which is a blend of Colorado River, State Water Project, and local sources (City of San Diego 2012a). The main connection to the City of San Diego water system is located along the northwest side of MCAS Miramar near Miramar Road and Bauer Road (NAVFAC 2006b). MCAS Miramar is supplied with a metered 16-inch line located off Miramar Road. A backup 16-inch connection point is located at Kearny Villa Road on the northeast side of the Air Station. The system consists of 6- to 14-inch cast iron lines built from 1951 to 1960. In addition, MCAS Miramar has three water storage tanks, two with one million gallon and one with 750,000 gallon capacities.

A separate, closed water system is used for fire protection of the aircraft hangars (NAVFAC 2006b). The fire system is fed from two ground-level storage tanks (each one million gallons), and has six 1,500 gpm pump stations. East Miramar and Sycamore Canyon have 40,000 linear feet of distribution system and five small storage tanks.

No water supply lines are located within the project site. The closest water lines are located approximately 0.25 miles north of the project site within the Naval Consolidated Brig area.

3.7.3.5 Sanitary Sewer System

The sewer system on MCAS Miramar consists of 202,862 linear feet of 6- to 16-inch lines originally built from 1953 to 1960, and includes three septic tank systems and nine oil/water separators (NAVFAC 2006b). A sewage flow metering station is located in Rose Canyon. An additional five septic tanks and two oil/water separators that are not connected to the sanitary sewer system are located in East Miramar and Sycamore Canyon. Sewer wastewater is collected on MCAS Miramar and discharges to the City of San Diego's Point Loma Wastewater Treatment Plant under an existing contract. The cost of service is based on the quality of sewage and the amount of water used. Treated waste from the from the Point Loma Wastewater Treatment Plant is discharged into the Pacific Ocean, two miles off of Point Loma. Biosolids from the Point Loma Wastewater Treatment Plant are fed by pipeline to the Metro Biosolids Center for treatment and use as soil amendments, landfill, and landfill cover at the Miramar Landfill (City of San Diego 2012b).

Two sewer lines, USN 9 and USN 10, are located within De La Garza Road. USN 9 is a 15-inch vitrified clay pipe that runs underneath De La Garza Road. USN 10 is a 16-inch PVC pipeline that runs along the north side of De La Garza Road (Figure 2-1) (MCAS Miramar GIS data 2012).

3.7.3.6 Storm Drainage System

The storm drain system at MCAS Miramar consists of 2,300 linear feet of 6- to 36-inch distribution lines made of various materials (NAVFAC 2006b). In addition, there are dozens of culverts of various sizes and materials as well as creeks and streams that convey stormwater throughout the Air Station. Stormwater is discharged off of the Air Station at twelve locations.

No storm sewer lines are located within the project site. The closest storm sewer line is located approximately 0.25 miles north of the project site within the Naval Consolidated Brig area. There are several open drainages that collect and convey stormwater within the project site including the intermittent creek within Rose Canyon and culverts along De La Garza and Pless Roads.

3.7.3.7 Solid Waste Disposal

Solid waste produced on MCAS Miramar is collected by Air Station personnel and disposed of at the Miramar Landfill located at MCAS Miramar. The Miramar Landfill accepts eligible construction and demolition debris, mixed municipal waste, and tires. The landfill currently has a capacity of 16,473,000 cubic yards (Department of Resources Recycling and Recovery 2012). Hazardous waste disposal is discussed in Section 3.4.

3.7.4 Environmental Consequences and Mitigation Measures

3.7.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Implementation of Alternative 1 would not include the construction or operation of new water distribution mains, natural gas distribution lines, or communications lines, and would not result in an increase in demands of these utilities at MCAS Miramar. Therefore, no impacts on the potable water, natural gas, or

communication systems would occur. The Proposed Action would include upgrades to the sanitary sewer system, a tie-in to the existing electrical distribution system, and replacement of the storm drainage system within the project site. In addition, solid waste would be generated during construction activities. Impacts associated with these activities are evaluated below.

Electrical Distribution System

The active flow control system would be connected to the existing electrical line at the project site to support this alternative. The demand for electricity to serve the project site would be met by existing services provided by SDG&E and the proposed electrical system upgrade would be designed consistent with SDG&E standards. Therefore, no significant impacts on the electrical system would occur.

Sanitary Sewer System

The Proposed Action would not generate wastewater or increase demands on the sanitary sewer system at MCAS Miramar. Under this alternative, the existing sanitary sewer infrastructure would be upgraded to limit the discharge rate of effluent to the City of San Diego's sewer system to less than the permitted limit of 1.6 mgd. Therefore, Alternative 1 would have a beneficial impact on the sewer system.

Storm Drainage System

Culverts located along De La Garza would be demolished and replaced (temporarily impacted) during construction. As described in Section 3.3, the construction contractor would obtain authorization for construction under the NPDES Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ; NPDES No. CAS000002) from the SWRCB. The contractor would be required to implement all appropriate BMPs for contaminated runoff control, as identified in Order No. 2009-0009-DWQ; as specified in the application to the SWRCB. The culverts would be replaced and the storm drainage system would operate as under existing conditions. Therefore, no permanent impacts would occur and temporary impacts to the stormwater system would not be significant.

Solid Waste Disposal

Construction activities associated with Alternative 1 would generate solid wastes including demolished asphalt, sewer pipelines, and excavated soils. Solid waste would be disposed of at the Miramar Landfill. Sufficient capacity exists within the Miramar Landfill to accommodate the small volume of solid waste expected to be generated by Alternative 1. Solid wastes would not be generated during operational activities associated with this alternative. Therefore, impacts on solid waste disposal would not occur during operations and no mitigation is required.

3.7.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Implementation of Alternative 2 would not include the construction or operation of new natural gas distribution lines or communications lines and would not result in an increase in demands of these utilities at MCAS Miramar. Therefore, no impacts on natural gas and communication systems would occur. Alternative 2 would include upgrades to the electrical distribution system, water supply and distribution system, sanitary sewer system, and replacement of the storm drainage system within the project site. In addition, solid waste would be generated during construction activities. Impacts associated with these activities are evaluated below.

Electrical Distribution System

Alternative 2 would include the construction of approximately 1,400 feet of overhead electrical transmission lines to operate the pump station. The transmission line alignment would connect to the

existing distribution system along Miramar Way and would be placed within the right-of-way along Pless Road (Figure 2-3). The demand for electricity to serve the project site during operation of the pump station would be met by existing services provided by SDG&E. The proposed electrical system upgrades would be consistent with SDG&E standards. Therefore, no significant impacts on the electrical system would occur and no mitigation is required.

Water Supply and Distribution System

Implementation of Alternative 2 would include construction of approximately 650 feet of additional water distribution lines to flush the pump station system after use. The new water line would be placed underground within the right-of-way along Pless Road, with connections to the existing infrastructure within the Naval Consolidated Brig area and the proposed water tank (Figure 2-3). Operation of the facility would not result in a significant increase in demands on the water supply and distribution system at MCAS Miramar. Therefore, significant impacts on water supply and distribution systems would not occur and no mitigation is required.

Sanitary Sewer System

Alternative 2 would generate wastewater from flushing the pump station and tank system after use. However, the increase demands on the sanitary sewer system at MCAS Miramar would not be significant. In addition, the existing sanitary sewer infrastructure would be upgraded to limit the discharge rate of effluent to the City of San Diego's sewer system to less than the permitted limit of 1.6 mgd. Therefore, Alternative 2 would have a beneficial impact on the sewer system.

Storm Drainage System

Culverts located along each side of De La Garza Road that convey stormwater off MCAS Miramar would be demolished and replaced during construction of the wet well and pump station. Therefore, temporary impacts to the storm drainage system would occur during construction. These temporary impacts would be less than described for Alternative 1 due to the smaller project footprint. The culverts would be replaced and operation of the storm drainage system would be conducted as under existing conditions. Therefore, no permanent impacts would occur and temporary impacts would not be significant; no mitigation is required.

Solid Waste Disposal

Construction activities associated with this alternative would generate solid wastes, including demolished asphalt, sewer pipelines, and excavated soils. This alternative would generate less solid waste than Alternative 1. Solid waste would be disposed of at the Miramar Landfill. Sufficient capacity exists within the Miramar Landfill to accommodate the small volume of solid waste expected to be generated by Alternative 2. Solid wastes would not be generated during operational activities associated with this alternative. Therefore, no significant impacts on solid waste disposal would occur and no mitigation is required.

3.7.4.3 No-Action Alternative

Under the No-Action Alternative, upgrades to the existing sewer system would not occur. Existing conditions would remain as described in Section 3.7.1 and utility demands would remain unchanged. In addition, the existing sewer system would continue to exceed the permitted discharge limit of 1.6 mgd during significant rain events. As a result, MCAS Miramar would continue to be subject to fines for exceeding the permit limit, which could result in a significant impact to the sanitary sewer system.

3.8 Water Resources

3.8.1 Definition of Resource

Water resources include surface water, groundwater, water quality, and floodplains/flooding. Surface water includes all lakes, ponds, rivers, streams (perennial, intermittent, and ephemeral), impoundments, and wetlands within a defined area or watershed. Groundwater is located beneath the ground surface in soil pore spaces or in bedrock fractures. Water quality refers to the chemical and physical composition of water as affected by natural conditions and human activities. Floodplains are areas subject to inundation (flooding) from defined storm events. A 100-year floodplain, for example, is the inundation area associated with a 100-year storm (i.e., a storm event having a one percent chance of occurring in any given year).

3.8.2 Region of Influence

The region of influence for water resources includes the project site and associated off-site areas that could potentially be affected by project-generated changes in hydrologic conditions.

3.8.3 Affected Environment

3.8.3.1 Surface Water

MCAS Miramar is located on the coastal plain of San Diego County, within the San Clemente and Rose Canyon drainage basins. These canyons converge west of MCAS Miramar. The project site is located within Rose Canyon, which traverses MCAS Miramar from east to west and intersects several minor tributaries that flow in north/south trending canyons. The intermittent creek within Rose Canyon extends generally northeast to southwest through West Miramar, and ultimately turns south before entering Mission Bay, approximately 7 miles southwest of the project site. Rose Canyon Creek has been channelized; however, much of the surface water within the broad-based canyon occurs primarily as overland sheet flow during periods of heavy rainfall in early spring and winter. Due to low average rainfall, surface water runoff is relatively low. Surface runoff from MCAS Miramar primarily drains into Rose Canyon and to a lesser extent into San Clemente and Sycamore canyons. Drainage occurs through natural topographic gradients and man-made drains (SDRWQCB 2011; DoN 1996).

3.8.3.2 Water Quality

No known water quality data are available for runoff within or adjacent to the project site, although stormwater flows are typically subject to wide variations in water quality with factors such as runoff volume, velocity, and adjacent land uses. Specifically, runoff from urban areas typically exhibits higher concentrations of contaminates such as dissolved and suspended solids, metals, nutrients, chemical pesticides/herbicides, oxygen demanding substances, and hydrocarbons than undeveloped areas. The Rose Canyon Creek watershed encompasses development such as urban properties (on and off of the Air Station), aircraft facilities, a golf course, and various Air Station facilities. Hangar 7, the Naval Consolidated Brig area, and the Fish Pond are located in the immediate vicinity of the project site. Surface water monitoring conducted for downstream portions of the Rose Canyon Creek watershed (including Mission Bay) since 2001 have identified generally moderate to poor water quality, with established thresholds exceeded for constituents, including bacteria, nutrients, turbidity, inorganics (sulfate), and metals (MCAS Miramar 2010).

Rose Canyon is known to have stream bank erosion problems. Rose Canyon was identified as a source of high concentrations of organically rich fine sediments draining into Mission Bay, aggravating silting of the bay and degrading bottom sediment quality (MCAS Miramar *et al.* 2011).

3.8.3.3 Groundwater

Groundwater at MCAS Miramar generally occurs in two aquifers: the Quaternary alluvium and the confined regional aquifer of the Scripps Formation. In addition, groundwater potentially occurs in the transient, gravity-controlled system in the Stadium Conglomerate and Lindavista Formation (DoN 1996). The project site is located within Rose Canyon, which is underlain by Quaternary alluvium and flanked by the Stadium Conglomerate and Lindavista Formation. Tributary groundwater flows toward this canyon and recharges the shallow aquifer within the alluvium, which occurs at a depth of approximately 10 to 25 feet below ground surface. However, groundwater is not present to a depth of at least 16 feet at the project site. Although the groundwater is permanent and supports sycamore and oak trees, this alluvial aquifer is not considered a significant groundwater basin (SDRWQCB 2011; DoN 1996; AMJV 2012).

A regional aquifer occurs within the sand and gravel layers of the Eocene Scripps Formation, located at a depth of approximately 160 to 250 feet below ground surface. Groundwater flow in this aquifer in the vicinity of the project site is predominantly to the west and southwest, parallel to Rose Canyon. An aquiclude is a low-permeability unit that forms the upper or lower boundary of an aquifer. Aquicludes in the Scripps Formation consist of sandy clays and claystones of overlying deposits that create confining conditions. The resulting pressure on the aquifer is sufficient to raise the groundwater as much as 100 feet above the water table (DoN 1996).

