Final Environmental Assessment

MCTSSA Cantonment Area Expansion

Marine Corps Base
Camp Pendleton, California

September 2014

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Final
ENVIRONMENTAL ASSESSMENT

Abstract

Lead Agency for the EA: United States Marine Corps

Title of Proposed Action: MCTSSA Cantonment Area Expansion

Affected Region: San Diego County

Designation: Environmental Assessment

The United States Marine Corps has prepared this Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code §§ 4321–4370h, as implemented by the Council on Environmental Quality regulations, 40 Code of Federal Regulations 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. The proposed action is the physical expansion of the existing Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area by approximately 31 acres (13 hectares) and includes construction and operation of radar antennae (temporary and permanent); a vehicle testing track; support facilities (maintenance facility, two test laboratory/office buildings, and vehicle parking area); and site improvements (grading, site access, utilities, sidewalks, drainage, and Antiterrorism/Force Protection [ATFP] features) on Marine Corps Base (MCB) Camp Pendleton, San Diego County, California. This Environmental Assessment describes the potential environmental consequences resulting from one action alternative (Alternative 1), and the No-Action Alternative on the following resource areas: Land Use and Coastal Zone Management; Aesthetics; Topography, Geology, and Soils; Water Resources; Biological Resources; Air Quality; Cultural Resources; Utilities; and Public Health and Safety.

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Acronyms and Abbreviations

µg/m^3	micrograms per cubic meter
ADA	Americans with Disabilities Act
AHT	At the Halt Testing
AICUZ	Air Installations Compatible Use Zone
APE	Area of Potential Effects
ARB	Air Resources Board
ATFP	Antiterrorism/Force Protection
BAT	best available technology
BCT	best conventional pollutant control technology
BEAP	Camp Pendleton Base Exterior Architectural Plan
BMPs	Best Management Practices
B.P.	Before Present
C4I	Command, Control, Communications, Computers, and Intelligence
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAC2S	Command Aviation Command and Control Systems
CalEEMod	California Emissions Estimator Model
CATEX	Categorical Exclusion
CCR	California Code of Regulations
CDMG	California Department of Mines and Geology
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COBRA3	Combat Operation Centers On-the-Move Battlefield Remote Access and Awareness Applications
CTN	Composite Tracking Network
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibels
dBA	A-weighted decibels
DC	direct current

DHS	California Department of Health Services
DoN	Department of the Navy
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EIS	environmental impact statement
EISA	Energy Independence and Security Act
EO	Executive Order
ES	Environmental Security
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FMD	Facilities Maintenance Department
FR	*Federal Register*
ft	foot
ft^2	square feet
FY	Fiscal Year
G/ATOR	Ground/Air Task Oriented Radar
GHGs	greenhouse gases
GIS	Geographic Information System
GWDR	General Waste Discharge Requirements
GWP	global warming potential
HF	high frequency
HHERA	human health and ecological risk assessment
I-5	Interstate 5
INRMP	*Integrated Natural Resources Management Plan*
IR	Installation Restoration
IRP	Installation Restoration Program
km^2	square kilometers
kV	kilovolts
LAN	local area network
LEED®	Leadership in Energy and Environmental Design
LID	Low Impact Development
LNG	liquefied natural gas
m	meters
m^2	square meters
M2C2	Mobile Modular Command and Control
MAGTF	Marine Air Ground Task Force
MBTA	Migratory Bird Treaty Act
MCB	Marine Corps Base

MCI	Marine Corps Installation
MCL	Maximum Contaminant Level
MCO	Marine Corps Order
MCSC	Marine Corps System Command
MCTSSA	Marine Corps Tactical Systems Support Activity
mi^2	square miles
MMMR	Minimization, Mitigation, Monitoring and Reporting
N_2O	nitrous oxide
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NADB	National Archaeological Data Base
NAVFAC	Naval Facilities Engineering Command
NAVOSH	Naval Occupational Safety and Health
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	Notice of Availability
NOI	Notice of Intent
NOTAM	Network on the Move
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRTTP	Northern Region Tertiary Treatment Plant
NSI	no significant impact
O_3	ozone
OTM	On the Move
PEO-LS	Program Executive Office Land Systems (PEO-LS)
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
PPV	Public/Private Venture
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance/Quality Control
QRP	Qualified Recycling Program
RCRA	Resource Conservation and Recovery Act
RFA	Resource Conservation and Recovery Act Facility Assessment
ROD	Record of Decision
ROICC	Regional Officer in Charge of Construction
RONA	Record of Non-Applicability

RWQCB	Regional Water Quality Control Board
SCIC	South Coastal Information Center
SCM	Special Conservation Measure
SDAB	San Diego Air Basin
SDCAPCD	San Diego County Air Pollution Control District
SDG&E	San Diego Gas and Electric
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control and Countermeasures
SR-76	State Route 76
STP	Sewage Treatment Plant
SWAN	Support Wide Area Network
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TACAN	Tactical Air Navigation
TAOM	Tactical Air Operations Module
TAPS	Tributary Area Pump Station
TDS	total dissolved solids
U.S.	United States
UFC	Unified Facilities Criteria
UHF	ultra-high frequency
USC	United States Code
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
UST	underground storage tank
VHF	very high frequency
VOCs	volatile organic compounds
VOR	Very-High Frequency Omnidirectional Range
VORTAC	Very-High Frequency Omnidirectional Range Tactical Aircraft Control
WDR	Waste Discharge Requirements
WWPL	Wireless Point-to-Point Link

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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 to expand the existing Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area[1] by approximately 31 acres (13 hectares) to accommodate currently programmed radar antennae (temporary and permanent), vehicle testing track, support facilities (maintenance facility, two Command, Control, Communications, Computers, and Intelligence [C4I] test laboratory/office buildings, and vehicle parking area), and site improvements (grading, site access, utilities, sidewalks, drainage, and Antiterrorism/Force Protection [ATFP] features) needed to support USMC C4I systems capabilities. The proposed action would also include the following building support facilities: telecommunication systems, fiber optic cabling, local area network (LAN), telephone wiring, and exterior site and building lighting.

The purpose of the proposed action is to expand the MCTSSA Cantonment Area on Marine Corps Base (MCB) Camp Pendleton. MCTSSA is the Marine Air Ground Task Force (MAGTF) C4I Systems Engineering Interoperability, Architecture, and Technology Center for the USMC and is responsible for developing, testing, and maintaining software and software-associated hardware and related equipment for C4I systems used by the USMC to meet mission requirements. Expansion is needed to accommodate existing and planned radio frequency systems, a new laboratory and test facilities to support C4I systems engineering activities, additional warehouse/storage space to properly house and store C4I systems and equipment, and a new vehicle testing track.

The proposed action is needed because existing conditions do not provide adequate space for mission operations. MCTSSA's mission has evolved and grown over the years as new technologies emerged and new systems were fielded. The existing MCTSSA Cantonment Area has nominally expanded to meet this growth. Past expansion of the MCTSSA Cantonment Area was driven by the increase in the number of different systems supported by MCTSSA and the unique facilities and space required to support each system. Due to space constraints, the majority of MCTSSA's radio frequency-producing systems are crowded in the southern portion of the existing MCTSSA Cantonment Area. The existing MCTSSA Cantonment Area does not provide adequate space to support additional planned antennae systems or provide adequate space for safe movement, staging, and required radio frequency safety zones. Lab space within the existing facility is overcrowded because of the continued growth in the number of systems supported by MCTSSA. Additional warehouse/storage space is needed to properly house and store C4I systems and equipment. MCTSSA requires a vehicle testing facility within the Cantonment Area to facilitate testing of current and planned vehicle-mounted systems in a timely and cost-effective manner. Space for a new vehicle testing track is not available within the existing MCTSSA Cantonment Area.

The following resource areas were evaluated for potential environmental consequences: Land Use and Coastal Zone Management; Aesthetics; Topography, Geology, and Soils; Water Resources; Biological Resources; Air Quality; Cultural Resources; Utilities; and Public Health and Safety. The potential environmental consequences associated with implementation of Alternative 1 and the No-Action Alternative are summarized in Table ES-1. As shown in Table ES-1, no significant impacts to any resource area would occur with implementation of the proposed action with the inclusion of Special Conservation Measures. Based on the analysis presented in this EA, the USMC has identified Alternative 1 as the Preferred Alternative.

[1] Cantonment areas are the developed areas of a military base.

Table ES-1. Summary of Potential Environmental Consequences

Resource	*Expansion of the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area (Alternative 1)*	*No-Action Alternative*
Land Use and Coastal Zone Management	Alternative 1 would not result in significant impacts to land use compatibility because it would be consistent with the existing land use designations in the project vicinity, and would be compatible with surrounding land uses. In addition, conversion of the project site from former agricultural lands (Prime Farmland) to cantonment would not result in significant land use impacts because acquisition or use of farmland by a federal agency for national defense purposes is exempt from Farmland Protection Policy Act requirements. The project site is recommended as a potential expansion area for the existing MCTSSA Cantonment Area in the MCB *Camp Pendleton 2030 Base Master Plan*. Significant impacts on long-use management plans would not occur because Alternative 1 would be sited, designed, and constructed consistent with the guidelines presented in the *MCB Camp Pendleton 2030 Base Master Plan* for future development of the MCTSSA Cantonment Area (31B Area) and because proposed development would be contained within existing military designations at MCB Camp Pendleton.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on land use and coastal zone management would occur.
Aesthetics	Alternative 1 would not result in significant aesthetic impacts because the project area would be visually consistent with the current military activities that occur at the existing MCTSSA Cantonment Area. Other ancillary facilities, including the vehicle parking area, C4I laboratory/office building, and radar/antenna pads west of Interstate 5 (I-5) would not be discernible due to the distance of this viewpoint from the proposed facilities. In addition, no increase in daytime or nighttime glare would be perceived from public view corridors.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on aesthetics would occur.
Topography, Geology, and Soils	Alternative 1 would not result in significant impacts associated with topographic and slope stability because construction would be completed in accordance with Uniform Building Code requirements. Significant impacts associated with seismically induced ground motion would not occur because infrastructure improvements would comply with seismic design criteria.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on topography, geology, and soils would occur.

Table ES-1. Summary of Potential Environmental Consequences

Resource	*Expansion of the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area (Alternative 1)*	*No-Action Alternative*
Water Resources	Alternative 1 would potentially discharge waste materials that would affect the quality of surface water, groundwater or nearby marine waters. This alternative would create structures that would potentially affect the volumes or patterns of surface flows or increase potentials for flooding within the drainage areas flowing into area creeks and the Pacific Ocean. These impacts would be managed through Special Conservation Measures 1 and 2, Best Management Practices (BMPs) and incorporation of standard erosion control measures into project design. Water demands associated with the proposed facilities would be minimal with respect to overall water demands at MCB Camp Pendleton. Erosion and sedimentation and other construction-related impacts may occur but would be managed through BMPs. Therefore, significant impacts to water resources would not occur.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on water resources would occur.
Biological Resources	With implementation of Special Conservation Measures 3 through 5 including monthly vegetation maintenance, shielding of exterior lighting, and following raptor protection guidelines during utility line installation, significant impacts to biological resources would not occur.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on biological resources would occur.
Air Quality	Annual volatile organic compounds, carbon monoxide, and nitrogen oxides emissions generated by Alternative 1 would be below the conformity *de minimis* levels. Additionally, due to the mobile and intermittent operation of proposed diesel-powered construction equipment over a large construction area, they would produce minimal ambient impacts of Toxic Air Contaminants in a localized area. Therefore, significant impacts to air quality would not occur.	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.
Cultural Resources	The proposed action would not result in disturbance of known cultural resources, including historic properties, archaeological resources, historic architectural resources, or traditional cultural resources. Implementation of Special Conservation Measure 9 (Archeological and Native American Monitoring during construction) would minimize the potential for adverse impacts to any cultural resources discovered during construction. Therefore, significant impacts to cultural resources would not occur.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on cultural resources would occur.