The amount of groundwater within the Stadium Conglomerate and the Lindavista Formation overlying the aquicludes of the regional aquifer is variable and limited in quantity. Low annual rainfall, combined with low average soil moisture and the very low permeability of the Stadium Conglomerate, result in limited groundwater recharge (DoN 1996).

Groundwater quality beneath MCAS Miramar is generally poor due to high total dissolved solids (TDS) concentrations. TDS concentrations generally exceed the groundwater quality objective of 750 milligrams/liter. The regional confined aquifer beneath the project area has been designated by the SDRWQCB as having no existing beneficial uses (SDRWQCB 2011; DoN 1996). Therefore, MCAS Miramar receives potable water supplies from the City of San Diego Water Department.

3.8.3.4 Floodplains/Flooding

Floodplains are defined as areas with a one percent chance of flooding in any given year. Federal Emergency Management Agency (FEMA) floodplain maps do not extend into MCAS Miramar (i.e., MCAS Miramar is marked as “area not included”). The FEMA floodplain maps for 100-year and 500-year flood events have been prepared for only areas of Rose Canyon located outside of MCAS Miramar. However, the approximate limits of the 100-year floodplain associated with Rose Canyon Creek have been delineated by the USACE as part of the 2001 Planning Level Delineation of Aquatic Resources, Floodplain Mapping, and Functional Assessment of Riparian Ecosystems at MCAS Miramar, San Diego County, California (Smith and Lichvar 2001). This analysis identifies a 100-year floodplain for Rose Canyon Creek based on assessment of historical rainfall/drainage data and mathematical modeling efforts. As shown in Figure 3.8-1, the project site is located within the 100-year floodplain of Rose Canyon Creek.

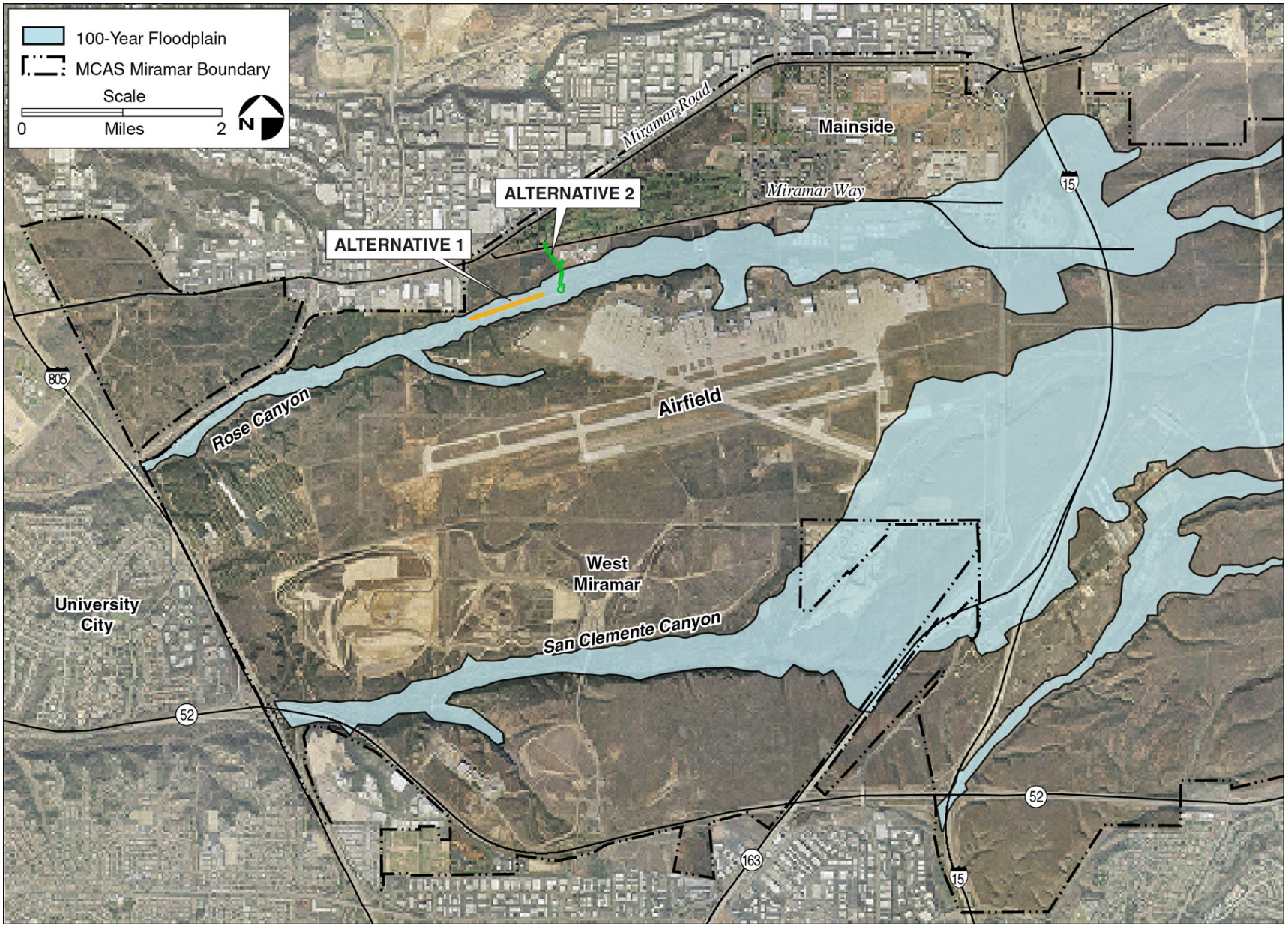

Figure 3.8-1. 100-Year Flood Plain at MCAS Miramar

3.8.4 Environmental Consequences

3.8.4.1 Alternative 1: De La Garza Road Gravity Tank (Preferred Alternative)

Surface Water

The project site is located within the Rose Canyon Creek watershed and surface drainage within and from the project site flows generally to the south-southwest, with associated flows eventually entering Rose Canyon Creek and ultimately reaching Mission Bay. The Proposed Action would not entail alteration of local drainage patterns, and the flow directions and locations from within and downstream of the project site would remain the same as under existing conditions. Therefore, Alternative 1 would not result in significant impacts to surface water and no mitigation is required.

Water Quality

Potential water quality impacts from Alternative 1 would be associated with temporary, construction-related erosion/sedimentation and the use/storage of construction related hazardous materials (e.g., fuels lubricants, paints, and solvents). Increased erosion potential during construction could result from road demolition, soil and sewer excavations, soil stockpiling, removal of vegetative cover, grading (cut and fill operations), and offsite transport of soils in vehicle tires. These potential impacts would be addressed through incorporation of LID features into the project design, conformance with applicable requirements including the NPDES General Construction Activity Storm Water Permit (described for erosion/ sedimentation in Section 3.1), and the MCAS Miramar Storm Water Management Plan for non-industrial uses. In addition, Alternative 1 would include a number of Environmental Protection Measures and BMPs to prevent or minimize potential effects to water quality, increased sedimentation, and/or flooding potentials in Rose Canyon Creek and downstream Mission Bay, as specified by Measures 15 through 17 (Section 2.5.8). Before commencement of site grading, control devices such as silt fences, fiber rolls, gravel bags, and/or check dam protections would be placed within and around the project site to reduce surface water flow velocities, retard soil erosion and off-site transport, and protect sensitive habitats. The entrances/exits to the project site would be stabilized to remove soil from vehicle tires during construction. Any portion of the project site left unattended for more than 14 days would be covered to prevent erosion during construction. Existing vegetated areas disturbed during construction would be revegetated with native vegetation for stabilization. Therefore, construction of Alternative 1 would not result in significant water quality impacts due to erosion/sedimentation and no mitigation is required.

Surface water and/or shallow groundwater quality impacts could potentially occur as a result of inadvertent dispersion of contaminants during grading, construction, and subsequent operations. Grading and construction would require the use of vehicles and equipment powered by diesel fuel/gasoline and lubricated with oil and other mechanical fluids, which are considered hazardous substances. Accidental releases of such substances (e.g., spills arising from leakage of fuel, motor oil, or hydraulic fluid during operation and/or equipment maintenance) could also occur. All vehicles and equipment would carry supplies of fuel and other mechanical fluids only in the quantities needed for their operation. The use of licensed, trained personnel for the safe operation of vehicles and equipment required for construction/ demolition, as well as performance of a regular, comprehensive maintenance program would further reduce the potential for an accident to occur. To minimize the risk of release of fuel or other petroleum products, equipment fueling and maintenance would be completed at designated fueling stations. Before construction, the construction contractor would obtain authorization for construction under the General Permit for Discharges of Stormwater Associated with Construction Activity from the SWRCB. The contractor would be required to implement all appropriate BMPs for contaminated runoff control, as identified in Order No. 2009-0009-DWQ; as specified in the application to the SWRCB. Therefore, Alternative 1 would not result in significant water quality impacts due to the inadvertent dispersion of contaminants during grading, construction, and subsequent operations and no mitigation is required.

Operation of the roadway overlying the proposed sewer equalization tank would be conducted as under existing conditions. Minor surface water quality impacts would continue to occur as a result of leaks of small amounts of oil/grease and other fluids from vehicles. However, post-construction surface water quality and underlying groundwater quality would be improved as a result of Alternative 1, as the proposed sewer equalization tank would prevent discharge of excess wastewater from the sewer system, during heavy rain events, into Rose Canyon Creek and downstream Mission Bay. The existing sewer infrastructure is not capable of metering effluent flow within permitted levels and the sewer does not have the capability to limit the rate of discharge. Therefore, Alternative 1 would result in beneficial impacts with respect to water quality and no mitigation would be required.

Groundwater

This alternative would not result in an increase in operations and associated personnel. Therefore, Alternative 1 would not involve the long-term use or extraction of groundwater for consumptive or other purposes, and no associated impacts would occur. As such, Alternative 1 would not result in impacts to water supply and no mitigation is required.

Floodplains/Flooding

EO 11988, dated 24 May 1977, and amended by EO 12148 on 20 July 1979, requires agencies to take actions to reduce risks to human safety and property that may be associated with floods, and to preserve the natural and beneficial values served by floodplains. In addition, agencies are required to analyze potential effects of any actions that may be taken in a floodplain, and include requirements outlined in this order in the planning process.

The project site is located within the 100-year floodplain of Rose Canyon Creek. However, no aboveground structures that would be subject to flood damage would be constructed as part of Alternative 1. All construction would be below ground and the overlying roadway would be restored similar to existing conditions. In addition, a 6-inch vent located at the upstream end of the tank would extend 8 feet above grade (to keep it above flood water levels) to allow for gas to escape. The proposed tank would have sufficient capacity to temporarily retain excess sewage flow generated by a nominal 10-year 24-hour storm, to limit the maximum sanitary sewer flow rate into the City of San Diego's sewer outfall to within the required permit limit of 1.6 mgpd, thus resulting in beneficial flood related impacts.

The existing roadway would be restored to existing conditions, resulting in no increase in impermeable and associated increased runoff. Therefore, Alternative 1 would not cause significant flooding impacts to Rose Canyon Creek and no mitigation is required.

3.8.4.2 Alternative 2: De La Garza Road Pump Station and Holding Tank

Water resources impacts associated with this alternative would be similar, but less than those associated with Alternative 1. A smaller area of disturbance would be required under this alternative, as grading would generally be confined to the area of the proposed 100-foot diameter holding tank and associated pump station, rather than demolition and excavation of soil along 1,400 feet of roadway (for Alternative 1). The proposed tank site is gently sloping; therefore, substantial cut and fill activities would not be required during construction, thus minimizing the potential for soil erosion. Also similar to Alternative 1, minor leaks and spills of petroleum products and hazardous materials could occur during construction. These potential impacts would be addressed through incorporation of LID features into the project design, conformance with applicable requirements including the NPDES General Construction Activity Storm Water Permit described for erosion/sedimentation in Section 3.1, and the MCAS Miramar Storm Water Management Plan for non-industrial uses. In addition, Alternative 2 would include a number of Environmental Protection Measures and BMPs to prevent or minimize potential effects to water quality

as a result of increased sedimentation and minor spills, as specified in Measures 15 through 17. Similar to Alternative 1, this alternative would result in beneficial flood related impacts, as construction of the pump and holding tank would prevent future discharge of excess wastewater to Mission Bay during flood events. Therefore, Alternative 2 would not result in significant impacts to surface water resources and no mitigation is required.

Alternative 2 would include connection to the MCAS Miramar potable water distribution system to flush the sewage system after each use. MCAS Miramar receives potable water supplies from the City of San Diego Water Department. Therefore, this alternative would not involve the long-term use or extraction of on-site groundwater for consumptive or other purposes, and no associated impacts would occur. As such, Alternative 2 would not result in impacts to water supply and no mitigation is required.

3.8.4.3 No-Action Alternative

Under the No-Action Alterative, upgrades to the existing sewer system would not occur. Therefore, no construction related impacts on water resources would occur and mitigation is not required. However, without the sewer upgrades, inadvertent discharge of wastewater to Rose Canyon Creek and Mission Bay would continue to occur during some heavy precipitation events. As a result, water quality would continue to be degraded in association with the No-Action Alternative.

4 Cumulative Impacts

4.1 Introduction

CEQ regulations for implementing NEPA require that the cumulative impacts of a proposed action be assessed (40 CFR Parts 1500-1508). A cumulative impact is defined as the following:

> *"…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."* (40 CFR § 1508.7)

CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant" (CEQ 1997). The first step in assessing cumulative effects, therefore, involves identifying and defining the scope of other actions and their interrelationship with the proposed action or alternatives. The scope must consider other projects that coincide with the location and timeline of the proposed action and other actions. Section 4.1.1 identifies the projects considered in the cumulative analysis. Section 4.2 provides an analysis of cumulative impacts for each of the environmental resources discussed in this EA.

4.2 Projects Considered in the Cumulative Analysis

Cumulative impacts may occur when there is a relationship between a proposed action and other actions expected to occur in a similar location or during a similar time. This relationship may or may not be obvious. Actions overlapping, or in close proximity to, the proposed action can have more potential for cumulative impacts on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally may have the higher potential for cumulative impacts. To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action outlined in this EA, these actions are included in the cumulative analysis. For the purposes of this EA, the timeframe of current and/or reasonably foreseeable projects extends from 2013 to 2015. The cumulative actions are summarized in Table 4.1-1 and in the following sections.

4.2.1 Vernal Pool Mitigation Area Planning

An EA is being prepared to analyze the potential impacts of actions associated with establishment and operation of a mitigation area at MCAS Miramar to provide the means to mitigate for future impacts to federally-listed vernal pool species and jurisdictional Waters of the U.S. resulting from projects at MCAS Miramar. The mitigation area may be used in the future as part of a broader mitigation/conservation strategy, which would include the formalization of a self-use conservation/mitigation bank or permittee-responsible advanced mitigation area. The action would be located at various mitigation areas throughout MCAS Miramar. Development of each mitigation area would involve site-specific planning (e.g., range removal and other remedial actions, and preparation of site-specific restoration documents); grading and clearing the project site and access roads and laydown areas if necessary; contouring the vernal pools; filling of the pools with inoculum (soil containing fairy shrimp cysts); and maintenance and monitoring. The establishment of a mitigation area would represent a change in land use at MCAS Miramar and would require a Master Plan update and internal coordination. This project is reasonably foreseeable; however, a development schedule is not currently available.

Table 4.1-1. Related and Cumulative Projects

Project Title	Project Description	Anticipated Buildout Date	Project Impacts
Vernal Pool Mitigation Area Planning	Establishment and operation of a mitigation area at MCAS Miramar to provide the means to mitigate for future impacts to federally-listed vernal pool species and jurisdictional Waters of the U.S. resulting from projects at MCAS Miramar.	Unknown	Potential project impacts may include: Air Quality, GHG, Biological Resources; Traffic; Cultural Resources; Public Health and Safety; Geologic Resources; Land Use; Water Resources; and Noise.
Grow the Force Initiative	Construction and operation of permanent facilities to replace the temporary facilities that currently support approximately 440 Marines assigned to MCAS Miramar.	Complete	• Biological Resources: Temporary impacts to biological resources were avoided with implementation of conservation measures. No impacts to Diegan Coastal Sage Scrub or coastal California gnatcatcher. Potential indirect impacts to San Diego fairy shrimp during construction due to downstream sedimentation and degradation of water quality. • Air Quality: No significant air quality impacts. Emissions from the proposed action were less than the General Conformity Rule *de minimis* threshold and would satisfy the conditions of a CAA RONA. • GHG: Cumulative GHGs not determined to make a significant contribution to global climate change.
Fort Rosecrans National Cemetery Annex, MCAS Miramar	90,000-grave national cemetery	2040	• Traffic: 253 additional daily trips in 2010 – no impacts; 1,012 additional daily trips in 2030. Significance thresholds will not be exceeded, but some intersections, roadway segments, and freeway segments will operate at unacceptable LOS during peak hours under all scenarios. • Air Quality: Temporary construction emissions will be less than significant; long-term reactive organic gases (ROG) and NO_x emissions will be below the General Conformity Rule *de minimis* threshold and will be partially offset by avoidance of longer vehicle trips to Riverside and Los Angeles national cemeteries. Further measures to minimize air emissions related to grading, earthwork, and operations were identified in the Final EIS and will be implemented. • Noise: Aircraft noise ranges from 68-79 dBA Community Noise Equivalent Level (CNEL). Noise impacts associated with land use compatibility will occur if interior noise levels on the site are not reduced to below 50 dBA; design measures will reduce interior noise levels accordingly. Noise generated by the site will be minimal (vehicles and small construction equipment) and will not affect sensitive receptors due to distance and intervening traffic. • GHG: No GHG analysis was done; however, based on the facility's planned Leadership in Energy and Environmental Design (LEED) status, it can be assumed that operational GHGs would be minimized. Construction-related GHGs also likely will be minimized through the implementation of air emission reduction measures referenced above.

Table 4.1-1. Related and Cumulative Projects

Project Title	Project Description	Anticipated Buildout Date	Project Impacts
			• Biological Resources: The project would remove approximately 6.37 acres of occupied coastal California gnatcatcher habitat. In addition, the project would impact two vernal pool basins occupied by San Diego fairy shrimp (approximately 0.01 acres), 27 man-made and occupied basins (0.299 acres), and four unoccupied basins (0.013 acres). Impacts to biological resources will be mitigated to below a level of significance.
West Coast Basing of the MV-22	Approved replacement of CH-46E medium lift helicopters with the MV-22 Osprey for the 3rd and 4th Marine Aircraft Wings.	2010-2020	• Traffic: Significant unmitigated direct impacts due to degradation of LOS from an additional 867 operational ADT on a segment of Miramar Way that is currently operating at an unacceptable LOS F. Significant unmitigated direct and cumulative impacts to six road segments will occur during operations of the MV-22 project, in conjunction with estimated traffic volumes for 2010 and 2020. Cumulatively significant construction-related traffic impacts could be mitigated to less than significant by limiting construction activities to off-peak hours. • Air Quality: No significant construction-related impacts were identified for air quality. Operational emissions will exceed the General Conformity Rule *de minimis* threshold for NO_x (100 tons per year); a formal CAA General Conformity Determination was prepared and the emissions were determined to conform to the most recent federally approved O_3 SIP for the SDAB. Based on incorporation in that SIP of an NO_x emissions growth increment for military programs, impacts will be less than significant. • Noise: No significant impacts were identified for noise. • GHG: Cumulative GHGs will be less than significant because they are approximately 0.002 percent of the U.S. total CO_{2e} emissions. • Biological Resources: The project would impact: 0.1 acre of Diegan Coastal Sage Scrub, 0.42 acres of Disturbed Diegan Coastal Sage Scrub and 8.4 acres of Native and Non-Native Grassland. The project would also impact 0.078 acres of CWA jurisdictional seasonally ponded features occupied San Diego fairy shrimp; 0.029 acres of non-jurisdictional/unoccupied vernal pools; 0.006 acres of non-jurisdictional/occupied vernal pool basins; 0.016 acres of occupied seasonally ponded features; 0.02 acres of CWA jurisdictional wetlands; and 0.11 acres of jurisdictional ephemeral streambed. Direct and indirect impacts to biological resources will be mitigated to reduce impacts to habitat, sensitive species and water quality. • Cultural Resources: Potential impacts to cultural resources will be avoided, minimized, or (when necessary) mitigated through implementation of measures contained in the Programmatic Agreement between the USMC, California State Historic Preservation Office, Advisory Council on Historic Preservation, and other consulting parties.

Table 4.1-1. Related and Cumulative Projects

Project Title	Project Description	Anticipated Buildout Date	Project Impacts
Joint Strike Fighter Aircraft Introduction, MCAS Miramar	Proposed replacement of the F-18/AV-8B with the Joint Strike Fighter (F-35).	2013-2023	• Traffic: Temporary construction traffic would occur, but the project would result in removal of military personnel from MCAS Miramar and an overall net reduction in trips would occur. No impacts to ground traffic and transportation would occur. • Air Quality: Demolition and construction emissions would be minimal and temporary and would be below *de minimis* thresholds. Operation would result in a net increase in annual emissions for all criteria pollutants except SO_2, which would increase only nominally. • Noise: Relative to baseline, 3 to 4 dB CNEL increase at 7 of 17 representative receptor sites under the Preferred Alternative. Five sites would experience decreased noise levels. A total of 72 percent reduction in population within the 65 dB CNEL curve would occur. • GHGs: Cumulative GHGs would be less than significant because they are approximately 0.003 percent of U.S. total CO2e emissions. • Biological Resources: The project would impact 0.3 acres of Southern Mixed Chaparral and 2.2 acres of Disturbed Diegan Coastal Sage Scrub occupied by coastal California gnatcatcher; 0.3 acres of Diegan Coastal Sage Scrub and 8.7 acres of Disturbed Diegan Coastal Sage Scrub not occupied by costal California gnatcatcher; and 0.01 acre of non-native grassland. The project would also impact 0.5 acres of vernal pools occupied by San Diego fairy shrimp; 0.02 acres of unoccupied non-jurisdictional vernal pools; 0.2 acres of unoccupied, CWA jurisdictional wetlands; and 1,303 linear feet of jurisdictional Waters of the U.S. Impacts to biological resources would be reduced through avoidance, restoration, and compensation.
U.S. Army Reserve Center, MCAS Miramar	Proposed construction and operation of an U.S. Army Reserve Center, including construction of three buildings within a 15-acre parcel southeast of the Naval and Marine Corps Reserve Center.	2013	• Traffic: Construction would result in temporary minor traffic impacts on Pomerado Road. Access road LOS would improve following construction. • Air Quality: Minor short-term impacts would occur due to construction emissions. Emissions would be less than the General Conformity Rule *de minimis* thresholds. • GHG: Construction-related GHG emissions would be temporary and cease at the end of construction. BMPs to reduce air pollutants would minimize GHG as well. LEED construction, efficient layout, and energy-efficient appliances and practices would minimize the amount of electrical demand and GHG emission for this facility. • Noise: No detailed analysis was conducted for noise; no impacts are anticipated. • Biological Resources: The project would impact 10 acres of Chemise Chaparral and 1.4 acres of Non-native Grassland. Impacts to biological resources would be mitigated through avoidance/BMPs and revegetation.

4.2.2 Grow the Force Initiative

The USMC prepared an EA to address potential environmental impacts of construction and operation of permanent facilities to replace the temporary facilities that currently support approximately 440 Marines assigned to MCAS Miramar. The action included the construction of five permanent facilities including the repair/upgrade of existing facilities and the construction of associated site improvements and infrastructure needed to support the permanent facilities. Buildout of the action is anticipated to be completed by 2015. The Final EA was completed in September 2010 and the FONSI was signed on 8 October 2010. Minor short-term air quality and traffic impacts will occur during construction, but will not be significant or result in operational impacts. Construction-related GHG emissions will not make a significant contribution to global climate change; and the facilities' LEED status would minimize the generation of operational GHG emissions. Impacts from the project on biological resources, including temporary, indirect impacts to San Diego fairy shrimp and San Diego button-celery from construction-related erosion, will be prevented or reduced through conservation measures to be incorporated into the project during construction. Impacts to geologic resources will be minimized by incorporation of industry standards and impacts to water quality will be reduced through project design measures including LID and LEED and compliance with the applicable requirements of the NPDES Phase II General permit and the NPDES General Construction Activity Storm Water Permit. The Grow the Force Initiative has been suspended. Some projects under this action have been completed while others were not implemented.

4.2.3 Fort Rosecrans National Cemetery Annex

The Navy and the Department of Veterans Affairs (VA) prepared an EIS to address the potential environmental impacts from building an annex to the Fort Rosecrans National Cemetery. The proposed cemetery annex would be a partnership between the VA and DoN to ease the shortage of burial plots in San Diego for honorably discharged veterans and their families. The national cemetery annex would be located on approximately 323 acres in the northwest corner of MCAS Miramar, with approximately 214 acres to comprise the development footprint identified in the Final EIS. The cemetery annex would be constructed over a 30-year planning period to provide 50,000 casketed gravesites and 40,000 columbarium niches. The first phase of construction began in January 2010 and will provide approximately 22,500 gravesites. The remaining portions of the proposed cemetery annex will be developed in similar phases as each previous phase is depleted. Buildout of the proposed action is anticipated to be completed by 2040. The Final EIS was completed and a Record of Decision (ROD) was signed on 01 April 2008. Although no significant air quality impacts were identified, the VA will incorporate measures to minimize air emissions from grading, earthwork, and operations, as established in the Final EIS. Noise compatibility impacts from aircraft will be reduced through project design measures. Significant impacts to biological resources, including coastal sage scrub habitat occupied by the coastal California gnatcatcher, vernal pools with and without San Diego fairy shrimp, and jurisdictional Waters of the U.S. will occur; however, these impacts will be fully mitigated by the VA.