Table ES-1. Summary of Potential Environmental Consequences

Resource	*Expansion of the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area (Alternative 1)*	*No-Action Alternative*
Utilities	Alternative 1 would increase demands on water, wastewater, electricity and communication systems, natural gas, 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.	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.
Public Health and Safety	Alternative 1 is not located in proximity to schools, day-care centers, or family housing units. Therefore, no children would be exposed to environmental conditions or military activities at the project site or in the project vicinity. There are no active Installation Restoration (IR) sites located in the project vicinity. Residual concentrations of organochlorine pesticides were detected in soils at the project site. However, the soil within this area has been remediated in accordance with local, state, and federal regulations. The project site is located within an Explosive Safety Area associated with a nearby explosive handling site, as used for the transfer of ammunition and explosives from Del Mar Beach on Base. However, personnel associated with Alternative 1 would be required to evacuate buildings within this area during explosive handling operations. Protocols and requirements to protect human health and safety associated with current activities at the existing MCTSSA Cantonment Area would apply to future activities at the proposed facilities. Therefore, significant impacts on public health and safety would not occur.	For the No-Action Alternative, the proposed action would not occur, and there would be no change in existing conditions. No impacts on public health and safety would occur.

1 Purpose and Need

1.1 Introduction

This Environmental Assessment (EA) has been prepared by the United States Marine Corps (USMC) 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), Department of Navy (DoN) *Procedures for Implementing NEPA* (32 CFR Part 775), and Marine Corps Order (MCO) P5090.2A, Change 3, *Environmental Compliance and Protection Manual*. NEPA encourages public involvement in the environmental review process. A description of the public participation process is provided in Appendix A.

This EA describes the potential environmental consequences resulting from a proposal for expansion of the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area[1] on Marine Corps Base (MCB) Camp Pendleton (Figure 1.1-1). The proposed action would expand the existing MCTSSA Cantonment Area by adding approximately 31 acres (13 hectares) of land adjacent to the existing facility to accommodate additional temporary and permanent radar antennae, vehicle test track, support facilities, and site improvements needed to support USMC Command, Control, Communications, Computers, and Intelligence (C4I) systems capabilities. The support facilities would include construction of a maintenance facility, two C4I test laboratory/office buildings, and a vehicle parking area. Site improvements would include grading, site access, utilities, sidewalks, drainage, and Antiterrorism/Force Protection (ATFP) features (as defined by United Facilities Criteria [UFC] 4-010-01, change 1, including building standoff distances, controlled parking areas, unobstructed space, and perimeter fencing around the site). The proposed action would also include the following building support facilities: telecommunication systems, fiber optic cabling, local area network (LAN), telephone wiring, and exterior site and building lighting.

1.2 Background

MCTSSA is the Marine Air Ground Task Force (MAGTF) C4I Systems Engineering Interoperability, Architecture, and Technology Center for the USMC. Over the last 40 years, MCTSSA has been responsible for the developing, testing, and maintaining software and software-associated hardware and related equipment that provide and improve automation for C4I systems. MCTSSA is responsible for ensuring that C4I systems are engineered, tested, certified, and supported enabling Marines to meet mission requirements. MCTSSA is directly responsible to the Director of Marine Corps Development and Education Command.

The existing MCTSSA Cantonment Area was originally selected based on its suitability for this unique type of work. Over the years, MCTSSA's mission has evolved and grown as new technologies emerged and new systems were fielded. The existing MCTSSA Cantonment Area has nominally expanded to meet this growth. Past expansion of the MCTSSA Cantonment Area was driven by the increase in the number of different systems supported by MCTSSA and the unique facilities and space required to support each system.

[1] Cantonment areas are the developed areas of a military base.

MCTSSA Cantonment Area Expansion
Project Location

FIGURE 1.1-1

The existing MCTSSA Cantonment Area includes the following systems and facilities.

Radio Frequency Systems. MCTSSA provides technical test and engineering support for a number of systems that use radio frequencies including Tactical Air Operations Module (TAOM), AN/TPS-59 radar, ANTPS-63 radar, Support Wide Area Network (SWAN), Network on the Move (NOTAM), Wireless Point-to-Point Link (WWPL), Command Aviation Command and Control Systems (CAC2S), Mobile Modular Command and Control (M2C2)/Combat Operation Centers On-the-Move Battlefield Remote Access and Awareness Applications (COBRA3), Composite Tracking Network (CTN), AN/TRC 170 Tropospheric Scatter Microwave Ratio Terminal, and MRC-142 Microwave Radio Set. In addition, MCTSSA maintains a laboratory used for analyzing radio frequency and providing technical support to the radio frequency systems.

There are approximately 20 antennae located within the existing MCTSSA Cantonment Area. Due to space constraints, the majority of MCTSSA's radio frequency-producing systems are crowded in the southern portion of the existing MCTSSA Cantonment Area. MCTSSA is currently programmed to receive several additional radio frequency antennae systems (e.g., Ground/Air Task Oriented Radar [G/ATOR], CTN, and SWAN) and several vehicle-mounted antennae systems (e.g., NOTAM, M2C2, and MRQ-12 Humvee-mounted communication vehicle). The existing MCTSSA Cantonment Area does not provide adequate space to support these planned antennae systems or provide adequate space for safe movement, staging, and required radio frequency safety zones. MCTSSA requires additional space to accommodate current and planned radio frequency systems.

Test and Engineering Laboratories. The existing MCTSAA Cantonment Area has C4I test and engineering laboratory space to support existing systems activities. Approximately 17,000 square feet (ft^2) (1,579 square meters [m^2]) of lab space has been added within the existing MCTSSA Cantonment Area since 2007; however, this space is nearing capacity. Other lab space within the existing facility is overcrowded because of the continued growth in the number of systems supported by MCTSSA. Due to this overcrowding and the lack of adequate lab space, engineering and test activities are currently conducted within available office space, which is not compatible with standard practices for engineering and testing activities. MCTSSA requires 0.5 acres (0.2 hectares) to accommodate new laboratory and test facilities to support C4I systems engineering activities.

Warehouse/Storage Facility. The USMC needs to provide Marines with the best available tactical systems to support their missions. Therefore, MCTSSA must provide technical support for new C4I systems while continuing to support current systems. This need has overtaxed MCTSSA's existing warehouse/storage facility, which is at capacity. As an example, spare parts for systems currently are stored in office spaces or in outdoor tactical shelters, which can expose them to adverse temperatures and conditions. MCTSSA requires additional warehouse/storage space to properly house and store C4I systems and equipment. However, additional space is not available within the existing MCTSSA Cantonment Area.

Vehicle Testing Area. MCTSSA conducts On the Move (OTM) testing and At the Halt Testing (AHT) of vehicle-mounted systems (e.g., NOTAM). A staging area for existing vehicles is located within the existing MCTSSA Cantonment Area. MCTSSA personnel conduct vehicle testing offsite at ranges on MCB Camp Pendleton or on the Yuma Proving Grounds, located off-Base in Arizona. MCTSSA must compete for range time and personnel must travel offsite, in some cases into another state, to conduct training. MCTSSA requires a vehicle testing facility within the Cantonment Area to facilitate testing of current and planned vehicle-mounted systems in a timely and cost-effective manner. Space for a new vehicle testing track is not available within the existing MCTSSA Cantonment Area. MCTSSA requires approximately 6.5 acres (2.6 hectares) of additional space to accommodate these facilities.

The program offices at Marine Corps System Command (MCSC) and the Program Executive Office Land Systems (PEO-LS) currently rely on MCTSSA to conduct a broad range of engineering and testing tasks that support USMC's diverse portfolio of systems. As the scope of MCTSSA's role in supporting these systems has broadened, so has the demand for additional infrastructure and facilities. As noted above, the existing MCTSSA Cantonment Area does not currently have the physical space to accommodate these additional facilities and infrastructure required to support these systems.

1.3 Project Location

The proposed action would be implemented at MCB Camp Pendleton, the USMC's major amphibious training center for the West Coast (Figure 1.1-1). The project site is located on 34 acres (14 hectares) of which 3 acres (1 hectare) are located within the existing MCTSSA Cantonment Area and approximately 31 acres (13 hectares) (i.e., the expansion area) are located adjacent to the existing MCTSSA Cantonment Area. MCB Camp Pendleton is a 200-square-mile (mi^2) (518-square-kilometer [km^2]) area located primarily within the northern portion of San Diego County, 40 miles (64 kilometers) north of downtown San Diego. The Orange County line is contiguous with the northwest boundary of MCB Camp Pendleton; Riverside County is to the north but not adjacent to the boundary of MCB Camp Pendleton. The City of San Clemente and the Cleveland National Forest border MCB Camp Pendleton to the north and east, with the community of Fallbrook and the Naval Weapons Station – Seal Beach/Fallbrook Detachment to the east, and the City of Oceanside to the south. The Base is primarily accessed by Interstate 5 (I-5) and State Route 76 (SR-76).

1.4 Purpose of and Need for the Proposed Action

The purpose of the proposed action is to expand the existing MCTSSA Cantonment Area by approximately 31 acres (13 hectares) to accommodate existing and additional radar and technical communications infrastructure and facilities needed to support USMC C4I systems capabilities.

The proposed action is needed to effectively and successfully support USMC C4I systems and equipment requirements, and MCSC and PEO-LS program requirements. Specifically, the proposed action is needed to:

- Provide adequate space for additional radar antennae currently programmed for MCTSSA without inducing radio frequency interference and radio frequency hazards;
- Provide the space and infrastructure necessary to maintain a test environment comprised of functioning C4I legacy systems, currently fielded systems, and systems in development; and
- Provide a vehicle test track to conduct OTM testing and AHT of vehicle-mounted systems at MCTSSA such that MCTSSA personnel do not have to compete for the use of a training range or travel extensive distances to another testing facility.

1.5 Regulatory Setting

This EA discusses reasonable alternatives for meeting the purpose of and need for the proposed action; existing environmental conditions in the vicinity of the proposed action; direct, indirect, and cumulative impacts that might result from the proposed action; and measures to avoid or minimize potential adverse impacts. The decision to be made by the MCB Camp Pendleton Commanding General relates to which alternative best fulfills the purpose and need for the proposed action while avoiding or minimizing adverse environmental impacts.

This EA has been prepared in accordance with applicable federal regulations, instructions, and public law, including but not limited to those provided in Table 1.5-1.

Table 1.5-1. Applicable Federal Regulations, Instructions, and Public Law

Name	*Regulation*
National Environmental Policy Act of 1969	42 USC §§ 4321–4370h
Council of Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act	40 CFR Parts 1500–1508
Department of the Navy Procedures for Implementing the National Environmental Policy Act	32 CFR Part 775
Environmental Compliance and Protection Manual Chapter 12	MCO P5090.2A, Change 3
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
Environmental and Natural Resources Program Manual	Office of the Chief of Naval Operations Instruction 5090.2C change 2
Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, 11 February 1994	Executive Order 12898
Protection of Children from Environmental Health Risks and Safety Risks, 23 April 1997	Executive Order 13045
Endangered Species Act	16 USC §§ 1531–1544
Migratory Bird Treaty Act	16 USC §§ 703–712
Responsibility of Federal Agencies to Protect Migratory Birds, 11 January 2001	Executive Order 13186
Protection of Wetlands, 24 May 1977	Executive Order 11990
Invasive Species	Executive Order 13112
Native Americans Graves Protection and Repatriation Act	25 USC §§ 3001–3013 and 40 CFR Part 10
Federal Compliance with Pollution Control Standards	Executive Order 12088
United Facilities Criteria for Low Impact Development	United Facilities Criteria 3-210-10
Strengthening Federal Environmental, Energy, and Transportation Management	Executive Order 13423
Coastal Zone Management Act, 27 October 1972	16 USC §§ 1451–1465
Energy Independence and Security Act	Public Law 110–140
USC = United States Code; CFR = Code of Federal Regulations; MCO = Marine Corps Order	

The proposed action would require the following permits, certifications, and/or determinations:

- Concurrence by the United States (U.S.) Fish and Wildlife Service (USFWS) of a Determination of No Effect, under Section 7 of the Endangered Species Act (ESA);
- Approval by the State Water Resources Control Board (SWRCB) of a California Construction General Permit (2009-0009-DWQ) for construction-related discharges; and

- Concurrence by the California Coastal Commission of a Coastal Zone Management Act (CZMA) Negative Determination. The USMC submitted a Negative Determination to the California Coastal Commission on 27 March 2014. The California Coastal Commission reviewed the Negative Determination and issued a concurrence letter on 12 May 2014 stating that the proposed action would not affect the coastal zone and therefore does not require a consistency determination (Appendix B).