4.2.4 West Coast Basing of the MV-22

The Navy prepared an EIS for the introduction of a new tilt-rotor aircraft, the MV-22 Osprey, to the Third and Fourth Marine Aircraft Wings to replace the veteran CH-46E medium-lift helicopters, which the USMC plans to remove from service. The installations examined in the EIS for potential MV-22 basing were Marine Corps Base Camp Pendleton, MCAS Miramar, MCAS Yuma, Naval Air Facility El Centro, and Edwards Air Force Base. The ROD was signed on 17 November 2009. The Marine Corps began basing the aircraft at MCAS Miramar in 2010. Eight squadrons will be based at MCAS Miramar, and two at Marine Corps Base Camp Pendleton, with the roll-out complete in 2017. Basing at MCAS Miramar includes construction of new hangar modules, modification of existing hangars, replacement of refueling

facilities, and wash racks on the flight line. The proposed action will result in an increase of 48 aircraft and 746 personnel at MCAS Miramar. Traffic impacts from continuing operations are expected to be significant and unmitigable. Significant impacts to biological resources including jurisdictional wetlands, coastal sage scrub, vernal pools, San Diego fairy shrimp, and coastal California gnatcatcher will be mitigated to less than significant.

4.2.5 Joint Strike Fighter Aircraft Introduction

The USMC prepared a draft EIS for the introduction of the next generation warplane known as the Joint Strike Fighter, or F-35B, to the Third and Fourth Marine Aircraft Wings to replace the Marine Corps F-18 and AV-8B. Although the F-35B is still in development, the Marine Corps version of the plane would be a single-seat, short take-off, vertical landing aircraft that could be based at two locations on the West Coast, including MCAS Miramar and MCAS Yuma, beginning as early as 2013 and possibly extending through 2023. The supersonic stealth aircraft would be used by the Marine Corps, Navy, and Air Force. The preferred alternative would base six operational F-35B squadrons at MCAS Miramar. New support facilities at MCAS Miramar under the proposed action also would include new hangars, helipad and apron expansion, wash racks and rinse facilities, a simulator facility, and a runway upgrade. The preferred alternative would result in reduction of 30 aircraft and 635 military personnel at MCAS Miramar. The ROD was signed on 08 December 2010. Impacts from the preferred alternative on biological resources (threatened and/or endangered species including the coastal California gnatcatcher and San Diego fairy shrimp, and associated habitat, jurisdictional wetlands) would be mitigated to less than significant.

4.2.6 United States Army Reserve Center

The Army has prepared a Final EA for the proposed construction and operation of an U.S. Army Reserve Center (Center) within a 15-acre vacant parcel southeast of the Navy Marine Corps Reserve Center at MCAS Miramar. Three buildings are proposed, including a 90,138-square feet administration and training building, a 6,681-square feet unheated storage facility, and a 5,703-square feet Organizational Maintenance Shop. Additional proposed site improvements include approximately 89,640 square feet of Privately Owned Vehicles parking, approximately 105,696 square feet of military equipment parking, a military vehicle wash rack with an oil/water separator at the OMS, perimeter security fencing, area lighting, and extension of utilities to the site. Up to 600 Army Reserve personnel could be stationed at the Center, and as many as 300 soldiers would be expected to train at the Center on any given weekend. Approximately 40 full-time Army Reserve personnel would work at the Center Monday through Friday. The FONSI was signed on 9 June 2011. Minor short-term air quality and traffic impacts would occur during construction, but would not be significant or result in operational impacts. Construction-related GHG emissions would be temporary and minimized by construction BMPs; the Center's LEED status would minimize the generation of operational GHG emissions. Impacts from the project on biological resources, including downstream vernal pools and associated endangered species, would be prevented or reduced through conservation measures to be incorporated into the project during design, construction, and operation.

4.3 Cumulative Impacts Analysis

This section addresses the potential cumulative impacts of the Proposed Action in conjunction with the aforementioned projects. These projects represent past, present, and reasonably foreseeable actions with the potential for cumulative impacts when considered in conjunction with the potential impacts from the Proposed Action. However, if a project would not result in direct or indirect impacts on a resource area, it would not contribute to a cumulative impact on that resource area. CEQ guidance states, "A cumulative effects analysis should 'count what counts,' not produce superficial analyses or a long laundry list of

issues that have little relevance to the effect of the Proposed Action or the eventual decisions" (CEQ 1997). Therefore, the cumulative impact analysis focuses on: 1) those resource areas with the potential to be significantly impacted by the project; and/or 2) those resource areas currently in poor or declining health or at risk even if project impacts would be relatively small (less than significant).

4.3.1 Air Quality

4.3.1.1 Criteria Pollutants

The ROI of the criteria air pollutant cumulative analysis is primarily the SDAB. As described in Section 3.1.5 of this EA, construction activities associated with Alternative 1 and Alternative 2 would produce emissions that would remain substantially below all emission significance thresholds. Emissions from cumulative projects would potentially contribute to the ambient pollutant impacts generated from proposed construction activities. However, these emissions would occur far enough away from proposed construction such that they would produce low ambient pollutant impacts in proximity to the project site. Therefore, air quality impacts from the minor amounts of project emissions, in combination with emissions from cumulative projects, would not be substantial enough to contribute to an exceedance of an ambient air quality standard. Implementation of standard fugitive dust and construction equipment emission control measures (Special Conservation Measures 1 and 2) would ensure that air emissions from construction activities proposed for Alternative 1 and Alternative 2 would not result in a significant cumulative impact.

As described in Section 3.1.5, operational activities associated with Alternative 1 and Alternative 2 would produce nominal emissions. Consequently, proposed operational activities would also not result in a significant cumulative impact to criteria pollutant levels.

4.3.1.2 Greenhouse Gases

The potential effects of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other man-made activities on a global scale.

Currently, there are no formally adopted or published NEPA thresholds of significance for GHG emissions. Therefore, in the absence of an adopted or science-based NEPA significance threshold for GHGs, this EA compares GHG emissions from Alternative 1 to the U.S. net GHG emissions inventory of 2011 (EPA 2013) to determine the relative increase in proposed GHG emissions. The Proposed Action was chosen for analysis, as it is predicted to generate the largest amount of GHGs of any project alternative. Appendix A-1 presents estimates of GHG emissions generated by Alternative 1.

Table 4.3-1 summarizes the maximum annual GHG emissions generated from Alternative 1. These data show that the ratio of CO_2e emissions from Alternative 1 to the CO_2e emissions associated with the net U.S. sources in 2011 is approximately 0.00008/5,797 million metric tons, or about 0.000001 percent of the U.S. CO_2e emissions inventory. Since GHG emissions from Alternative 1 or Alternative 2 would equate to minimal amounts of the U.S. inventory, they would not substantially contribute to global climate change. Therefore, GHG emissions from the both alternatives would not produce significant cumulative impacts to global climate change.

Table 4.3-1. Maximum Annual GHG Emissions from Alternative 1

Scenario/Activity	Metric Tons per Year[1]			
	CO_2	CH_4	N_2O	CO_2e
Alternative 1 Emissions	-	-	-	80
U.S. 2011 Net Emissions (10^6 metric tons)[2]	-	-	-	5,797.3
Emissions as a percent of U.S. Emissions	-	-	-	0.000001

Notes:
1. $CO_2e = (CO_2 * 1) + (CH_4 * 21) + (N_2O * 296)$.
2. Source: EPA 2013

Although Alternative 1 and Alternative 2 would not produce significant cumulative impacts to global climate change, the USMC and DoN implement broad-based programs to reduce energy consumption and shift to renewable and alternative fuels, thereby reducing overall emissions of GHGs. Some of these programs include the following:

- EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, adopted in October 2009, directs federal agencies to increase renewable energy use to achieve general GHG emission reductions. EO 13514 requires federal agencies to develop a 2008 GHG emissions baseline and to develop a percentage reduction target for agency-wide GHG reductions by FY 2020. As part of this effort, federal agencies will evaluate sources of GHG emissions and develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle analyses. The DoD is currently developing its Strategic Sustainability Performance Plan that will guide USMC initiatives to reduce GHG emissions.
- The Commandant of the Marine Corps' *"Bases-to-Battlefield" Expeditionary Energy Strategy and Implementation Plan* (2011) declares the intent to implement measures to conserve energy and to reduce a dependence on foreign oil. The campaign plan identifies long-term goals to reduce energy intensity and increase the amount of renewable electrical energy usage. This plan requires base commanders to evaluate the effectiveness of incorporating emerging technologies that would reduce GHGs.
- Marine Corps Installation (MCI) West has undertaken a study to evaluate and address GHG emissions, as documented in the draft *Greenhouse Gas Assessment for Marine Corps Installations West* (MCI West 2009). The study provides the basis for recommended GHG management policies at MCI West.
- On 16 October 2009, the Secretary of the Navy announced five energy targets for the Navy and USMC, as summarized below.
    - When awarding contracts, appropriately consider energy efficiency and energy footprints as additional factors in acquisition decisions.
    - By 2012, demonstrate a Green Strike Group composed of nuclear vessels and ships powered by biofuels. By 2016, sail the Strike Group as a Great Green Fleet composed of nuclear ships, surface combatants equipped with hybrid electric alternative power systems running on biofuels, and aircraft running on biofuels.
    - By 2015, cut petroleum use in its 50,000 non-tactical commercial fleet in half, by phasing in hybrid, flex fuel, and electric vehicles.

- By 2020, produce at least half of the shore-based installations energy requirements from alternative sources. Also, convert 50 percent of all shore installations to net zero energy consumers.
- By 2020, half of the DoN's total energy consumption for ships, aircraft, tanks, vehicles and shore installations will come from alternative sources.

- As part of its efforts to encourage the development of alternative fuels, on 22 January 2010 the DoN and the USDA signed a Memorandum of Understanding to encourage the development of advanced biofuels and other renewable energy systems.

Renewable energy projects currently implemented and planned within the jurisdiction of MCI West would reduce emissions of GHGs by about 250,000 metric tons from current operations over a 25-year life cycle (DoN 2010). These projects include thermal and photovoltaic solar systems, geothermal power plants, and wind generators. These renewable energy initiatives are not proposed as emission reductions to directly offset GHG emissions produced by either alternative, but rather demonstrate initial responses for DoN compliance with EO 13514 and to factor GHG management into DoN proposals and impact analyses.

Climate Change Adaptation

In addition to assessing whether Alternative 1 or Alternative 2 would potentially impact climate change, the following considers how climate change could impact these actions and what adaptation strategies, if any, would be required to respond to these future conditions. For projects within southern California, the main effect of climate change to consider is increased temperatures, droughts, and wildfires, as documented in *Our Changing Climate 2012 - Vulnerability & Adaptation to the Increasing Risks from Climate Change in California* (California Energy Commission 2012). Current operations at MCAS Miramar have adapted to the relatively arid conditions in the area, as well as the prevalence of wildfires. Exacerbation of these conditions in the future could impede proposed construction and operational activities during extreme events or could cause smoke obscurations from wildfires. No other substantial effects from future climate change would impact proposed construction and operational activities.

4.3.2 Biological Resources

The ROI of cumulative impacts varies and is based on the presence of suitable habitat and known occurrences of Diegan Coastal Sage Scrub that provides suitable habitat for the federally listed coastal California gnatcatcher, and wetlands occupied by the federally listed San Diego fairy shrimp—on or in the vicinity of MCAS Miramar. Projects with potential direct and indirect impacts on biological resources include those that would result in the loss of native plant communities, permanent loss of sensitive plant populations, species losses that affect population viability, and the reduction in adjacent habitat quality from temporary actions including the addition of noise and dust during construction to permanent effects such as the addition of lighting. For native plant and wildlife communities, other significant impacts could include habitat fragmentation or the permanent loss of contiguous (interconnecting) native habitats such as migration or movement corridors.

The projects listed in Table 4.1-1 have the potential to impact biological resources. Potential impacts from past, present, and reasonably foreseeable actions in the project areas range from the loss of various-sized areas of vegetation communities to impacts to habitat occupied by the coastal California gnatcatcher and/or San Diego fairy shrimp. These impacts are mitigable and have been/will be mitigated. In addition, all ground-disturbing projects at MCAS Miramar are required to adhere to various protection measures designed to minimize effects to vulnerable species and their habitats, including Diegan Coastal Sage Scrub, vernal pools and associated federally listed species, and wetlands or other Waters of the U.S.

Furthermore, the potential for cumulative effects on biological resources at MCAS Miramar associated with habitat and wildlife disturbance is much reduced because of on-going monitoring and management activities in place to minimize adverse effects from development and operations. Potential cumulative effects of federal actions on federally listed endangered species are addressed project-by-project through the Section 7 ESA consultation process with USFWS. Through this process MCAS Miramar and USFWS jointly assess project-specific effects and develop and implement appropriate measures that reflect current conditions and status of the species. Consultation has resulted in development of conservation programs for federally listed species and their habitats as outlined in the MCAS Miramar INRMP. Collectively, these requirements ensure that the incremental effects of individual projects do not result in significant cumulative impacts to biological resources.

As discussed in Section 3.2, Alternative 1 and Alternative 2 would result in the temporary removal of Diegan Coastal Sage Scrub located in two long, narrow strips along both sides of De La Garza Road that is occupied by or within the use area of the federally listed coastal California gnatcatcher during construction. No permanent removal of habitat for the San Diego fairy shrimp is proposed under Alternative 1 or Alternative 2 and no temporary or permanent removal or degradation of any occupied habitat is proposed. Alternative 1 would result in direct impacts to one other seasonally ponded feature in project site during construction. In addition, Alternative 1 could result in temporary, indirect impacts to Rose Creek (Waters of the U.S.) and associated jurisdictional wetlands located north of the project site, as well as vernal pools and other seasonally ponded features (some of which are occupied by San Diego fairy shrimp) located south of the project site if construction activities alter or degrade water quality due to sediment loading or accidental release of pollutants. However, a linear berm and small-scale topographical features isolate these features from the area that would be impacted by project activities. Alternative 2 would result in temporary, direct impacts to a portion of Rose Canyon Creek (Waters of the U.S.) located in the project site. Implementation of Environmental Protection Measures 3 through 8 would ensure that construction and operational activities associated with both alternatives would not result in significant effects on these biological resources. As a result, the cumulative impacts identified for biological resources for Alternative 1 and Alternative 2, combined with other cumulative projects listed in Table 4.1-1, would not be cumulatively significant.

4.3.3 Transportation, Circulation, and Traffic

Traffic conditions in the vicinity of MCAS Miramar are currently congested and some intersections, freeway segments, and roads are operating at unacceptable LOS (E or F) during peak hours. Traffic and circulation impacts would only occur during the approximately 6-month construction period. Long-term, operational traffic volumes would not increase compared to existing conditions because no additional military, government, civilian, and/or contractor support personnel would be stationed at MCAS Miramar as a result of Alternative 1 or Alternative 2. Implementation of Measure 11 (delivery of materials and equipment would occur outside of peak traffic hours) and Measure 12 (construction worker rideshare/carpooling) would minimize traffic congestion in the vicinity of MCAS Miramar. In addition, construction of Alternative 1 would require the temporary closure of De La Garza Road and Alternative 2 would require the closure of De La Garza Road and Pless Road. The construction contractor would be required to implement a Construction Traffic Management and Detour Plan (Measure 13) and De La Garza Road and Pless Road would be repaved and returned to its pre-construction configuration following construction. A sign indicating the road load rating would be posted at the start of De La Garza Road near the intersection of Pless Road following construction of Alternative 1 (Measure 14). MCAS Miramar would require other cumulative projects to implement these measures. Therefore, the addition of short-term, construction-related traffic would not result in cumulatively significant impacts to transportation, circulation, and traffic.

5 Other NEPA Considerations

5.1 Energy Requirements and Conservation Potential of Alternatives Including the Proposed Action and All Mitigation Measures Being Considered

The alternatives would result in a negligible increase in energy use at MCAS Miramar. However, energy (electricity) and water consumption, as well as demand for services, would not increase significantly due to implementation of either alternative (refer to Section 3.7).

5.2 Irreversible or Irretrievable Commitment of Natural or Depletable Resources

NEPA requires an analysis of significant, irreversible effects resulting from implementation of a Proposed Action. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term or permanent basis; however, those used on a short-term basis that cannot be recovered (e.g., non-renewable resources such as metal, wood, fuel, paper, and other natural or cultural resources) also are irretrievable. Human labor is also considered an irretrievable resource. All such resources are irretrievable in that they are used for one project and thus become unavailable for other purposes. An impact that falls under the category of the irreversible or irretrievable commitment of resources is the destruction of natural resources that could limit the range of potential uses of that resource.

Implementation of the alternatives would result in an irreversible commitment of building materials; fuel for construction equipment and vehicles used during construction activities; and human labor. However, these commitments of resources are neither unusual nor unexpected, given the nature of the action.

The alternatives would not result in the destruction of other environmental resources such that the range of potential uses of the environment would be limited, or affect the biodiversity of the region.

5.3 Relationship between Short-Term Uses of the Environment and Long-Term Productivity

NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have to the maintenance and enhancement of long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing one alternative could reduce future flexibility to pursue other alternatives, or that choosing a certain use could eliminate the possibility of other uses at the site.

Implementation of either alternative would not result in any such environmental impacts because it would not pose long-term risks to health, safety, or the general welfare of the communities surrounding the project site that would significantly narrow the range of future beneficial uses. In addition, biological productivity would not be affected as implementation of the alternatives would not result in significant direct, indirect, or cumulative impacts to any biological resources.

5.4 Any Probable Adverse Environmental Effects that Cannot be Avoided and are not Amenable to Mitigation

This EA has determined that the alternatives would not result in any significant unmitigable impacts; therefore, there are no probable adverse environmental effects that cannot be avoided or are not amenable to mitigation.

5.5 Possible Conflicts Between the Action and the Objective of Federal and State Land Uses

Implementation of either alternative would not result in a conflict with the objectives of federal and state land use plans including applicable polices of the MCAS Miramar Master Plan (NAVFAC 2006).

6 List of Agencies and Persons Consulted

United States Government

United States Navy

Ryan Maynard, NAVFAC SW Environmental Planner

United States Marine Corps

Myrna Alzaga, MCAS Miramar, Program Support Division

Herb Baylon, MCAS Miramar, Public Works

Barbara Bell, MCAS Miramar, Environmental Management Department

Chuck Black, MCAS Miramar, Environmental Management Department

Dave Boyer, MCAS Miramar, Environmental Management Department

JoEllen Kassebaum, MCAS Miramar, Environmental Management Department

Delmar Lake, MCAS Miramar, Public Works

This page intentionally left blank.

7 List of Preparers

Lead Agency

USMC
MCAS Miramar
San Diego, California
Myrna Alzaga, Project Leader

This EA was prepared for the MCAS Miramar under the direction of the DoN by Leidos (formerly SAIC). Members of Leidos's professional staff who contributed to the preparation of this document are listed below.

Name	Title	Degree	Years of Experience	Project Participation
Catrina Gomez	Environmental Planner	MSEM, Environmental Science and Management	10	Project Manager; Executive Summary; Utilities; Recreation; Transportation; Other NEPA Considerations; QA/QC
Trevor Pattison	NEPA Project Manager/ Environmental Scientist	B.S., Geological Sciences-Earth Systems	14	Biological Resources; QA/QC
Chris Crabtree	Air Quality Specialist	B.A., Environmental Studies	21	Air Quality
Perry Russell	Geologist/ Hydrogeologist	M.S., Geological Sciences	24	Geological Resources; Public Health and Safety; Water Resources
Tara Schoenwetter	Senior Ecologist/Biologist	Ph.D., Ecology & Conservation Biology	13	Biological Resources
Heather Duvall	Word Processing Specialist	A.A., Office Technology	18	Word Processing
Elizabeth Riley	Word Processing Specialist	B.A., Psychology	3	Word Processing
Nicole Schoo	Environmental Scientist	B.S., Biology	3	Copy Editing
Catherine FitzGerald	Graphic Artist	A.A., Fine Arts	30	Graphic Design
Chris Woods	GIS Programmer	B.A., Geography	13	GIS

This page intentionally left blank.

8 References

Accord MACTEC Joint Venture (AMJV). 2012. Draft Soil Assessment Report for the Proposed Wastewater Equalization Tank Site. Unpublished report prepared for U.S. Department of the Navy, Naval Facilities Engineering Command, Southwest; San Diego, California. Contract No.: N62473-09-D-2613.

_____. 2011a. Sewer Equalization Tank Design Report, Marine Corps Air Station Miramar, San Diego, California. Unpublished report prepared for Naval Facilities Engineering Command, Southwest; San Diego, California. Contract No. N62473-09-D-2613, Delivery Order No. 0021.

_____. 2011b. Final Recommended Site Locations Report for Sewer Equalization Tank(s), Marine Corps Air Station Miramar, San Diego, California. Unpublished report prepared for Naval Facilities Engineering Command Southwest; San Diego, California. Contract No. N62473-09-D-2613, Delivery Order No. 0021.

ASM. 2009. *Final Archaeological Survey of 2,280 Acres on Marine Corps Air Station Miramar San Diego County, California*. Prepared for Department of the Navy, Naval Facilities Engineering Command, Southwest. December.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*, Second Edition. University of California Press, Berkeley.

California Air Resources Board (ARB). 2013a. Mobile Source Emission Inventory – Current Methods and Data - EMFAC2011 - Updated: January 2013. Available at: http://www.arb.ca.gov/msei/modeling.htm. Accessed on: 06 May 2013.

_____. 2013b. Mobile Source Emission Inventory – Categories - Off-Road Diesel Equipment: In-Use Off-Road Equipment (Construction, Industrial, Ground Support and Oil Drilling). Available at: http://www.arb.ca.gov/msei/categories.htm#inuse_or_category. Accessed on: 06 May 2013.

_____. 2012. *Ambient Air Quality Standards*. Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed on: 03 May 2013.

_____. 2009. *2008 Estimated Annual Average Emissions – San Diego County*. Available at: http://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_DIV=-4&F_DD=Y&F_YR=2008&F_SEASON=A&SP=2009&F_AREA=CO&F_CO=37. Accessed on: 03 May 2013.

California Division of Mines and Geology. 1994. Fault Activity Map of California and Adjacent Areas, with Locations and Ages of Recent Volcanic Eruptions, compiled by C. W. Jennings.

California Energy Commission. 2012. *Our Changing Climate 2012 – Vulnerability & Adaptation to the Increasing Risks from Climate Change in California: A Summary Report on the Third Assessment from the California Climate Center*. Publication No. CEC-500-2012-007. Available at: http://www.climatechange.ca.gov/adaptation/third_assessment/. Accessed on: 03 May 2013.

California Stormwater Quality Association. 2011. *Construction Best Management Practice Handbook*. Available at: http://www.cabmphandbooks.com/.

City of San Diego. 2012a. *General Information for Public Utilities Water*. Available at: www.sandiego.gov/water/gen-info/index.shtml. Accessed on: 12 December 2012.

_____. 2012b. *Metro Biosolids Center Overview from the Public Utilities Wastewater Section*. Available at: www.sandiego.gov/mwwd/facilities/metrobiosolids.shtml. Accessed on: 12 December 2012.

Council on Environmental Quality (CEQ). 2010. *Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts*. Available at: http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance. Accessed on: 21 February 2013.

_____. 1997. *CEQ Handbook: Considering Cumulative Effects Under the National Environmental Policy Act*. January.

Department of the Navy (DoN). 2010. *Final United States Marine Corps F-35B West Coast Basing Environmental Impact Statement*. October.

_____. 1996. *Final Environmental Impact Statement Realignment of NAS Miramar*. San Diego, California, February.

Department of Resources Recycling and Recovery. 2012. *Facility/Site Summary Details for West Miramar Sanitary Landfill (37-AA-0020)*. Available at: www.calrecycle.ca.gov/SWFacilties/Directory/37-AA-0020/Detail. Accessed on: 12 December 2012.

Dossey and Associates. 2008. *Western Miramar Rare Plant Surveys Report, Marine Corps Air Station Miramar, San Diego, California (N68711-02-R-8077-0003, 0004, 005, 0006)*. Prepared for MCAS Miramar and Naval Facilities Engineering Command, Southwest. 18 August 2008.

_____. 2006. *Western Miramar Rare Plant Surveys*. Final Report. Marine Corps Air Station Miramar San Diego, California.

Greensfelder, R.W. 1974. *Maximum Credible Rock Acceleration from Earthquakes in California*. California Division of Mines and Geology, Map Sheet 23.

Haas, W.E. 2010. *Distribution of the California Gnatcatcher* (Polioptila californica) *on Marine Corps Air Station Miramar Results of 2009 Surveys*. Report prepared under Contract No. M67865-08-T-0068.

Holland, R.F. 1986. *Preliminary Descriptions of Terrestrial Natural Communities of California*. Nongame Heritage Program, California Department of Fish and Game, Sacramento, CA.

Intergovernmental Panel on Climate Change. 2007. *Climate Change 2007: Synthesis Report*. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pacauri, R.K., and Reisinger, A]. Geneva, Switzerland.

Lichvar and Dixon. 2008. *Delineation of Wetlands, Other Waters of the United States, and Nexus Determinations at Marine Corps Air Station Miramar, California*. Main Station and Flight Line Areas.