- Concurrence by the State Historic Preservation Officer (SHPO) under 36 CFR Part 800. MCB Camp Pendleton consulted with the California SHPO in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC-70-470x-6). The California SHPO reviewed the proposed undertaking (File No. USMC_2014_0203_001) and issued a concurrence letter on 03 April 2014 stating that the proposed undertaking would have no adverse effect on any historic properties (Appendix C).

1.6 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 Description of the Proposed Action and Alternatives

The proposed action addressed in this EA is the physical expansion of the existing MCTSSA Cantonment Area by approximately 31 acres (13 hectares) to accommodate currently programmed radar antennae (temporary and permanent), vehicle testing track, support facilities (maintenance facility, two C4I test laboratory/office buildings, and vehicle parking area), and site improvements (grading, site access, utilities, sidewalks, drainage, and ATFP features). The proposed action would also include building support facilities such as telecommunication systems, fiber optic cabling, LAN, telephone wiring, and exterior site and building lighting.

This chapter describes the reasonable alternatives for accomplishing the proposed action. The CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500–1508) establish a number of policies for federal agencies, including using "the NEPA process to identify and assess reasonable alternatives to the proposed action that will avoid or minimize adverse effects on the quality of the human environment" (40 CFR § 1500.2(e)). Therefore, this EA only addresses those alternatives that could reasonably meet the purpose of and need for the proposed action.

The USMC identified several selection criteria to develop reasonable alternatives that meet the purpose of and need for the proposed action. These criteria include:

- Economic feasibility, defined as funding constraints, needs, and timelines required to complete the project;
- Controlled location adjacent to the existing MCTSSA Cantonment Area, which is required for security and physical limitations of remoting capability of radar and antennas;
- Current site conditions (vegetation, soils, and topography) that would reduce the need for new grading, construction, and infrastructure improvements;
- Sufficient area, equating to a minimum of approximately 31 acres (13 hectares), to accommodate proposed facilities, infrastructure, and mandated ATFP standoff distances; and
- A location that avoids or minimizes potential impacts to biological communities, including threatened and endangered species, and cultural resources.

Based on a review of available sites on MCB Camp Pendleton and the need for facilities to support USMC C4I systems and equipment requirements, and MCSC and PEO-LS program requirements, the USMC determined that the MCTSSA South Expansion area represents the only reasonable location for the proposed action as defined in this EA as Alternative 1. Therefore, Alternative 1 is carried forward as the NEPA alternative for evaluation because it would meet the purpose and need for the proposed action.

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. All design modifications would occur within the project boundary. Any design modifications would be reviewed and authorized by the MCB Camp Pendleton ES. Final design plans would be provided to the appropriate regulatory agencies as required before the commencement of construction.

2.1 Alternative 1: MCTSSA South Expansion

The MCTSSA South Expansion Alternative would be located on approximately 34 acres (14 hectares), of which approximately 3 acres (1 hectare) are located within the existing MCTSSA Cantonment Area and the remaining 31 acres (13 hectares) (i.e., expansion area) are located immediately south of the existing MCTSSA Cantonment Area in a former agricultural field that was out-leased until 31 December 2010 (Figure 2.1-1). This area would require a change of land use from agricultural out-leased land to cantonment. Utility lines to support the proposed facilities would tie into existing lines within the existing MCTSSA Cantonment Area. Development would occur on approximately 5 acres (2 hectares) of the project site (Figure 2.1-1).

The project components associated with this alternative are shown on Figure 2.1-1 and include the following:

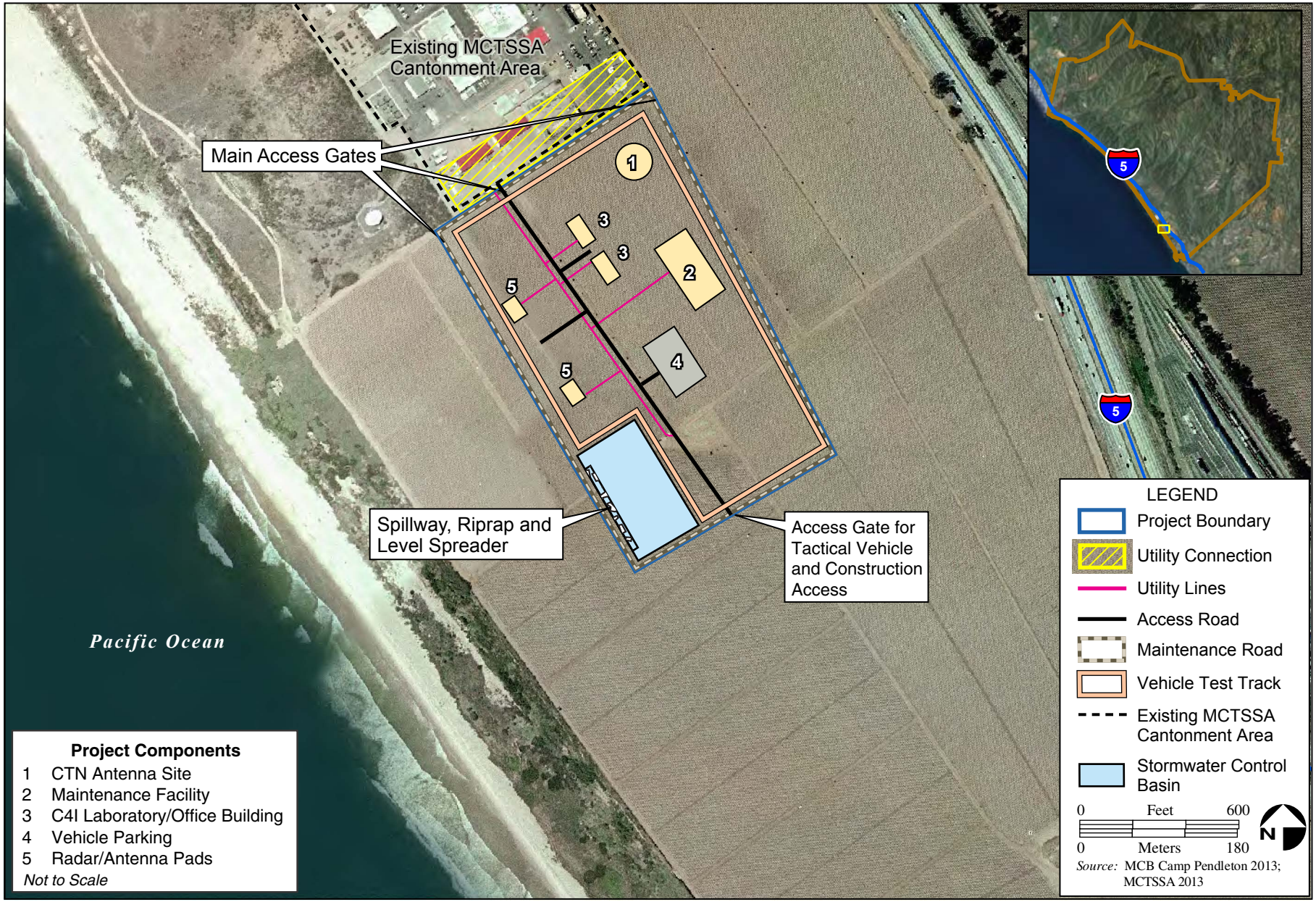
- Vehicle test track;
- Maintenance facility;
- Two C4I test laboratory/office buildings;
- Vehicle parking area;
- CTN antennae site;
- Two permanent radar pads;
- Access road;
- Utilities (electricity, natural gas, potable water, wastewater, stormwater, and communications); and
- ATFP perimeter fence.

2.1.1 Facilities and Components

2.1.1.1 Radar Antennae

The three antennae sites would provide MCTSSA with a new area to support existing and planned antennae systems. A CTN antenna site would be located on unpaved ground in the northeast corner of the project site (Figure 2.1-1). The temporary (movable) CTN radar antennae system (Figure 2.1-2) would include: a CTN, an MRC 142, a Communication Interface System (MRQ 12), a TRC-170, and a SWAN or similar system. The system would require a Humvee, rack-mounted equipment, and antenna assemblies. The temporary radar antennae would be between approximately 5 to 200 ft^2 (0.5 to 19 m^2) wide at the base and up to approximately 85 ft (26 m) high (Figure 2.1-2).

Figure 2.1-2. CTN Vehicle and Antennae



MCTSSA Cantonment Area Expansion Conceptual Site Plan

FIGURE 2.1-1

Two permanent antenna pads (approximately 1,725 ft^2 [160 m^2]) would be located in the western portion of the project site. In the short term (over the next 10 years), radar very high frequency (VHF), high-frequency (HF), and ultra-high-frequency (UHF) antennae would be placed on these pads for training/testing. Each antenna would be approximately 10 feet (ft) (3 meters [m]) high and could remain in place for up to 6 months at a time. The antennas would be taken down after the training/testing is completed. In approximately 10 years, permanent antennae systems would be installed on these pads. Both temporary and permanent antennae are addressed in the analysis of impacts in Chapter 3 of this EA.

The proposed radar antennae would be sited to avoid radio frequency interference. A Federal Aviation Administration (FAA) VHF Omni-directional Range (VOR) Tactical Aircraft Control (known as VORTAC) facility is located southeast of the project site within the former agricultural field. The facility provides three individual services for aircraft operations: VOR azimuth, Tactical Air Navigation (TACAN) azimuth, and TACAN distance. The FAA requires a 1,000 ft (305 m) separation between structures and the VORTAC facility. MCTSSA would coordinate, through the Base area planner and with the FAA, to ensure there are no frequency conflicts. Taller antennae, such as the CTN, would include aviation-warning lights. Operations of the radar antennae would occur Monday through Friday between 7:30 am and 4:30 pm.

2.1.1.2 Vehicle Test Track

The vehicle test track would provide MCTSSA with a new facility to conduct basic and dynamic testing of performance capabilities (e.g., breaking ability, slope negotiation assessments, and climbing and gap negotiation) for current and planned vehicle-mounted systems. The facility would be approximately 4,000 linear ft (1,219 linear m) and would include OTM testing for the NOTAM, an area for AHT, a break slope and durability course, and paved and unpaved surfaces as well as flat areas and slopes. Armored tracked and wheeled vehicles including personnel carriers, reconnaissance vehicles, and light tactical vehicles would be tested at the facility. The weight of these vehicles would vary but would not exceed approximately 45 tons. Up to approximately three vehicles could be accommodated at any given time. Vehicle fueling would be performed in the existing MCTSSA Cantonment Area. Vehicles utilizing the test track would access the project site through one of the four access gates (Figure 2.1-1).