Marine Corps Air Station (MCAS) Miramar. 2013a. Installation Restoration (IR). Available at: http://community.marines.mil/unit/mcasmiramar/ems/Pages/InstallationRestoration.aspx. Accessed on: 26 April 2013.

_____. 2013b. *The Miramar Fish Pond*. Available at: www.mccsmiramar.com/fishpond.html. Accessed on: 29 April 2013.

_____. 2012. *MCAS Miramar IR and MRP Sites*. January 2012. Available at: http://www.miramarirp.com/Images/IR%20AND%20MRP.pdf/ Accessed on: 26 April 2013.

_____. 2010. Final Environmental Assessment, Permanent Facilities for Grow the Force Marine Corps Air Station Miramar, San Diego County, California.

_____. 2009. Marine Corps Air Station Miramar Requirements, Specific Facilities Design/Construction Requirements, March.

_____. 2008. *Base Exterior Architecture Plan, MCAS Miramar*. Prepared for MCAS Miramar by DeLorenzo, Inc.

Marine Corps Air Station (MCAS) Miramar Natural Resources Division, Gene Stout and Associates, and Geomorph Information Systems. 2011. Integrated Natural Resources Management Plan 2011–2015. Unpublished report prepared for Commanding Officer, Marine Corps Air Station Miramar; San Diego, California.

Marine Corps Installation (MCI) West. 2009. *MCI West Regional Greenhouse Gas Assessment (2008–2009)*.

Naval Facilities Engineering Command (NAVFAC). 2006a. *Renewable Energy and Distributed Generation Projects*.

_____. 2006b. MCAS Miramar Master Plan. Unpublished report prepared for Marine Corps Installations, West.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California." Robert F. Holland, Ph.D., October 1986.

Oberbauer, T. 1990. *Areas of Vegetation Communities in San Diego County*. Department of Planning and Land Use, San Diego County, CA.

San Diego Association of Governments (SANDAG). 2012a. *State Freeway Average Daily Traffic Data*. Available at: www.sandag.org/resources/demographics_and_other_data/transportation/adtv/freeway_adt.pdf. Accessed on: 12 December 2012.

_____. 2012b. *City of San Diego Average Daily Traffic Data*. Available at: www.sandag.org/resources/demographics_and_other _data/transportation/adtv/sandigo_adt.pdf. Accessed on: 12 December 2012.

San Diego County Air Pollution Control District (SDCAPCD). 2013a. *Air Quality Planning*. Available at: http://www.sdapcd.org/planning/plan.html. Accessed on: 03 May 2013.

_____. 2013b. *Rules and Regulations*. Available at: http://www.sdapcd.org/rules/rules.html. Accessed on 06 May 2013.

San Diego Regional Water Quality Control Board (SDRWQCB). 2011. *Water Quality Control Plan for the San Diego Basin (9)*. Adopted by the California Regional Water Quality Control Board San Diego Region on 8 September 1994 with amendments effective on or before 4 April 2011.

_____. 2002. *Waste Discharge Requirements for the Disposal and/or Reuse of Petroleum Fuel Contaminated Soils (FCS) in the San Diego Region*. Order No. R9-2002-0342. December 11.

Science Application International Corporation (SAIC). 2013a. *Final Delineation of Wetlands and Other Waters of the United States in Support of Sewer Line Project*. Prepared for Marine Corps Air Station Miramar, California.

Smith and Lichvar. 2001. *Planning Level Delineation of Aquatic Resources, Floodplain Mapping, and Functional Assessment of Riparian Ecosystems at Marine Corps Air Station Miramar, San Diego County, California*.

Tierra Data Inc. 2013. *Coastal California Gnatcatcher* (Polioptila californica californica) *Surveys at Marine Corps Air Station (MCAS) Miramar*. Report prepared under Contract No. N62473-06-D-2402.

TranSystems. 2012. Existing Conditions Report: MCAS Miramar Traffic Study. Unpublished report prepared for Naval Facilities Engineering Command. Contract No. N64273-10-D-5402.

United States Department of Agriculture Soil Conservation Services. 1973. *Soil Survey of San Diego County*.

United States Environmental Protection Agency (EPA). 2013. *National Greenhouse Gas Emissions Data - Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2011* (April 2013). Available at: http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html. Accessed on: 15 May 2013.

_____. 1995. *Compilation of Air Pollutant Emission Factors*, AP-42, Volume I. Section 13.2.3, Heavy Construction Operations. Available at: http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s02-3.pdf. Accessed on: 03 May 2013.

United States Fish and Wildlife Service (USFWS). 2007. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the San Diego Fairy Shrimp *(Branchinecta sandiegonensis)*; Final Rule. *Federal Register* 72(238): 70648-70714. December 12.

_____. 2000. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Coastal Gnatcatcher; Final Rule. *Federal Register* 65(206):63680-63743, October 24.

_____. 1998. *Vernal Pools of Southern California Recovery Plan*. Portland, Oregon.

_____.1997. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the San Diego Fairy Shrimp. *Federal Register* 62:4925-4939.

_____.1993. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Coastal Gnatcatcher. *Federal Register* 58(59): 16742, March 30.

United States Global Change Research Program. 2009. *Global Climate Change Impacts in the United States*. Thomas, R. Karl, Jerry M. Melillo, and Thomas C. Peterson (eds.). Cambridge University Press.

Appendix A

Air Quality Technical Data

This page intentionally left blank.

Appendix A-1

Emission Calculations for the P-236 Sewer Equalization Tanks at
MCAS Miramar Project Alternatives

This page intentionally left blank.

Appendix A.1 Emission Calculations for the P-236 Sewer Equalization Tanks at MCAS Miramar Project Alternatives.

Table A.1-1. Emission Source Data for the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 1.
Table A.1-2. Air Emission Factors for Equipment Associated with the P-236 Sewer Equalization Tanks at MCAS Miramar Projec
Table A.1-3. Annual Emissions associated with the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 1.
Table A.1-4. Emission Source Data for the P-236 Sewer Equalization Tanks at MCAS Miramar Alternative 2.
Table A.1-5. Annual Emissions associated with the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 2.

	A	B	C	D	E	F	G	H
1	Table A.1-1. Emission Source Data for the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 1.							
2		*Hp*	*Load*	*Number*	*Hours/*	*Daily*	*Total*	*Total*
3	*Construction Activity/Equipment Type*	*Rating*	*Factor (1)*	*Active*	*Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
4	Site Preparation/ Backfill							
5	Crane	180	0.29	1	4	209	2	418
6	Excavator	128	0.38	1	8	389	27	10,467
7	Loader/Backhoe	80	0.37	1	8	237	54	12,716
8	Scraper - 23 CY	365	0.48	1	8	1,402	1	1,402
9	Water Truck - 5000 Gallons	175	0.38	1	4	266	54	14,284
10	Dump Truck - 8 CY	NA	NA	16	NA	NA	1,759	28,144
11	Haul Truck - Demo Material (2)	NA	NA	16	NA	NA	5	80
12	Fugitive Dust (3)	NA	NA	1.5	NA	NA	54	81
13	Sewer Tank Construction							
14	Air Compressor - 100 CFM	50	0.54	1	4	108	25	2,700
15	Crane	230	0.29	1	6	400	25	10,005
16	Forklift	94	0.20	1	2	38	25	940
17	Haul Truck - Materials (2)	NA	NA	60	NA	NA	90	5,400
18	Fugitive Dust (3)	NA	NA	0.5	NA	NA	13	7
19	Paving - De la Garza Road							
20	Compactive Roller	165	0.38	2	8	1,003	0.5	526
21	Grader	180	0.41	1	8	590	0.6	344
22	Loader	215	0.37	1	8	636	0.6	370
23	Paving Machine	200	0.36	1	8	576	0.4	203
24	Water Truck - 5000 Gallons	175	0.38	1	8	532	1.3	680
25	Truck - Haul Base Material (2)	NA	NA	30	13	375	0.6	218
26	Truck - Haul Paving Material (2)	NA	NA	30	16	480	0.6	279
27	Fugitive Dust (3)	NA	NA	1	NA	NA	1.3	1
28	Notes: (1) From ARB In-Use Off-Road Equipment Inventory Model, where applicable (ARB 2011).							
29	(3) Number Active = miles/roundtrip, Hours/Day = daily truck trips, Daily Hp-Hrs = daily miles, and Total Hp-Hrs = total miles							
30	(2) Number Active is the average daily acres disturbed on a continuous basis and Total Hp-Hrs are total acre-days for the e							

	J	K	L	M	N	O	P	Q	R	S
1	Table A.1-2. Air Emission Factors for Equipment Associated with the P-236 Sewer Equalization Tanks at MCAS Miramar Project Alternatives.									
2		*Fuel*	*Emission Factors (Grams/Horsepower-Hour)*							
3	*Project Year/Source Type*	*Type*	*VOC*	*CO*	*NOx*	*SO2*	*PM10*	*PM2.5*	*CO2*	*Reference*
4	Year 2012									
5	Off-Road Equipment - 26-50 Hp	D	1.43	3.30	5.78	0.004	0.58	0.54	568	(1)
6	Off-Road Equipment - 51-120 Hp	D	0.64	2.13	6.95	0.004	0.54	0.50	568	(1)
7	Off-Road Equipment - 121-175 Hp	D	0.48	1.81	6.58	0.004	0.34	0.32	568	(1)
8	Off-Road Equipment - 176-250 Hp	D	0.37	0.67	6.13	0.004	0.24	0.22	568	(1)
9	Off-Road Equipment - 251-500 Hp	D	0.30	0.68	4.99	0.003	0.19	0.17	568	(1)
10	On-road Truck - Idle (Gms/Hr)	D	10.60	44.59	90.79	0.05	1.22	1.12	5,472	(2)
11	On-road Truck - 5 mph (Gms/Mi)	D	3.24	4.80	17.00	0.04	0.66	0.61	2,600.00	(3)
12	On-road Truck - 25 mph (Gms/Mi)	D	0.33	1.20	6.09	0.04	0.19	0.17	1,298.07	(3)
13	On-road Truck - 55 mph (Gms/Mi)	D	0.17	0.78	4.90	0.04	0.19	0.18	1,023.48	(3)
14	On-Road Trucks - Composite (Gms/Mi)	D	0.37	1.11	5.86	0.04	0.22	0.20	1,184.68	(4)
15	Fugitive Dust (Lbs/acre-day)	-	-	-	-	-	27.50	2.75	-	(5)
16	Notes: (1) Emissions factors developed for calendar year 2013 off-road composite equipment fleet with the use of the ARB In-Use Off-Road Equipment Inventory Model (ARB 2013)									
17	except CO emissions factors obtained from the Urbemis 2007 model and based on tractors/loaders/backhoes (Jones&Stokes Ass. 2007).									
18	(2) Idling emission factors developed from EMFAC2007 (ARB 2006). Units in grams/hour.									
19	(3) Generated with the use of the EMFAC2011 model for calendar year 2013 for truck fleet in San Diego County (ARB 2013). Assumes annual average temperatures.									
20	Units in grams/mile.									
21	(4) Composite factors based on a round trip of 5% at 5 mph, 30% at 25 mph, and 65% at 55 mph. Units in grams/mile. Although									
22	not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.									
23	(5) Units in lbs/acre-day from section 11.2.3 of AP-42 (USEPA 1995). Emissions reduced by 50% from uncontrolled levels to simulate implementation of									
24	best management practices (BMPs) for fugitive dust control.									

	U	V	W	X	Y	Z	AA	AB
1	Table A.1-3. Annual Emissions associated with the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 1.							
2		*Total Emissions (Tons)*						
3	*Construction Activity/Equipment Type*	*VOC*	*CO*	*NOx*	*SO2*	*PM10*	*PM2.5*	*CO2*
4	Site Preparation/Backfill							
5	Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.26
6	Excavator	0.01	0.02	0.08	0.00	0.00	0.00	6.55
7	Loader/Backhoe	0.01	0.03	0.10	0.00	0.01	0.01	7.96
8	Scraper - 23 CY	0.00	0.00	0.01	0.00	0.00	0.00	0.88
9	Water Truck - 5000 Gallons	0.01	0.03	0.10	0.00	0.01	0.00	8.94
10	Dump Truck - 8 CY	0.01	0.04	0.20	0.00	0.01	0.01	37.64
11	Haul Truck - Demo Material	0.00	0.00	0.00	0.00	0.00	0.00	0.11
12	Fugitive Dust	-	-	-	-	1.11	0.11	-
13	Subtotal	0.04	0.12	0.48	0.00	1.13	0.13	62.34
14	Sewer Tank Construction							
15	Air Compressor - 100 CFM	0.00	0.01	0.02	0.00	0.00	0.00	1.69
16	Crane	0.00	0.01	0.07	0.00	0.00	0.00	6.26
17	Forklift	0.00	0.00	0.01	0.00	0.00	0.00	0.59
18	Haul Truck - Materials	0.00	0.01	0.04	0.00	0.00	0.00	7.10
19	Fugitive Dust	-	-	-	-	0.09	0.01	-
20	Subtotal	0.01	0.03	0.13	0.00	0.10	0.01	15.64
21	Paving - De la Garza Road							
22	Compactive Roller	0.00	0.00	0.00	0.00	0.00	0.00	0.33
23	Grader	0.00	0.00	0.00	0.00	0.00	0.00	0.22
24	Loader	0.00	0.00	0.00	0.00	0.00	0.00	0.23
25	Paving Machine	0.00	0.00	0.00	0.00	0.00	0.00	0.13
26	Water Truck - 5000 Gallons	0.00	0.00	0.00	0.00	0.00	0.00	0.43
27	Truck - Haul Base Material	0.00	0.00	0.00	0.00	0.00	0.00	0.29
28	Truck - Haul Paving Material	0.00	0.00	0.00	0.00	0.00	0.00	0.37
29	Fugitive Dust	-	-	-	-	0.02	0.00	-
30	Subtotal	0.00	0.00	0.02	0.00	0.02	0.00	1.98
31	Total Emissions - Proposed Action	0.05	0.15	0.63	0.00	1.24	0.15	79.96

	A	B	C	D	E	F	G	H
1	Table A.1-4. Emission Source Data for the P-236 Sewer Equalization Tanks at MCAS Miramar Alternative 2.							
2		*Hp*	*Load*	*Number*	*Hours/*	*Daily*	*Total*	*Total*
3	*Construction Activity/Equipment Type*	*Rating*	*Factor (1)*	*Active*	*Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
4	Site Preparation							
5	Excavator	128	0.38	1	8	389	4	1,440
6	Loader/Backhoe	80	0.37	1	8	237	7	1,729
7	Water Truck - 5000 Gallons	175	0.38	1	4	266	7	1,862
8	Dump Truck - 8 CY	NA	NA	16	NA	NA	272	4,352
9	Haul Truck - Demo Material (2)	NA	NA	16	NA	NA	1	16
10	Fugitive Dust (3)	NA	NA	0.5	NA	NA	7	4
11	Steel Tank/Box Culvert Construction							
12	Air Compressor - 100 CFM	50	0.54	1	4	108	15	1,620
13	Crane	230	0.29	1	6	400	15	6,003
14	Forklift	94	0.20	1	2	38	15	564
15	Haul Truck - Materials (2)	NA	NA	60	NA	NA	40	2,400
16	Fugitive Dust (3)	NA	NA	0.3	NA	NA	10	3
17	Utilities Installation							
18	Air Compressor - 100 CFM	50	0.54	1	4	108	12	1,296
19	Forklift	94	0.20	1	2	38	15	564
20	Loader/Backhoe	80	0.37	1	4	118	3	355
21	Trencher	37	0.54	1	8	160	2	320
22	Water Truck - 5000 Gallons	175	0.38	1	2	133	7	931
23	Haul Truck - Materials (2)	NA	NA	60	NA	NA	10	600
24	Fugitive Dust (3)	NA	NA	0.25	NA	NA	3	1
25	Notes: (1) From ARB In-Use Off-Road Equipment Inventory Model, where applicable (ARB 2011).							
26	(3) Number Active = miles/roundtrip, Hours/Day = daily truck trips, Daily Hp-Hrs = daily miles, and Total Hp-Hrs = total miles.							
27	(2) Number Active is the average daily acres disturbed on a continuous basis and Total Hp-Hrs are total acre-days for the entire							
28								

	U	V	W	X	Y	Z	AA	AB
1	Table A.1-5. Annual Emissions associated with the P-236 Sewer Equalization Tanks at MCAS Miramar - Alternative 2.							
2		*Total Emissions (Tons)*						
3	*Construction Activity/Equipment Type*	*VOC*	*CO*	*NOx*	*SO2*	*PM10*	*PM2.5*	*CO2*
4	Site Preparation							
5	Excavator	0.00	0.00	0.01	0.00	0.00	0.00	0.90
6	Loader/Backhoe	0.00	0.00	0.01	0.00	0.00	0.00	1.08
7	Water Truck - 5000 Gallons	0.00	0.00	0.01	0.00	0.00	0.00	1.17
8	Dump Truck - 8 CY	0.00	0.01	0.03	0.00	0.00	0.00	5.82
9	Haul Truck - Demo Material	0.00	0.00	0.00	0.00	0.00	0.00	0.02
10	Fugitive Dust	-	-	-	-	0.05	0.00	-
11	Subtotal	0.01	0.02	0.07	0.00	0.05	0.01	8.99
12	Steel Tank/Box Culvert Construction							
13	Air Compressor - 100 CFM	0.00	0.01	0.01	0.00	0.00	0.00	1.01
14	Crane	0.00	0.00	0.04	0.00	0.00	0.00	3.76
15	Forklift	0.00	0.00	0.00	0.00	0.00	0.00	0.35
16	Haul Truck - Materials	0.00	0.00	0.02	0.00	0.00	0.00	3.15
17	Fugitive Dust	-	-	-	-	0.03	0.00	-
18	Subtotal	0.01	0.01	0.07	0.00	0.04	0.01	8.28
19	Utilities Installation							
20	Air Compressor - 100 CFM	0.00	0.00	0.01	0.00	0.00	0.00	0.81
21	Forklift	0.00	0.00	0.00	0.00	0.00	0.00	0.35
22	Loader/Backhoe	0.00	0.00	0.00	0.00	0.00	0.00	0.22
23	Trencher	0.00	0.00	0.00	0.00	0.00	0.00	0.20
24	Water Truck - 5000 Gallons	0.00	0.00	0.01	0.00	0.00	0.00	1.22
25	Haul Truck - Materials	0.00	0.00	0.00	0.00	0.00	0.00	0.79
26	Fugitive Dust	-	-	-	-	0.01	0.00	-
27	Subtotal	0.00	0.01	0.03	0.00	0.01	0.00	3.59
28	Total Emissions - Proposed Action	0.02	0.04	0.17	0.00	0.10	0.02	20.87

Appendix A-2

Record of Non-Applicability (RONA)

This page intentionally left blank.

Appendix A-2. United States Marine Corps Record of Non-Applicability (RONA) for Clean Air Act Conformity and Air Quality Emissions Estimates

Introduction

This proposed action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA.

The United States Environmental Protection Agency (EPA) published "Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule" in the 30 November 1993 Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). In 2006, the EPA revised the general conformity rule to include *de minimis* emission levels for particulate matter with a diameter equal to or less than 2.5 microns ($PM_{2.5}$) and its precursors. On 5 April 2010, EPA finalized more wide-sweeping revisions to the general conformity rule (75 Federal Register [FR] 17253-17279). These revisions took effect on 6 July 2010. These publications provide guidance on how to document Clean Air Act Conformity requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable State Implementation Plan (SIP). It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable SIP before the action is taken (40 CFR Part 1 51.850[a]).

Federal actions are exempt from conformity determinations if their emissions do not exceed designated *de minimis* levels for criteria pollutants (40 CFR 93.153c). The general conformity rule also exempts certain federal actions from the requirements of the rule, as these actions are assumed to conform to a SIP. Conformity *de minimis* levels (in tons per year) for the San Diego Air Basin, the region potentially affected by the proposed action, are listed in Table 1.

Table 1. Conformity De Minimis Levels for Criteria Pollutants in the San Diego Air Basin

Criteria Pollutant	De Minimis Level (tons/year)
Carbon Monoxide (CO)	100
Volatile Organic Compounds (VOC)	100
Oxides of Nitrogen (NO_x)	100

Proposed Action

Activity: Construction and operation of sewer equalization tank systems. Proposed action proponent is the Public Works Department at Marine Corps Air Station Miramar (MCAS Miramar).

Location: MCAS Miramar, California. Proposed activities would occur along De La Garza Road located in West Miramar.

Proposed Action Name: P-236 Sewer Equalization Tanks at MCAS Miramar.

Proposed Action Summary: The Marine Corps proposes to construct and operate a storage tank with a holding capacity sufficient to temporarily retain excess sewage flow generated by a nominal 10-year

24-hour storm event (1.5 million gallons); an active flow control system to regulate the discharge flow; and associated piping, pumps, conduits, and access points. Additional supporting improvements include site access and utility infrastructure upgrades. Site improvements would include grading and clearing, demolition and repaving of the existing road surface and culverts, and restoration of disturbed areas to pre-construction conditions. Construction would occur over approximately 15-months and would be conducted outside of the rainy season (about 1 November to 1 June). Grubbing and/or removal of surface vegetation, would be conducted outside of the bird breeding season (15 February through 1 September), to the maximum extent feasible.

Operational activities associated with the Proposed Action would produce a minor amount of air emissions due to the occasional consumption of electricity and the use of a water truck and pressure washer to maintain the tank on an annual basis. Operational emissions would be *de minimis* and therefore are not evaluated in this RONA.

Air Emissions Summary: Based on the air quality analysis for the proposed action, the emissions for the proposed action would be well below conformity *de minimis* levels.

Affected Air Basin: San Diego Air Basin

Date RONA Prepared: May 23, 2013

RONA Prepared by: Leidos (formerly Science Applications International Corporation [SAIC])

Proposed Action Exemptions

The proposed action is exempt because the calculated total emissions are below *de minimis* levels set forth in the Clean Air Act General Conformity Regulation.

Attainment Status and Emissions Evaluation and Conclusion

The General Conformity Rule requires conformity evaluations for proposed emissions that would occur within areas that are in nonattainment or maintenance of a national ambient air quality standard (NAAQS). The project site is within San Diego County and is under the jurisdiction of the San Diego County Air Pollution Control District. Therefore, the focus of this conformity applicability analysis is to compare project emissions to *de minimis* levels applicable to San Diego County.

The San Diego Air Basin (SDAB) presently is classified as in nonattainment of the O_3 NAAQS. Ozone is a secondary pollutant formed when ozone precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOCs), intermix in the atmosphere in the presence of sunlight. Therefore, the EPA general conformity regulations set *de minimis* levels for ozone precursors instead of ozone. The western portion of the SDAB (the portion of the county generally west of the interior desert region) also is in maintenance of the CO NAAQS. Based upon these designations, the applicable annual conformity *de minimis* thresholds for these areas are 100 tons of VOCs, CO, and NO_x.

Table 2 summarizes the conformity-related emissions that would occur from the proposed action within the San Diego County project region. The main sources of conformity-related emissions associated with project construction would include combustive emissions due to the use of fossil fuel-powered construction equipment. The data shows that conformity-related emissions for the proposed action would be well below the applicable *de minimis* levels. Therefore, emissions from the proposed action would show conformity under the Clean Air Act, as amended.

Table 2. Annual Conformity-Related Emissions from the Proposed Action at MCAS Miramar			
Equipment Type	Air Pollutant Emissions (tons)		
	VOC	CO	NO_x
Site Preparation/Backfill	0.04	0.12	0.48
Construct Sewer Tank	0.01	0.03	0.13
Pave De la Garza Road	0.00	0.00	0.02
Total Emissions (tons/year)	**0.05**	**0.15**	**0.63**
San Diego Air Basin Conformity Thresholds (tons/year)	**100**	**100**	**100**
Exceed Thresholds?	**No**	**No**	**No**
Notes: (1) All emissions would occur within one calendar year.			

RONA Approval

I concur in the finding that air emissions associated with the proposed action are below *de minimis* levels and therefore do not require further conformity evaluation.

_____ Date: _____

Colonel John P. Farnam
Commanding Officer
MCAS Miramar

This page intentionally left blank.

Appendix B

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet

This page intentionally left blank.