2.1.1.3 Support Facilities

The support facilities would provide administrative, laboratory, and ancillary space to support the C4I systems engineering activities. The support facilities include two C4I test laboratory/office buildings totaling approximately 5,000 ft^2 (465 m^2), and a maintenance facility totaling approximately 34,500 ft^2 (3,205 m^2) to support current and programmed radio frequency antennae systems (e.g., Ground/Air Task Oriented Radar [G/ATOR], CTN, and SWAN) and vehicle-mounted antennae systems (e.g., NOTAM, M2C2, and MRQ-12 Humvee-mounted communication vehicle) (Figure 2.1-1). A 24,600 ft^2 (2,285 m^2) vehicle parking area would be constructed to provide approximately 20 parking spaces for personnel working in these support facilities. A paved sidewalk would be constructed from the parking area to the C4I test laboratory/office buildings and the maintenance facility. Construction and design would be in accordance with Americans with Disabilities Act (ADA) regulations; Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* standards; regulations stipulated in the Energy Independence and Security Act (EISA) Section 438 (2007); official DoN, USMC, and Leadership in Energy and Environmental Design (LEED®) design standards, and DoD Low Impact Development (LID) policies (2007, 2008, 2010); National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004) design standards; UFC 3-210-10; and MCB Camp Pendleton requirements. Exterior lighting would be shielded away from sensitive habitat (i.e., beach and estuarine areas) to avoid adversely affecting sensitive habitats.

Landscaping around proposed support facilities would be in accordance with the *MCB Camp Pendleton Base Exterior Architectural Plan* (BEAP) (USMC 2010a) and MCO P5090.2A, 11201.2 (*Environmental Compliance and Protection Manual*). Only plants found in the Basewide Master Plant List would be used in any proposed landscaping. In addition, water and energy-efficient practices would be used to maintain landscaping as outlined in the *Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds* (USEPA 1994).

2.1.2 Site Improvements

2.1.2.1 Demolition

No demolition activities would occur under this alternative.

2.1.2.2 Grading

Site development, including the antennae pads, C4I test laboratory/office buildings, maintenance facility, vehicle test track, utilities, access road, vehicle parking area, sidewalks, and stormwater drainage systems would require excavation and grading. Grading would be conducted in compliance with the California Construction General Permit requirements of the SWRCB.

The project site is a former agricultural field that was previously disturbed during past agricultural operations that occurred on the project site for decades and ceased in 2011. Subsequently, the project site was disked and mowed in accordance with Categorical Exclusions 20110062 (25 July 2011), 20110062A (1 September 2011), and 20110062C (7 November 2011) to allow for subsurface sampling to provide baseline data of soil conditions and for repair and maintenance (i.e., vegetation clearance).

Based on sampling within the project site, a Human Health Risk Assessment (Parsons 2011) was conducted within the project site. Surface soils within the project site are impacted by residual concentrations of pesticides (toxaphene, DDT, and dieldrin) due to the previous farming operations. Construction activities would be conducted in compliance with 40 CFR 260 (Federal Hazardous Waste Regulations), and California Code of Regulations (CCR) Title 22 (Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes). Appropriate hazardous constituent sampling and testing would be completed for all soils removed from the project to determine the offsite disposal designation in accordance with the regulations noted above. If soil and/or construction debris were determined to be hazardous waste, it would be stored and transported in accordance with 40 CFR and Title 22 regulations and other applicable local, state, and federal regulations. Hazardous waste must be removed from MCB Camp Pendleton within 60 days of initial generation. Proper hazardous waste manifest procedures would be followed for all hazardous waste generated and transported off MCB Camp Pendleton, and all hazardous waste manifests would be signed by the ES Hazardous Waste Branch before the waste leaves MCB Camp Pendleton. In the event lead or copper is removed from the project site it would be recycled in compliance with Base Qualified Recycling Program (QRP) regulations.

Elevated levels of toxaphene were detected in a portion of the project that previously housed a storage shed due to previous agricultural activities (Parsons 2011). The soil within this area has been remediated in accordance with local, state, and federal regulations. These removal actions were subject to the requirements of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR Part 300) and Resource Conservation and Recovery Act (RCRA) (40 CFR 260). CERCLA removal actions are exempted from the procedural requirements of NEPA. Therefore, any such actions are not evaluated in this EA. A Closure Report for soil excavation associated with the storage shed is pending approval from the San Diego Regional Water Quality Control Board (RWQCB).

2.1.2.3 Drainage

There is no existing stormwater infrastructure within the project site. The project facility could add 5 acres of impervious area or 15 percent of the total project footprint. Drainage improvements would be constructed to provide onsite stormwater retention of runoff flows due to the increase in impervious area with the project, as well as run-on flows from surrounding land. All drainage facilities would be designed to comply with design manuals and local standards and guidelines; the regulations stipulated in EISA Section 438, UFC 3-210-10 for LID, and NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004); official DoN, USMC, and DoD LID policies (2007, 2008, and 2010); and MCB Camp Pendleton requirements. Refer to Appendix D for more detail on requirements for construction on MCB Camp Pendleton. Based on these requirements, runoff from the 95th percentile storm (1.5 inches in 24 hours) would be retained to infiltrate on site. This would be accomplished through LID techniques and with a flood control basin on the southwest border (downgradient) of the project site (Figure 2.1-1). Reduced infiltration of existing site soils (described in Section 3.3) due to past agricultural operations could make LID implementation difficult. Therefore, the use of underdrains may be required as part of the stormwater system design. The drainage system would be constructed to accommodate run-on flows from the open fields upstream of the project site and to convey up to the 100-year flood event. Overflow from more extreme events, like the 100-year flood event, would be dispersed as sheet flow (e.g., through the use of level spreaders) along the southwest edge of the project boundary to maintain the pre-project hydrology. In addition, although locally deteriorated, a brow ditch and associated down-drains (located outside of the project site) would contribute to controlling surface flows along the bluff top located at the downgradient perimeter of the site. This adjacent land, managed by the Range Training and Management Area Division, is currently proposed for operations and training uses. The Range Training and Management Area Division has agreed to this strategy.

Special Conservation Measures 1 and 2, provided in Section 2.1.4.1, describe temporary measures used during construction to prevent erosion and damage to the project site, as well as permanent measures to manage site drainage and treat pollutant in the runoff before it discharges.

2.1.2.4 Site Access

The project site is located directly south of the existing MCTSSA Cantonment Area at MCB Camp Pendleton, across I-5 from the bulk of MCB Camp Pendleton (Figure 2.1-1). The existing Cantonment Area is accessed from north and south via Stuart Mesa Road. Access to the project site would be provided through four gates. Access through the southern gate would include the incidental use of existing dirt roads on adjacent property for tactical and construction vehicle access to the project site (Figure 2.1-1). A short, paved connector road would be constructed through the center of the project site in a north-south configuration to provide access within the expansion area (Figure 2.1-1). In addition, a paved access road along the inside of the ATFP perimeter fence would be used to conduct maintenance activities (i.e., mowing of the site for vegetation maintenance). A description of proposed site maintenance activities is provided in Section 2.1.3.

2.1.2.5 Utilities

Utility system upgrades and modifications would be required to support the two C4I test laboratory/office buildings and the maintenance facility. This alternative would include standard utilities required for industrial facilities such as electrical, natural gas, potable water, wastewater, and communication connections. Communication systems improvements would include provisions for telephones, a fire alarm system, intercom, LAN wiring, cable TV, and public address system. New utilities would be installed below ground in an approximately 1,400 ft (427 m) long utility corridor and would connect directly to

existing infrastructure and systems within the existing MCTSSA Cantonment Area (Figure 2.1-1). The final design and location of utilities, including lighting structures and overhead/underground utility alignments, would be determined during the design phase of the project. Utilities would be installed in accordance with San Diego Regional Drawings Section M15 standards for the appropriate depth and deconfliction of utilities. Potable water infrastructure would be designed and constructed in accordance with CCR, Title 22 (California Health and Safety Code). Exterior perimeter lighting would be installed for safety and security purposes. All exterior lighting would be shielded away from sensitive habitat (i.e., beach and estuarine areas).

2.1.2.6 Construction

Construction would involve scraping and grading within areas of the project site proposed for development; pouring building/permanent antenna pad foundations; erecting structures and antennae; installing ATFP perimeter fencing and other ancillary facilities (e.g., parking, sidewalks, and access road); excavating for utility lines, and developing the vehicle test track. Construction would involve the use of diesel- and gasoline-fueled vehicles and equipment. In general, the following equipment would be used during construction: forklift, dump trucks, scrapers, loaders, excavators, graders, backhoes, pickup trucks, cement mixers, bobcats, cranes, compactors, electrical generators, air compressors, and miscellaneous smaller equipment such as pumps. Construction staging and laydown areas would be accommodated within the project site or on other previously developed sites in the existing MCTSSA Cantonment Area.

Construction would occur intermittently over a period of several years. The construction workforce is expected to range from 10 and 40 personnel, depending on the construction phasing. Work hours would occur from 7:00 am to 5:00 pm on Monday through Friday. Construction activities would not occur at night.

2.1.3 Operations and Maintenance

Operations associated with this alternative would be similar to those currently conducted within the existing MCTSSA Cantonment Area and include development, testing, and maintaining software and software-associated hardware for tactical data systems and related equipment that provide and improve automated command and control system. Operations would generally occur Monday through Friday from 7:30 am to 4:30 pm. However, the C4I laboratory/office building and the maintenance facility would be available for operations 24 hours per day and year-round.

Routine maintenance of facilities and equipment would occur throughout the year. Maintenance of the facility would include:

- Open facility areas and vegetation along the ATFP perimeter fence and the access roads would be mowed by MCTSSA as needed to maintain vegetation to a level such that it would not provide habitat for sensitive bird species.
- Semiannual inspections of the stormwater facilities at the beginning and end of the wet season to identify potential problems such as erosion of the basin side slopes and invert, standing water, trash and debris, and sediment accumulation.
- Removal of accumulated trash and debris in the basin at the start and end of the wet season.
- Inspection of basin for standing water at the end of the wet season.
- Maintenance of vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.

- Removal of accumulated sediment within the basin when the accumulated sediment volume exceeds 10 percent of the basin.
- Revegetate immediately if erosion occurs within the basin and stabilize the area with an erosion control mulch or mat until vegetation cover is established.

Personnel from the existing MCTSSA Cantonment Area would conduct operations associated with this alternative. Therefore, no additional personnel would be required for the proposed operational activities. Accordingly, there would be no appreciable change in the numbers of personnel or activities associated with Alternative 1.

2.1.4 Special Conservation Measures

The following section describes the special conservation measures that would be included in Alternative 1. These measures would be included as contract requirements on all relevant project scoping, scheduling, and planning documents. Several non–project-specific measures that are standard requirements for construction contracts on MCB Camp Pendleton would also be implemented as part of Alternative 1 and are provided in Appendix D.

2.1.4.1 Water Resources

Special Conservation Measure 1. Construction, Operation and Maintenance of an Onsite Drainage System. A drainage system would be constructed at the facility to minimize impacts to water resources via soil erosion. The drainage system design would be finalized before construction and approved by MCB Camp Pendleton Public Works Department and NAVFAC SW. The drainage system would comply with EISA Section 438, DoN and USMC LID policies (2007, 2008, and 2010), NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004) design standards, and MCB Camp Pendleton requirements. Refer to Appendix D for more detail on requirements for construction on MCB Camp Pendleton. The drainage system would be designed to manage anticipated water flows and volumes to retain the runoff from the 95th percentile storm event according to the EISA Section 438 standards. For MCB Camp Pendleton, the 95th percentile storm event is 1.5 inches over a 24-hour period (MCB Camp Pendleton 2012). A detention basin sized to retain 100-year storm flows would be constructed to manage flood flows and prevent erosion/damage from small, more frequently occurring storm events discharging off site into adjacent lands southwest of the project site.

Special Conservation Measure 2. Provide Treatment for Runoff from Impervious Surfaces. The proposed parking area would be designed such that all stormwater runoff would be treated by infiltration-type Best Management Practices (BMPs) in accordance with the design measures found in the NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004). Per these regulations and policies, as well as LID, the drainage system would be designed and located to provide onsite stormwater retardation/treatment of runoff flows and trap eroded soils and, to the maximum extent technically feasible, to infiltrate, filter, store, evaporate, and/or retain runoff close to its source. LID techniques most applicable to the project include bioretention (natural type depression storage, infiltration, and evapotranspiration), permeable pavements on parking lots, and rainwater capture through cisterns or infiltration trenches near buildings. Structural engineered solutions, such as detention basins, would also be utilized.