Appendix B. MMMR Tracking Sheet

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet							
EPM #	**Minimization, Mitigation, Monitoring, Reporting Measures**	**Environmental Assessment Section**	**Implementation Procedure or Action**	**Responsible Organization**	**Deliverable/ Report**	**Compliance Schedule**	**Verification of Compliance**
1	*Fugitive Dust Control.* The project proponent, construction oversight authority, or duly designated contractor shall ensure that fugitive dust emissions do not extend beyond the property line for more than 3-minutes in any 60 minute period and shall mitigate fugitive dust to minimize track out/carry out emissions during demolition, construction, and transport in accordance with the San Diego County Air Pollution Control District (SDCAPCD) Rule 55. The construction contractor shall implement the following measures, where applicable, to minimize fugitive dust emissions: 1. Use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the construction area. 2. Minimize the amount of disturbed ground area at a given time. 3. Minimize traffic speeds on all unpaved roads. 4. Install gravel pads at construction area access points to prevent tracking of soil onto paved roads. 5. Provide temporary wind fencing around sites being graded or cleared. 6. Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site. Stabilize all disturbed areas at this time. 7. Cover truck loads that haul dirt, sand, or gravel or maintain at least two feet of freeboard in accordance with Section 23114 of the California Vehicle Code. 8. After completion of clearing, grading, earthmoving, or excavation, treat the disturbed areas by watering, revegetation, or by spreading non-toxic soil binders until they are paved or otherwise developed to prevent dust generation. 9. Designate personnel to monitor the dust control program and to order increased watering, as necessary, to prevent the transport of dust off-site. Their duties would include holiday and weekend periods when work may not be in progress.	Section 3.1; Appendix A	Implement fugitive dust control measures	Contractor	None	During Construction	Verified by: Date:
2	*Construction Equipment Emission Control Measures.* The construction contractor shall implement the following measures during proposed construction activities, where feasible. 1. Maintain equipment according to manufacturer specifications. 2. Restrict idling of equipment and trucks to a maximum of five minutes at any location. 3. Install diesel oxidation catalysts and/or catalyzed diesel particulate traps on equipment exhaust systems. 4. Use electricity from power poles rather than temporary diesel- or gasoline-powered generators. 5. Provide temporary traffic control, such as a flag person, during all phases of construction to maintain smooth traffic flow. 6. Keep construction equipment and equipment staging areas away from sensitive receptor areas (such as day care centers).	Section 3.1	Implement construction equipment emission control measures	Contractor	None	During Construction	Verified by: Date:

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet							
EPM #	Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Assessment Section	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
	7. Re-route construction trucks away from congested streets or sensitive receptor areas. 8. Any equipment or operation requiring an operating permit from the SDCAPCD or other regulatory body shall be obtained by the owner/operator of that equipment/operation. Examples of such equipment and operations include non-mobile equipment utilizing an internal combustion engine greater than 50 break horsepower (bhp) (diesel-fueled electrical generators, lighting units, air compressors, etc.), rock crushing operation, and concrete batching operation. The use of off-road diesel vehicles during construction, such as loaders, crawler tractors, skid steers, backhoes, and forklifts with engines rated at 25 bhp or greater, shall comply with California Air Resources Control Board (ARB) regulations (CCR 13 Section 2449). 9. Use alternatively-fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric.						
3	*Avoid and Minimize, and Compensate for Disturbance to Diegan Coastal Sage Scrub.* The final project shall be designed to avoid/minimize impacts by reducing disturbance footprints to Diegan Coastal Sage Scrub to the maximum extent practicable. In addition, staging areas and/or other temporary construction-related requirements shall be located within the laydown areas. Alternative 1 and Alternative 2 would result in temporary impacts to Diegan Coastal Sage Scrub. The temporary removal of Diegan Coastal Sage Scrub shall be compensated for through habitat restoration/creation and/or purchase of an equivalent amount of credits from an off-Station conservation bank. Consistent with the Integrated Natural Resources Management Plan (INRMP) (MCAS Miramar et al. 2011), temporary impacts to Diegan Coastal Sage Scrub occupied by or within the use area for the federally-listed coastal California gnatcatcher and located in MAs I and II would be mitigated at a 2:1 ratio. Impacts to Diegan coastal Sage Scrub not occupied by or within the use area for the federally-listed coastal California gnatcatcher would be mitigated at a 1:1 ratio to achieve no net loss of the habitat. The Construction Contractor shall develop a Revegetation Plan that will be approved by MCAS Miramar before implementation. The Revegetation Plan shall address all revegetation efforts associated with the construction activities and include specific erosion control measures, irrigation requirements, species composition, seed mix origins and ratios, weed control, water regimes, maintenance activities, success criteria, and monitoring requirements. Seed mixes used for Diegan Coastal Sage Scrub revegetation shall be from locally collected sources. A suggested seed mix includes the following species: California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), broom baccharis (*Baccharis sarothroides) bla*ck sage (*Salvia mellifera*), and deer weed (*Acmispon glaber).* The Plan components shall be implemented as soon as feasible after construction. The Revegetation Plan shall address all revegetation efforts associated with project activities and include specific erosion control measures, irrigation requirements,	Section 3.2	Develop and implement a Revegetation Plan.	Contractor	None	During Construction	Verified by: Date:

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet							
EPM #	Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Assessment Section	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
	species composition, seed mix origins and ratios, weed control, water regimes, maintenance activities, success criteria, and monitoring requirements. Disturbed areas of Diegan coastal Sage Scrub shall be replanted with appropriate native seed or plantings in accordance with the Revegetation Plan the first fall after the completion of construction activities and before the winter rainfall season to minimize the need for watering. Reseeding/replanting that becomes necessary after the start of the rainy season shall be done as soon as possible. The Revegetation Plan shall specify the final monitoring program duration and frequency, with a minimum of five years of monitoring post-restoration. Invasive weed control (e.g., hand removal, mechanical and herbicide control) shall be implemented in areas reseeded/replanted until the native vegetation is established. The Revegetation Plan will be approved by the MCAS Miramar Environmental Management Department prior to the start of construction activities. Areas impacted by construction shall be inspected by the MCAS Miramar Environmental Management Department within one year following the completion of construction, to determine whether any remedial measures are required. Remedial measures may include re-seeding/re-planting, weed control, watering, and/or erosion control. Alternative 2 would result in permanent impacts to Diegan Coastal Sage Scrub that is not occupied by coastal California gnatcatcher and is located outside of the use area for this species. Consistent with the INRMP (MCAS Miramar et al. 2011), permanent impacts to Diegan Coastal Sage Scrub located in MAs I and II that does not provide habitat for federally listed species (i.e., the coastal California gnatcatcher) will be mitigated at a 1:1 ratio to achieve no net loss of habitat. Thus, the permanent removal of Diegan Coastal Sage Scrub associated with Alternative 2 shall be compensated for through habitat restoration/creation at a 1:1 ratio or purchase of an equivalent amount of credits from an off-Station conservation bank.						
4	*Invasive Plant Species Control.* All equipment and/or vehicles shall be power-washed before entering MCAS Miramar property and the project site. While washing wheeled vehicles, the front wheels shall be turned lock-to-lock to allow for exposure of surfaces that may hold soil or weed seeds. This is to control the spread of invasive (non-native) weeds.	Section 3.2	Power-wash all equipment and/or vehicles before entering MCAS Miramar property or the project site.	Contractor	None	During Construction	Verified by: Date:
5	*Conduct Vegetation Removal/Grubbing Outside of Nesting Season for Coastal California Gnatcatcher and Migratory Bird Treaty Act-Protected Species.* Contractors shall comply with the Migratory Bird Treaty Act (MBTA). Due to the presence of habitat for the federally-listed coastal California gnatcatcher and MBTA species in and in the vicinity of the project site, any grading, grubbing, mowing, and/or removal of surface vegetation, particularly Diegan Coastal Sage Scrub, shall not be scheduled between 15 February and 1 August to avoid potential impacts on nesting.	Section 3.2	Limit laydown areas to previously compacted/ developed areas. Avoid grubbing, and/or removal of surface vegetation including Diegan Coastal Sage Scrub between 15 February through 1 August.	Contractor	None	During Construction	Verified by: Date:

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet							
EPM #	Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Assessment Section	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
6	*Biological Monitoring during Construction.* A qualified Project Biologist will be retained by the Contractor for the duration of construction activities and will be on site at all times during clearing and grubbing of vegetation or habitats that have the potential to support listed species, specifically the coastal California gnatcatcher and San Diego fairy shrimp. The Project Biologist will identify work areas, monitor work activity, and provide "tailgate" sessions for the construction contractor. The monitor will oversee and execute the conservation protection measures pertaining to biological resources. The Project Biologist will have experience with threatened California coastal gnatcatcher and endangered San Diego fairy shrimp and will be approved by MCAS Miramar prior to the start of construction activities.	Section 3.2	A Project Biologist will be retained by Contractor during construction activities and will be on site at all times during clearing and grubbing of vegetation or habitats that have the potential to support listed species, specifically the coastal California gnatcatcher and San Diego fairy shrimp.	Contractor	None	During Construction	Verified by: Date:
7	*Avoid and Minimize Disturbance to Vernal Pool Watershed.* The Contractor will take action to avoid an increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basins. Sedimentation into basin shall be prevented and soil-disturbing activities during rainy season or when ground is wet (about 1 November to 1 June) will be minimized.	Section 3.2	Implement actions to avoid impacts to water quality, sediment transport and runoff.	Contractor	None	During Construction	Verified by: Date:
8	*Monitoring/Avoidance of Vernal Pools and Other Seasonally Ponded Features Occupied by San Diego Fairy Shrimp.* Occupied vernal pools and other seasonally ponded features in the immediate vicinity of the project site and vernal pool watersheds within the project site located upgradient of occupied features shall be clearly marked on construction plans and avoidance areas and flagged or fenced prior to the start of construction activities. Consistent with the INRMP, any construction that could affect habitat for the San Diego fairy shrimp associated with vernal pools, seasonally ponded features, and vernal pool watersheds located upgradient of these features will occur outside of the rainy season (about 1 November to 1 June) and in dry conditions only. Following the initial clearing of features, ongoing construction activities can occur in the wet season with implementation of adequate erosion control Best Management Practices (BMPs) (e.g., jute netting, geotextiles, and other materials), as determined by the Project Biologist, to avoid an increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basins. Sedimentation into basin shall be prevented and soil-disturbing activities during rainy season or when ground is wet (about 1 November to 1 June) will be minimized.	Section 3.2	Monitoring of vernal pools during construction; clearly mark vernal pools in the immediate vicinity of the project site on construction plans; flag/fence avoidance areas before the start of construction; No construction shall occur around vernal pools during the rainy season or when the ground is still wet (about 1 November to 1 June); approval of Project Biologist for construction near vernal pools in rainy season.	Contractor	None	During Construction	Verified by: Date:

Minimization, Mitigation, Monitoring, and Reporting (MMMR) Tracking Sheet

EPM #	Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Assessment Section	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
9	*40-Hour HAZWOPER Monitor.* A monitor, with 40-Hour HAZWOPER training and experience in identifying contaminated soil and groundwater, will be present during excavation and grading.	Section 3.4	Monitoring of excavation and grading.	Contractor	None	During Construction	Verified by: Date:
10	*Fish Pond Access during Construction.* Sidewinder Road and Johnson Road would provide non-recreation access to the Fish Pond for operation and maintenance activities while De La Garza Road is closed to through traffic.	Section 3.5	Establish access to the Fish Pond.	MCAS Miramar	None	During Construction	Verified by: Date:
11	*Avoid Peak-Hour Delivery.* To minimize traffic congestion, the delivery of materials and equipment shall be outside of peak traffic hours (6:30 to 8:00 a.m. and 3:30 to 5:00 p.m.) unless otherwise approved by the Contracting Officer. All deliveries are to be via the East Gate on Miramar Way, unless previously approved by the Contracting Officer.	Section 3.6	Avoid peak-hour deliver of material and equipment	Contractor	None	During Construction	Verified by: Date:
12	*Construction Worker Ridesharing.* To minimize traffic congestion, construction workers shall be encouraged to rideshare/carpool.	Section 3.6	Encourage construction worker ridesharing	Contractor	None	During Construction	Verified by: Date:
13	*Construction Traffic Plan*. A construction traffic management and detour plan would be developed. This plan would specify necessary lane closures, detours, signage, lighting, flaggers, and other traffic control measures, as needed. The traffic plan would specify routes for emergency service vehicles in the event of an emergency.	Section 3.6	Prepare a Construction Traffic Plan	Contractor	None	During Construction	Verified by: Date:
14	*Road Traffic Load Signs.* Warning signs indicating road load rating (16,000 pound wheel load or 32,000 pound dual space wheel load) shall be posted at the De La Garza entrance off Pless Road.	Section 3.6	Install Road Traffic Load Sign	Contractor	None	During Construction	Verified by: Date:
15	*Temporary Sediment Control Measures*. Temporary sediment control practices shall be applied throughout the construction phase within the project site and could include fiber roll and/or silt fence perimeter protection, fiber roll slope protection, gravel bag, check dam protection. The construction entrance shall be stabilized to minimize the tracking of mud and dirt onto roads by construction vehicles. If necessary, a sediment basin would be constructed at the downslope end of the construction area during construction activities to slow off-site surface flows and sediment transport.	Section 3.8	Identify sediment control features to be used during and following construction.	Contractor	None	During Construction	Verified by: Date:
16	*Stockpile Management during Construction.* Stockpiles of soil shall be properly contained to eliminate or reduce off-site sediment transport to receiving waters, including Rose Canyon Creek and downstream Mission Bay. Soil stockpiles shall be placed on top of heavy-duty plastic sheeting on areas with an improved asphalt or concrete surface. Potentially hazardous waste would be stored in a designated area. All soil stockpiles shall be covered with material adequate to prevent soil transport by wind or rainwater runoff. Covers shall be maintained in good condition.	Section 3.8	Implement stockpile management measures.	Contractor	None	During Construction	Verified by: Date:
17	*On-site Equipment and Vehicle Washing*. Runoff from on-site equipment and vehicle washing shall be contained at the construction site and would not be discharged to receiving waters or the local storm drain system.	Section 3.8	Implement containment measures for runoff from equipment and vehicle washing.	Contractor	None	During Construction	Verified by: Date:

This page intentionally left blank.