2.1.4.2 Biological Resources

Special Conservation Measure 3. Vegetation Maintenance. Unpaved areas of the project site would be mowed as needed to maintain vegetation such that it would not provide habitat for sensitive bird species. The initiation of mowing to maintain vegetation should occur before the peak breeding season of bird species (15 February – 31 August) to discourage breeding on-site. If mowing cannot be timed to start before the breeding season and must begin after the breeding season has started, then a nesting bird survey would be required before the start of mowing. A qualified biologist, hired by the project proponent and approved by ES Consultation Section, must perform a nesting bird survey and confirm that active nests would not be affected. The results of the survey would be submitted to and approved by ES Consultation Section before the start of mowing activities.

Special Conservation Measure 4. Shielding of Exterior Lighting. All exterior lighting would be shielded away from sensitive habitat (i.e., coastal sage scrub and beach).

Special Conservation Measure 5. Follow Raptor Protection Guidelines during Utility Line Installation. The construction contractor would follow raptor protection guidelines and the *Avian Protection Plan Guidelines* (Avian Power Line Interaction Committee and USFWS 2005) during the construction of utility lines and the installation of power poles, if applicable. This would prevent bird electrocution to the maximum extent practicable.

2.1.4.3 Air Quality

Special Conservation Measure 6. Fugitive Dust Control Measures for Construction and Operations.

a. During project construction, the construction contractor would implement dust control measures during all proposed ground disturbance activities.

b. During project operations, operators would apply water to the unpaved portions of the test track, as needed to minimize the generation of dust.

Special Conservation Measure 7. Construction Equipment Emission Control Measures. The construction contractor would implement the following construction equipment control measures during all proposed construction activities, where feasible:

a. Maintain equipment according to manufacturer specifications.

b. Restrict idling of equipment and trucks to a maximum of five minutes at any location.

c. Install diesel oxidation catalysts and/or catalyzed diesel particulate traps on equipment exhaust systems.

d. Use electricity from power poles rather than temporary diesel- or gasoline-powered generators.

e. Provide temporary traffic control, such as a flag person, during all phases of construction to maintain smooth traffic flow.

f. Keep construction equipment and equipment staging areas away from sensitive receptor areas (such as day care centers).

g. Re-route construction trucks away from congested streets or sensitive receptor areas.

h. Use construction equipment with engines that meet U.S. Environmental Protection Agency (USEPA) Tier 3 and 4 nonroad emission standards.

i. Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric.

Special Conservation Measure 8. Procurement of Operational Equipment. Approval for the procurement of all operational equipment proposed for use on-site that would generate air emissions would be routed through MCB Camp Pendleton Environmental Security for approval.

2.1.4.4 Cultural Resources

Special Conservation Measure 9. Archeological and Native American Monitoring during Construction. Because subsurface archaeological material may be encountered during construction activities, a professional archaeologist and a Native American representative would monitor ground-disturbing activities during construction to ensure that cultural resources that may be discovered during construction would not be adversely affected. A Monitoring Discovery Plan would be submitted 30 days before the construction begins, for approval by MCB Camp Pendleton ES. A technical monitoring report would be prepared and submitted to MCB Camp Pendleton ES.

2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, the vehicle test track, support facilities (C4I test laboratory/office buildings and maintenance facility), and associated site improvements would not occur.

The No-Action Alternative is not considered a reasonable alternative because it does not meet the purpose of and need for the proposed action to expand the existing MCTSSA Cantonment Area by approximately 31 acres (13 hectares) to accommodate existing and planned radar and technical communications capabilities programmed at MCTSSA. Under the No-Action Alternative, the existing MCTSSA Cantonment Area would continue to be hampered by limited physical space and would not effectively and successfully support USMC C4I systems and equipment requirements, and MCSC and PEO-LS program requirements. However, the No-Action Alternative does provide a measure of the baseline conditions against which the impacts of the proposed action can be compared. In this EA, the No-Action Alternative is represented by the baseline conditions described in Chapter 3.

2.3 Alternatives Considered But Eliminated

MCB Camp Pendleton needs to expand the MCTSSA Cantonment Area because there is not enough space within the existing facilities cantonment area for additional radar, a vehicle test track, and support facilities to be built (Chapter 1). Therefore, an appropriate project site was needed for the expansion area, and as part of the USMC's decision-making process various alternatives were considered that could potentially accomplish the proposed project purpose and need using approaches that are both similar and dissimilar to current approaches. The following alternatives were considered but eliminated as infeasible and not likely to reduce environmental impacts.

2.3.1 Sites Immediately Surrounding the MCTSSA Cantonment Area or Elsewhere on MCB Camp Pendleton

After the USMC requested additional acreage for the current expansion of MCTSSA, sites immediately north, west, and east of the MCTSSA Cantonment Area were identified and analyzed to determine suitability for establishing radar pads, as well as possible movement of the compound's security fence line. A study on the Facilities Conditions was conducted and an Environmental Constraints map was provided by the Base planning office. The Conditions and Environmental Constraints map showed that expansion to the north was not possible due to many environmental and terrain obstacles. The site west of the existing MCTSSA was analyzed and excluded for MCTSSA expansion due to the presence of vernal pools and cultural resources. Finally, the site to the east of the existing MCTSSA was excluded since it has been set aside for possible siting of a desalination plant or as training land.

Therefore, based on the review of available sites on MCB Camp Pendleton, the USMC determined that the area directly to the south of the existing MCTSAA Cantonment Area represents the only reasonable location for the proposed action that would fulfill the project purpose and need.

2.4 Resource Areas Eliminated From Detailed Consideration

Several resource areas have not been carried forward for detailed analysis in this EA because potential impacts were determined to be nonexistent or negligible. Resources not addressed further in this EA include noise, public services, socioeconomics, transportation, and environmental justice, as described below.

Noise: Operations of the proposed action are not expected to generate noise above the community noise standard. In addition, construction of the proposed action would occur intermittently between the hours of 7:00 am and 5:00 pm. The amount of increase of noise at the construction site would be representative of a typical construction site and would not exceed 85 decibels (dB). Therefore, no noise impacts would occur.

Public Services: There would be no additional military, government/civilian, and contractor support personnel stationed at MCB Camp Pendleton as a result of the proposed action. Consequently, the proposed action would not result in a substantial increase in public services. Therefore, no impacts on public services would occur.

Socioeconomics: There would be no additional military, government/civilian, and/or contractor support personnel stationed at MCB Camp Pendleton with implementation of the proposed action. Therefore, impacts on socioeconomics would not occur.

Transportation: The proposed action is expected to produce no increase in traffic at MCB Camp Pendleton during proposed operations. However, a temporary increase in traffic during construction is expected. This increase is expected to be no more than 80 trips per day. This represents less than 0.8 percent of the traffic at MCB Camp Pendleton (USMC 2012) and would be within the normal flux of vehicles on the Base. Therefore, no impacts on transportation would occur.

Environmental Justice: The proposed action would not result in disproportionate impacts to minority and low-income populations and would not result in environmental health or safety risks to children. Therefore, impacts on environmental justice would not occur.

2.5 Summary of Impacts

Resource areas analyzed in this EA include the following:

- Land Use and Coastal Zone Management
- Aesthetics
- Topography, Geology, and Soils
- Water Resources
- Biological Resources
- Air Quality
- Cultural Resources
- Utilities
- Public Health and Safety

The environmental consequences associated with implementation of Alternative 1 and the No-Action Alternative are presented and compared in Table 2.5-1. A detailed description of the affected environment and analysis of the environmental consequences is presented in Chapter 3.

Table 2.5-1. Summary of Impacts

Resource Area	*MCTSSA Expansion Alternative*	*No-Action Alternative*
Land Use and Coastal Zone Management	No significant impact (NSI)	NSI
Aesthetics	NSI	NSI
Geology, Topography, and Soils	NSI	NSI
Water Resources	NSI	NSI
Biological Resources	NSI	NSI
Air Quality	NSI	NSI
Cultural Resources	NSI	NSI
Utilities	NSI	NSI
Public Health and Safety	NSI	NSI

2.6 Preferred Alternative

Alternative 1, the MCTSSA Cantonment Area South Expansion and Facilities is the preferred alternative because it fulfills the purpose of and need for the proposed action and there would be no significant impacts.

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 and the No-Action Alternative. The resources evaluated in detail in this chapter include Land Use and Coastal Zone Management (Section 3.1), Aesthetics (Section 3.2), Topography, Geology, and Soils (Section 3.3), Water Resources (Section 3.4), Biological Resources (Section 3.5), Air Quality (Section 3.6), Cultural Resources (Section 3.7), Utilities (Section 3.8), and Public Health and Safety (Section 3.9).

3.1 Land Use and Coastal Zone Management

3.1.1 Affected Environment

3.1.1.1 Existing Land Uses

The project site would be located on approximately 34 acres (14 hectares) south of the MCTSSA Cantonment Area. Approximately 31 acres (13 hectares) of the project site (i.e., expansion area) would be located on previously disturbed, former agricultural lands within the Stuart Mesa West agricultural fields. Although the site was farmed for decades, the most recent agricultural lease expired on 31 December 2010. Subsequently, the project site was disked and mowed in accordance with Categorical Exclusions 20110062 (25 July 2011), 20110062A (1 September 2011), and 20110062C (11 November 2011) to allow for sampling, repair, and maintenance.

There are approximately 13,500 acres of land within MCB Camp Pendleton that are designated as Prime Farmland by the U.S. Department of Agriculture (USMC 2010b). Prime Farmland on MCB Camp Pendleton is located near the coastline, adjacent to the Base's northern and southern shorelines. Prime Farmland is defined as farmland with the best combination of physical and chemical characteristics that are able to sustain long-term agricultural production and produce sustained high yields with minimal soil loss. Federal protection of Prime Farmland is stipulated in the Environmental Protection Manual, MCO P11000.8B. While the project site is currently not used as farmland, it is designated as Prime Farmland by the Farmland Mapping and Monitoring Program.

The remaining portion (approximately 3 acres [1 hectare]) of the project site would be located within the existing MCTSSA Cantonment Area.

3.1.1.2 Surrounding Land Uses

MCB Camp Pendleton is located on the coast in northern San Diego County (Figure 1.1-1). Situated within an unincorporated part of San Diego County, MCB Camp Pendleton is located north of the City of Oceanside and south of the City of San Clemente. Surrounding land uses to the west (Pacific Ocean) and east (Cleveland National Forest) include recreation (e.g., fishing, surfing, swimming, hiking, and camping). Lands to the north (City of San Clemente) and south (City of Oceanside) include residential and commercial uses. Surrounding lands to the east include residential and agricultural uses within the community of Fallbrook.

The predominant types of land uses at MCB Camp Pendleton include military training and training support facilities (controlled impact areas, dedicated impact areas, and training and maneuvering areas), and Base infrastructure and mission support facilities (developed areas, housing areas, and airfield). MCB Camp Pendleton has several developed areas that are isolated from each other by relatively large expanses of mostly undeveloped land used for training and maneuvers.

The existing undeveloped conditions support the training mission. Maneuvers are generally restricted to the undeveloped areas. The central portion of MCB Camp Pendleton is comprised of relatively undeveloped land for impact areas and training ranges, where explosives detonations and other effects of training are farthest from the civilian community and other sensitive receptors. Land use intensity increases outward from the undeveloped center to the more developed support areas of the perimeter, including administration, supply, housing, and other functions. The project site is located south of the existing MCTSSA Cantonment Area within the 31B Area, which is situated in the southwestern portion of the Base (Figure 1.1-1). The MCTSSA Cantonment Area is a developed area that supports research and development activities for USMC C4I systems. The majority of the 34-acre (14-hectare) project site (approximately 31 acres [13 hectares]) consists of previously disturbed, undeveloped former agricultural land.

3.1.1.3 Land Use Management Plans

Legal requirements and plans pertinent to land use and development within the project site are described below.

Coastal Zone Management Act

The CZMA of 1972 (16 USC Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. The CZMA established a voluntary coastal planning program and participating states submit a Coastal Management Plan to the National Oceanic and Atmospheric Administration for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or which are held in trust by the federal government (16 USC 1453). Additionally, the alternatives are located in a designated security zone that is under the exclusive jurisdiction of the DoN and is not open to the public. Accordingly, although MCB Camp Pendleton is federal government property and therefore excluded from the coastal zone, the DoN nonetheless conducted an effects analysis as part of its determination of the action's effects for purposes of federal consistency review under the CZMA. This was done to factually determine whether the action (even if conducted entirely on federal property) would affect any coastal use or resource.

MCB Camp Pendleton 2030 Base Master Plan

The *MCB Camp Pendleton 2030 Base Master Plan* (USMC 2010b) provides a basis for evaluating land use impacts. This document contains overall land management guidelines based on a consideration of the location of MCB Camp Pendleton, its infrastructure, operations, and natural resources. The plan describes development constraints as well as areas of development opportunity, such as areas that are economically and functionally capable of supporting development by virtue of location, space, topography, and access to utilities. Conformity with these guidelines is a key factor as to whether a specific land use is suitable for a given site or area.

The MCB Camp Pendleton Master Plan states that:

> *The development and design of facilities should incorporate mission requirements while taking into account various natural and man-made constraints which pertain to the planning area. In general, natural and man-made constraints to be incorporated into the design of future development in MCTSSA are as follows:*
>
> - *Avoid development in the coastal bluff area to the west where soil is susceptible to erosion and sensitive habitats exist;*
> - *Avoid development in Cockleburr Canyon to the north where a large portion of the lower canyon is wetlands, and endangered species have been observed;*
> - *Avoid buildings taller than one-story within a 1,640-ft (500-m) radius of the radar pads, unless special building materials and techniques are used to protect building occupants and equipment from the electromagnetic interference; and*
> - *Agricultural out-leased parcels to the south and east are potential expansion areas in the future.*

3.1.2 Environmental Consequences and Mitigation Measures

3.1.2.1 Alternative 1: MCTSSA South Expansion

Land Use Compatibility

The proposed expansion of the MCTSSA Cantonment Area would accommodate radar and technical communications facilities and infrastructure needed to support USMC C4I systems. Construction and operation of radar antennae, the vehicle test track, support facilities, and associated site improvements is needed to effectively support C4I system requirements and MCSC and PEO-LS program requirements. Implementation of Alternative 1 would represent a change in the type of intensity of uses at the project site; however, it would be consistent with the existing land use designations in the project vicinity, and would be compatible with surrounding land uses. As described in Section 3.9, training and operation on adjacent land to the southwest of the project site would be required to maintain an ordnance safe separation distance of 354 ft (108 m) around the proposed radar antennae. Therefore, significant impacts on land use compatibility would not occur and no mitigation is required.

Direct conversion of farmland occurs when an urban or other developed land use would replace agricultural uses or farmland. Projects are subject to Farmland Protection Policy Act requirements if they would irreversibly convert farmland (directly or indirectly) to non-agricultural uses and are completed by a federal agency or with assistance from a federal agency. Alternative 1 would construct temporary and permanent C4I system support facilities on approximately 5 acres (2 hectares) of previously disturbed, former agricultural land within the development footprint. Approximately 26 acres (11 hectares) of Prime Farmland within the proposed expansion area would be retained to support maintenance activities and mandated ATFP standoff distances. Although project site soils are considered Prime Farmland, the site does not currently support agricultural operations and the agricultural viability of on-site soils is dependent on irrigation. While conversion of former agricultural lands (Prime Farmland) would occur as a result of the this alternative, lands on MCB Camp Pendleton are not subject to the Farmland Protection Policy Act because acquisition or use of farmland by a federal agency for national defense purposes is exempt (Farmland Protection Policy Act Section 1547(b); 7 CFR Section 658.3(b) [citing USC Section 4208(b)]). Furthermore, this area is recommended as a potential expansion area for the existing MCTSSA Cantonment Area in the *MCB Camp Pendleton 2030 Base Master Plan*, and the USMC has

expressed interest in exploring options to end the agricultural leasing policy to fully maximize training areas and facilities at MCB Camp Pendleton (USMC 2010b). Therefore, conversion of this area to support radar antennae, a vehicle testing track, and C4I system support facilities would not significantly impact Prime Farmland and no mitigation is required.

Land Use Management Plans

The potential effects of this alternative were analyzed by evaluating reasonable foreseeable direct and indirect effects on coastal uses and resources. This alternative would be consistent with the existing land uses in the MCTSSA Cantonment Area and development at the project site would not represent a substantial change from the surrounding military character. In addition, proposed facilities and support infrastructure would be visually comparable with existing industrial activity in the project vicinity. Also, implementation of the alternative would not block public access to any coastal resources. Therefore, Alternative 1 would have no effect on coastal zone uses or resources, thus being consistent to the maximum extent practicable with the enforceable policies of California's *Coastal Management Plan*. Accordingly, a Coastal Consistency Negative Determination was submitted to the California Coastal Commission on 27 March 2014. The California Coastal Commission reviewed the Negative Determination and issued a concurrence letter on 12 May 2014 stating that the proposed action would not affect the coastal zone and therefore does not require a consistency determination (Appendix B). No mitigation is required.

Alternative 1 would be sited, designed, and constructed consistent with the guidelines presented in the *MCB Camp Pendleton 2030 Base Master Plan* for future development of the MCTSSA Cantonment Area (31B Area). Furthermore, no impacts to surrounding communities would occur since the proposed development would be contained within existing military designations at MCB Camp Pendleton. Therefore, significant impacts on long-use management plans would not occur and no mitigation is required.

3.1.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, the vehicle test track, support facilities, and associated site improvements would not occur. Therefore, no impacts on land use would occur and no mitigation is required.

3.2 Aesthetics

Visual Resources

Visual resources are generally defined as the natural and built features of the landscape visible from public views that contribute to an area's visual quality. This section describes the existing visual environment and changes resulting from the proposed action to characterize the aesthetic condition of the project site, including onsite structures and facilities, and assess how the condition would be potentially affected by implementation of the proposed action.

The evaluation of visual resources in the context of environmental analysis typically addresses the contrast between visible landscape elements. Collectively these elements comprise the aesthetic environment, or landscape character. The landscape character is compared to the action's visual qualities to determine the compatibility or contrast resulting from the buildout of the proposed action.

Views are defined as visual access to, or visibility of, a natural or built landscape feature from an observer viewpoint. Views may be focal (restricted in scope to a particular object), or panoramic (encompassing a large geographic area with a wide or deep [i.e., distant] field of view). Focal views can be from a number of observer viewpoints compared to the object being viewed, such as from a lower elevation, at the same level, or from an elevated vantage. Panoramic views are usually associated with an elevated observer viewpoint. Scenic views or vistas are panoramic public views that include natural features, including views of the ocean, unusual topographic features, or unique urban or historic structures.

Views are characterized by their distance from the viewer, including foreground, middleground, or background. Foreground views are those immediately perceived by the viewer and include objects at close range that tend to dominate the view. Middleground views occupy the center of the view and generally include objects that are the center of a viewer's attention if they are sufficiently large or visually contrasting with adjacent visual features. Background views include distant objects and other objects that form the horizon. Objects perceived in the background view eventually diminish in their importance with increasing distance. In the context of the background, the skyline can be an important visual context because objects above this point are highlighted against the typically blue background during daylight hours.

A viewshed, or visible area, is the total range of views experienced from an observer's viewpoint. A viewshed is defined by landscape features that define or obstruct sightlines, or the line of sight between an observer and a viewed object. Views may be partially or entirely obstructed by topography, buildings and structures, and/or vegetation. The closer an intervening obstruction is to the observer, the more it will potentially obstruct the viewshed. Accordingly, a small physical obstruction in the foreground of a view will potentially have a more substantial effect on the viewshed compared to a relatively large obstruction perceived in the middle or background.

Glare

Glare, defined as an indirectly caused phenomenon of lighting or reflection off building materials, can cause a negative impact during the day or night. Daytime glare is caused by the reflection of sunlight from highly reflective surfaces. Reflective surfaces are generally associated with buildings constructed with broad expanses of highly polished or smooth surfaces (e.g., glass or metal) or broad, light-colored paving surfaces such as concrete. Nighttime glare can include direct, intense, focused light, as well as reflected light. Glare can be caused by mobile, transitory sources such as automobiles, or from intense stationary sources such as security lighting.

3.2.1 Affected Environment

3.2.1.1 Visual Quality

MCB Camp Pendleton is located on a coastal plateau and is situated between the Pacific Ocean to the west and the lower foothills of the Peninsular Range Mountains to the east. The Base is characterized by several unnamed ridges and valleys with expansive native and non-native grassland habitats. MCB Camp Pendleton includes numerous military and industrial facilities, including military training and support facilities (controlled impact areas, dedicated impact areas, training and maneuvering areas), infrastructure, and ancillary facilities. The appearance of Base facilities is functional in nature, characterized by exposed infrastructure, open storage, and training and maneuver areas.

The project site is located within and adjacent to the Stuart Mesa West former agricultural fields in the southwestern portion of MCB Camp Pendleton. The project site is bordered by the existing MCTSSA Cantonment Area to the north, the Stuart Mesa West former agricultural fields to the east and south, and the Pacific Ocean to the west. The majority of the project site consists of previously disturbed, undeveloped former agricultural land. Approximately 3 acres (1 hectare) of the project site is located within the existing MCTSSA Cantonment Area. The project site is located on Stuart Mesa, at an elevation of approximately 50 ft (16 m) above mean sea level, along the coastal bluffs. Site topography is relatively flat (less than one percent slope) and slopes gently to the west and south.

3.2.1.2 Project Visibility in Sensitive Viewing Areas

The project site is visible from surrounding public viewpoints in the project vicinity, including I-5. From I-5, foreground and middleground vistas of previously disturbed, undeveloped former agricultural lands are prominent. Distant vistas of the coastal bluffs and Pacific Ocean are visible from this vantage point. Intervening development obstructs views of the project site from Stuart Mesa Road.

In summary, public views that include the project site are comprised primarily of views in which the previously disturbed, undeveloped former agricultural land is visible in the foreground and middleground. Distant views of the coastal bluffs and Pacific Ocean are also visible from public vantage points. The combination of these features enhances the visual quality of the project site. However, as the project site is a component of the industrial Base complex, the importance of onsite visual resources is low.

3.2.1.3 Glare

The absence of development throughout the project site (expansion area) results in a relatively low degree of daytime and nighttime lighting and glare. Existing development in the MCTSSA Cantonment Area north of the project site is illuminated, resulting in moderate nighttime glare.

3.2.2 Environmental Consequences and Mitigation Measures

3.2.2.1 Alternative 1: MCTSSA South Expansion

Proposed construction activities would require the use of excavators, loaders, conveyers, and support equipment intermittently over a period of several years. Construction of the proposed C4I system support facilities and infrastructure would occur within public viewsheds for individuals traveling on I-5. The maintenance facility and CTN antenna site would be located approximately 1,200 ft (366 m) west of I-5 (Figure 2.1-1). The presence of construction equipment would be visually compatible with existing military activity in the project vicinity. Construction equipment associated with the radar and technical communications facilities and infrastructure would be short-term and occur within and adjacent to a

developed area that is accessible only to military personnel. After construction is complete, the project site would be visually consistent (i.e., buildings and antennae would be of similar height and visual character) with the current military activities that occur at the MCTSSA Cantonment Area. Other ancillary facilities, including the vehicle parking area, C4I laboratory/office building, and radar/antenna pads west of I-5 would not be discernible due to the distance of this viewpoint from the proposed facilities. Furthermore, views of the project site from vehicles traveling along I-5 at 65 miles per hour (the posted speed limit) are relatively ephemeral (lasting no more than 10 seconds). The proposed access road, ATFP perimeter fence around the project site, and vehicle test track would not obstruct foreground and middleground views of disturbed, undeveloped former agricultural land or distant views of the coastal bluffs and Pacific Ocean. Accordingly, no significant impacts on aesthetics would occur and no mitigation is required.

Development of the site with temporary and permanent C4I system support facilities would represent a substantial change from its undeveloped natural character. However, only about 5 acres (2 hectares) would be developed, while approximately 26 acres (11 hectares) of contiguous areas of the project site would remain undeveloped and vegetation in this area would be maintained with regular mowing. In addition, the proposed facilities and support infrastructure would be visually compatible with existing military activity in the MCTSSA Cantonment Area. Therefore, no significant impacts on aesthetics would occur and no mitigation is required.

The proposed C4I test laboratory/office buildings and maintenance facility would be constructed in accordance with LEED® design standards that provide for passive solar energy, such as using photovoltaic cells. Since these devices are intended to collect solar energy rather than reflect it, their surfaces would not create additional daytime onsite glare. These facilities would be constructed with concrete and masonry materials, which would not generate additional daytime glare. Consequently, no increase in daytime glare would be perceived from public view corridors. The proposed facilities would include energy-efficient lighting, which would result in sources of nighttime glare and would be viewable by motorists traveling along I-5. However, since nighttime lighting would be minimal, significant impacts resulting from glare would not occur and no mitigation is required.

3.2.2.2 No-Action Alternative

Under the No-Action Alternative, grading and construction activities associated with expanding the MCTSSA Cantonment Area (i.e., construction and operation of radar antennae, the vehicle test track, support facilities, and associated site improvements) would not occur. Existing conditions would remain as described in Section 3.2.2 and the aesthetic environment would remain unchanged. Therefore, no impacts on aesthetics would occur under the No-Action Alternative and no mitigation is required.

3.3 Topography, Geology, and Soils

3.3.1 Affected Environment

3.3.1.1 Topography

The project site is located on Stuart Mesa, at an elevation of approximately 50 ft (16 m) above mean sea level, along the coastal bluffs of MCB Camp Pendleton (Figure 2.1-1). The topography of the project site is relatively flat (less than 1 percent slope) and slopes gently to the west and southwest, towards a coastal bluff, located along the southwest perimeter of the project site.

3.3.1.2 General Geology

The project site is underlain by poorly consolidated, late to middle Pleistocene, lacustrine, playa, and estuarine deposits (USMC 2010a, Kennedy and Tan 2005). Surficial soils at the project site consist of Marina loamy coarse sands, which are found on 2 to 9 percent slopes. These soils are somewhat excessively drained to moderately well-drained, loamy coarse sands and fine sandy loams, with a sandy clay subsoil and underlying hardpan. The erosion hazard of these soils is slight to moderate. The upper Group A soils, to a depth of 10 inches, are weak, soft, and friable, whereas the underlying Group B soils are slightly hard to a depth of 25 inches and hard from 25 to 57 inches. The Group C soils, from a depth of 57 to 60 inches, are soft and friable. The capacity to transmit water is 0.57 to 1.98 inches per hour (U.S. Department of Agriculture Soil Conservation Service 1973). Well-drained soils are generally coarse-grained and permeable to water infiltration; however the impermeable clay subsoil and underlying hardpan can result in storm runoff ponding where drainage is poor. The project site is located on a former agricultural field that was in operation for over 70 years and has remained fallow since 2011. Former agricultural fields typically have undergone significant wind/water erosion over decades of soil exposure, which results in loss of topsoil and change to soil characteristics, and decades of tilling to a constant depth typically results in a hardened soil at approximately 3 ft depth (tilling equipment depth), which restricts infiltration of water. Soil conditions can restrain development at MCB Camp Pendleton based on slope steepness, erodibility, shrink-swell potential, and depth to bedrock. On a scale ranging from poor to good, the soil suitability at the project site has been rated as medium (USMC 2010a).

3.3.1.3 Faulting and Seismicity

The California Geological Survey (CGS) classifies faults as either active or potentially active, according to the Alquist-Priolo Special Studies Zone Act of 1972. A fault that has exhibited surface displacement within the Holocene Epoch (the last 11,000 years) is defined as active by the CGS. 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. The CGS has established Alquist-Priolo Special Study Zones around faults identified by the State Geologist as being active. The Alquist-Priolo Special Studies Zone Act limits development along the surface trace of active faults to reduce the potential for structural damage and/or injury due to fault rupture. The CGS also suggests that active faults, located within a 60-mile (96-kilometer) radius of a project site, be evaluated with respect to regional seismicity (California Division of Mines and Geology [CDMG] 1999 and 1994).

No active faults, potentially active faults, or Alquist-Priolo Special Study Zones occur at MCB Camp Pendleton (CDMG 1999 and 1994). However, numerous active faults that could cause ground motion or produce secondary effects are located within 60 miles (96 kilometers) of the Base (Table 3.3-1). Major regional faults in the vicinity of MCB Camp Pendleton include the Whittier-Elsinore, San Jacinto, and San Andreas faults. The latter spans much of the length of California, from San Francisco to the Mexican border, including Riverside County. The Whittier-Elsinore Fault traverses Orange, Riverside, and San

Diego counties, whereas the San Jacinto Fault traverses San Bernardino, Riverside, San Diego, and Imperial counties. Other regional active faults include the Rose Canyon Fault, which is the closest to MCB Camp Pendleton and extends offshore near La Jolla; the Newport-Inglewood Fault, which extends offshore from Orange County and may connect with the Rose Canyon Fault; and the San Clemente and Palos Verdes-Coronado Bank faults, which are located offshore Orange and San Diego counties.

Table 3.3-1. Major Active Faults within 60 Miles (96 Kilometers) of the Project Site

Major Active Faults	*Distance of Fault from Project Site (Miles/Kilometers)*	*Maximum Creditable Earthquake (Richter Scale Magnitude)*
Rose Canyon	8/13	7.0
Whittier-Elsinore	24/38	7.5
Palos Verdes/ Coronado Bank	22/35	7.0
Newport-Inglewood	40/64	7.0
San Jacinto	46/74	7.5
San Andreas	60/96	7.5
Sources: CDMG 1994; Greensfelder 1974		

3.3.1.4 Geologic Hazards

The primary geologic hazard with the potential to occur at the project site is soil erosion (Section 3.4). As discussed in Section 3.3.1.3, no active or potentially active faults traverse the Base; however, strong seismically induced ground motion is possible at the project site. There are no known areas of high liquefaction potential on MCB Camp Pendleton. Liquefaction is the process whereby loose, unconsolidated, saturated sediments lose their stiffness and strength as a result of strong seismically induced ground motion, potentially resulting in damage to overlying structures. Although the project site is located near the ocean, tsunamis are not considered a threat to the project site. The estimated maximum wave height for a tsunami impacting MCB Camp Pendleton is 6 ft (1.8 m) (USMC 2010b). Combining such a wave with a maximum high tide and storm surge would create a wave run-up of 13 ft (4 m) above the mean lower low water level, while the project site is located at an elevation of approximately 50 ft (16 m).

3.3.2 Environmental Consequences and Mitigation Measures

3.3.2.1 Alternative 1: MCTSSA South Expansion

Topography and Slope Stability

Site development, including the antennae pads, C4I test laboratory/office buildings, maintenance facility, vehicle test track, utilities, access road, vehicle parking area, sidewalks, and stormwater drainage systems would require excavation/grading. With the exception of the vehicle test track, which would include creation of localized, possibly steep-sloped terrain, only minor grading would be required to complete Alternative 1 due to the generally flat to gentle slope. In addition, only select areas would be graded for each project component; the entire site would not be graded. All grading/construction would be completed in accordance with Chapter 70 of the Uniform Building Code requirements. Therefore, Alternative 1 would not result in significant impacts to topographic and slope stability and no mitigation is required.

Seismicity

MCB Camp Pendleton is not underlain by any active or potentially active faults. Active faults located within 60 miles (97 kilometers) of MCB Camp Pendleton could result in strong seismically induced ground motion and associated ground shaking. However, new facilities would be designed and constructed to comply with the seismic design criteria identified in the Uniform Building Code, the Naval Facilities Engineering Command (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, a site-specific geotechnical investigation that includes recommendations for design and construction would be prepared for Alternative 1 as required by NAVFAC *P-355 Seismic Design Manual*. Therefore, Alternative 1 would not result in significant impacts associated with seismically induced ground motion and ground shaking and no mitigation is required.

3.3.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, vehicle test track, support facilities, and associated site improvements would not occur. Therefore, no impacts on topography, geology, and soils would occur and no mitigation is required.

3.4 Water Resources

3.4.1 Affected Environment

3.4.1.1 Surface Water

The project site is located on Stuart Mesa, within a small watershed along the coastal bluffs of MCB Camp Pendleton in between Cocklebur Creek to the north and the Santa Margarita River to the south (Figure 3.4-1). The Santa Margarita River is on the 303(d) list of impaired water bodies for bacteria and nutrients. Runoff from the project site, however, does not reach the Santa Margarita River. The project site was previously used for agriculture and is currently undeveloped. As discussed in Section 2.1.2.2 and Section 3.9, elevated levels of toxaphene were detected in a portion of the project site that previously housed a storage shed due to previous agricultural activities (Parsons 2011). The soil within this area has been remediated in accordance with local, state, and federal regulations. In addition, surface soils within the project site contain residual pesticide concentrations as a result of pesticide use during past agricultural activities. There are no water quality sampling data available for the surface water runoff from the project site. With the site being undeveloped, the runoff would be expected to contain low amounts of bacteria, nutrients, and other contaminants. There may be low levels of pesticide residue in the surface water runoff. Based on the soil sampling completed on site, the concentrations would be below the levels of concern for human receptors (see Section 3.9).

Rainfall along the Base's coast averages between 10 and 14 inches per year. Approximately 75 percent of the Base's precipitation falls between November and March (USMC 2007). There is no evidence of surface water runoff concentrating into channelized flow within the project site. As described in Section 3.3, the project site is relatively flat to gently sloping (0.5 percent slope to the west and southwest), which also reduces surface water velocities and associated erosion. Based on the moderately high to high capacity of the soils to transmit water and the 0.5 percent slope, precipitation on the project site generally infiltrates into the soil for small storms. Infiltration within the project site is limited by the underlying hardpan, which prevents water from draining properly. Once infiltrated water encounters the hardpan it flows laterally downgradient. Surface runoff may only occur during large precipitation events where the rainfall intensity exceeds the capacity of the soil to infiltrate the rainfall. Depending on the size of the storm, areas of ponding may take several days to drain/evaporate. Based on site conditions, runoff during these large events would disperse as sheet flow to the southwest and be collected outside of the project boundary along a drainage swale that runs parallel to the bluff top. Runoff is prevented from flowing down the bluff by a protective berm and is directed to corrugated pipe down-drains that transport surface runoff to the base of the slope to the dunes on the beach. Portions of these drainage features have deteriorated and structurally failed, resulting in formation of scour holes, which prevent the proper conveyance of runoff into discharge pipes at the bluffs. Personnel stationed nearby have observed water flowing into down-drain 4 at the northwest corner of the previously cultivated area during intense rainfall events (Murray personal communication 2014).

3.4.1.2 Groundwater

MCB Camp Pendleton's water supply is produced from aquifers that are recharged by percolation from overlying rivers and streams. The groundwater, which is in hydrologic contact with the Pacific Ocean, occurs in alluvium in the stream valleys, overlying fairly impervious rock units. The entire MCB Camp Pendleton water supply is now extracted from the Santa Margarita, Las Flores, San Onofre, and San Mateo watersheds (DoN 1992, USMC 2007). Although perched, non-potable groundwater may locally be present within unconsolidated to semi-consolidated terrace deposits underlying the site, these terrace deposits are underlain by fairly impervious bedrock with limited groundwater.

MCB Camp Pendleton Watersheds

FIGURE 3.4-1

MCB Camp Pendleton derives potable water from existing groundwater resources within its boundaries through a system of wells, water mains, booster pumps, and storage reservoirs located in the Santa Margarita, Las Flores, San Onofre, and San Mateo basins. Underground aquifers supply nearly all of the Base's domestic, agricultural, and industrial water needs. The wells located in the alluvial valleys in the lower portions of the Santa Margarita River Hydrologic Unit contain the principal source of water for the Base, including the existing MCTSSA Cantonment Area and the project site. None of these drinking water wells are located on MCTSSA.

Beneficial uses of groundwater within MCB Camp Pendleton, as specified in the *Water Quality Control Plan for the San Diego Basin* (i.e., Basin Plan) (Regional Water Quality Control Board [RWQCB] San Diego Region 2011), include municipal and domestic supply, agricultural supply, and industrial service supply. The treatment and quality of extracted groundwater used for potable water supply at MCB Camp Pendleton meets the regulatory health-based standards and the Maximum Contaminant Levels (MCLs) for drinking water, as prescribed by the Office of Drinking Water, California Department of Health Services (DHS). While drinking water standards for groundwater are met for most constituents in the three drainages, recurring problems have been noted for total dissolved solids (TDS), conductivity, nitrate, iron, sodium, and bacteria (*E. coli*). Additionally, there is concern about potential seawater intrusion into the Base wells if water extraction exceeds the safe yield of individual basins. To date, frequent monitoring and extraction control of key wells appears to have helped to prevent seawater intrusion in the drinking water supply.

3.4.1.3 Floodplains/Flooding

Floodplains are defined as lowland and relatively flat areas adjoining inland and coastal waters that are subject to a 1 percent or greater chance of flooding in any given year. In general, there are four major flood-prone drainages on MCB Camp Pendleton, including areas along the Santa Margarita River, San Mateo Creek, San Onofre Creek, and Las Flores Creek. The project site is not located within the 100-year floodplain associated with these drainages and is not located in a flood-prone area (USMC 2010b).

3.4.2 Environmental Consequences and Mitigation Measures

3.4.2.1 Alternative 1: MCTSSA South Expansion Alternative

Grading and construction activities associated with this alternative would result in temporary soil disturbance, thus increasing the potential for short-term erosion and sediment runoff within the immediate drainage area. Alternative 1 would also potentially discharge pollutants that could affect the quality of nearby freshwaters, marine waters, and/or shallow groundwater. There would be no change in the numbers of personnel or activities associated with Alternative 1 compared to existing conditions. As a result, minimal water supply impacts would occur. Flooding associated with a creek or river would not occur at the project site. However, this alternative would create structures that would affect patterns of surface runoff and potentially increase the rate and volume of downgradient surface flows.

Construction Impacts

The coastal bluffs along the southwest perimeter of the project site are susceptible to erosion; however, grading and new construction would occur a minimum of 600 ft (183 m) from the bluff. Onsite grading and construction would include removal of vegetation, soil compaction by heavy equipment, and offsite transport of soils on vehicle tires. Alternative 1 would incorporate BMPs into the project design to mitigate the adverse effects of construction-related erosion on water quality. Before construction, the Regional Officer in Charge of Construction (ROICC) would obtain authorization from the SWRCB for construction under the NPDES General Permit for Storm Water Discharges Associated with Construction

Activity (Order No. 2009-0009-DWQ/NPDES No. CAS000002). The contractor would be required to implement all appropriate BMPs for erosion and sedimentation control, as identified in Order No. 2009-0009-DWQ and as specified in a site-specific Storm Water Pollution Prevention Plan (SWPPP) (refer to Appendix D for more detail on SWPPP requirements for construction on MCB Camp Pendleton). Before site grading would be initiated, control devices such as silt fences, jute netting, geotextiles, and other materials would be placed within and around the proposed construction sites to reduce surface water flow velocities, retard soil erosion and offsite transport, and protect sensitive habitats. A rock-lined construction entrance would be placed at all project site access points to help remove soil from vehicle tires. With implementation of BMPs, compliance with established plans and policies, and incorporation of standard erosion control measures, Alternative 1 would not result in significant erosional impacts during project construction and no additional mitigation is required.

Surface water and/or shallow groundwater quality impacts could potentially occur as a result of inadvertent dispersion of contaminants during construction and subsequent operations. Construction would require the use of vehicles and equipment powered by diesel fuel/gasoline and lubricated with oil and other mechanical fluids, which may be considered hazardous substances. Other types of construction waste that could affect downstream water quality or shallow groundwater quality include sediment, concrete washout, paint, roofing tar, and stucco residue. Accidental releases of such substances (e.g., spills arising from leakage of fuel, motor oil, or hydraulic fluid during operations and/or equipment maintenance) could also occur. As previously described, the ROICC would obtain authorization for construction under the General Permit for Discharges of Storm Water Discharges Associated with Construction Activity from the SWRCB. The contractor would be required to implement all appropriate BMPs for stormwater discharges in accordance with the General Construction Storm Water Permit and site-specific SWPPP. The contractor would also develop and disseminate a Spill Prevention, Control and Countermeasures (SPCC) plan, as described in Appendix D, *Standard Construction Measures*. Examples of BMPs include establishment of designated areas for equipment fueling and maintenance; use of licensed, trained personnel for operation of vehicles and equipment; and completion of a regular, comprehensive equipment maintenance program. As specified in Order No. 2009-0009-DWQ, stormwater discharges associated with construction activity must meet all applicable provisions of Sections 301 and 402 of the Clean Water Act (CWA), including pollutant discharge controls that utilize the best available technology (BAT) and best conventional pollutant control technology (BCT) economically achievable for toxic pollutants. Any releases of contaminated liquids to surface water during construction activities would be immediately reported to the ES Water Quality Section Head.

Surface soils within the project site contain residual pesticide concentrations as a result of past agricultural activities that could migrate off site due to erosion sediment runoff during construction. As discussed above, the construction contractor would be required to implement all appropriate BMPs for stormwater discharges in accordance with the General Construction Storm Water Permit and site-specific SWPPP. Implementation of BMPs such as silt fences, jute netting, geotextiles, and other materials would minimize soil transport off site. Therefore, impacts to offsite water quality from the erosion of soil and transport of residual pesticides would be unlikely.

Also, as described in Appendix D, the contractor would implement material and waste management programs during construction, such as solid, sanitary, septic, hazardous, contaminated soil, concrete, and construction waste management; spill prevention; appropriate material delivery and storage; employee training; dust control; and vehicle and equipment cleaning, maintenance, and fueling. Each of these programs would address proper secondary containment requirements, spill prevention and protection, structural material storage needs, proper concrete washout design and containment, perimeter and surface protection for laydown and maintenance areas, and communication of all such requirements to construction staff.

In the event that shallow groundwater is encountered during construction, dewatering would be completed as specified in Appendix D. Project excavation that intercepts groundwater must comply with the General Waste Discharge Requirements (WDR), as established by the San Diego RWQCB. Discharge would be sampled to ensure that it complies with discharge and receiving water limits. For small discharges, the permit may be avoided if the Facilities Maintenance Department Wastewater Supervisor allows the discharge into a sanitary sewer. A waiver may be obtained, with assistance from MCB Camp Pendleton ES, for limited discharge to land. Therefore, Alternative 1 construction would not result in significant impacts to water quality and no mitigation is required.

Operations Impact

Proposed site development would result in an increase of impermeable surfaces on approximately 5 acres or 15 percent of the total project footprint, thus increasing potential runoff. Drainage improvements would be constructed in accordance with Special Conservation Measures 1 and 2 to provide onsite stormwater retention of runoff flows from proposed facilities, such that offsite temperature, rate, volume, and duration of runoff would mimic the pre-project hydrology. Drainage facilities would be designed to comply with design manuals and local standards and guidelines; the regulations stipulated in EISA Section 438, UFC 3-210-10 for LID, and NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004); official DoN, USMC, and DoD LID policies (2007, 2008, and 2010); and MCB Camp Pendleton requirements. Based on these requirements, runoff from the 95th percentile storm (1.5 inches in 24 hours) would be retained to infiltrate on site. This would be accomplished through LID techniques and with a flood control basin on the southwest border (downgradient) of the project site. Reduced infiltration of existing site soils (described in Section 3.3) due to past agricultural operations could make LID implementation difficult. Therefore, the use of underdrains may be required as part of the stormwater system design. The drainage system would be constructed to accommodate run-on flows from the open fields upstream of the project site and to convey up to the 100-year flood event. Overflow from more extreme events, like the 100-year flood event, would be dispersed as sheet flow (e.g., through the use of level spreaders) along the southwest edge of the project boundary to maintain the pre-project hydrology. In addition, although locally deteriorated, a brow ditch and associated down-drains (located outside of the project site) would contribute to controlling surface flows along the bluff top located at the downgradient perimeter of the site. This adjacent land, managed by the Range Training and Management Area Division, is currently proposed for operations and training uses. The Range Training and Management Area Division has agreed to this strategy. Therefore, Alternative 1 operations would not cause significant impacts to hydrology and no mitigation is required.

Areas graded but not paved as part of Alternative 1 would be susceptible to wind and water erosion following construction. Dust control would be completed by periodic water spreading with a water truck during project operations, most notably during use of unpaved portions of the test track, as specified in Special Conservation Measure 6b.

Post-construction surface water quality could be impacted by runoff of residual oil and grease from impervious surfaces (i.e., proposed parking area, the paved access road, and vehicle test track) and from residual pesticide concentrations in unpaved surface soils as a result of past agricultural activities. In addition to BMPs and drainage controls previously discussed, Alternative 1 would include treatment for runoff in accordance with specifications found in the NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Municipal Separate Storm Sewer Systems (Order No. 2013-0001-DWQ; NPDES No. CAS000004) (Special Conservation Measure 2). Vehicles would be fueled in the existing MCTSSA Cantonment Area, which already has appropriate BMPs and drainage controls in place. Implementation of project design components and BMPs, including use of BAT and

BCT, would minimize potential water quality impacts to adjacent marine waters and underlying shallow, non-potable groundwater.

This alternative would result in only a negligible increase in operations due to construction of the new facilities within the project site. As Alternative 1 would result in no consequential change in the level of operational activities and associated number of personnel, significant water supply impacts would not occur and no mitigation is required. Refer to Section 3.8 for potential impacts related to water supply infrastructure. Therefore, Alternative 1 operations would not cause significant impacts to water quality or water supply and no mitigation is required.

3.4.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, the vehicle test track, support facilities, and associated site improvements would not occur. Therefore, no impacts on water resources would occur and no mitigation is required.

3.5 Biological Resources

3.5.1 Affected Environment

3.5.1.1 Data Sources

A habitat assessment and wetland delineation were conducted at the project site in spring 2012 (SAIC 2013a, 2012). Information in support of this analysis was also derived from the following sources: *MCB Camp Pendleton Integrated Natural Resources Management Plan* (INRMP) (USMC 2007) and the *MCB Camp Pendleton 2030 Master Plan* (USMC 2010a), which provide general biological information about plant and wildlife species; and the MCB Camp Pendleton Geographic Information System (GIS) database (MCB Camp Pendleton 2013). Plant community classification follows Oberbauer et al. 2008.

3.5.1.2 Plant Communities and Associated Wildlife

In general, the project site is developed or disturbed as a result of past agricultural activities. The majority of the vegetation in the project vicinity consists of non-native plant species, especially ruderal introduced species, including crystal iceplant (*Mesembryanthemum crystalinum*), lesser swinecress (*Lepidium didymum*), weedy cudweed (*Pseudognaphalium luteo-album*), long-beak filaree (*Erodium botrys*), and yellow sweet clover (*Melilotus indicus*), that can germinate in disturbed soils. A limited number of non-native grass species, including red brome (*Bromus madtritensis* ssp. *rubens*), Mediterranean barley (*Hordeum marinum*), and goldentop (*Lamarkia aurea*), occur at the project site. Vegetation within the project site is currently maintained by disking and mowing to prevent vegetation growth in accordance with Categorical Exclusions 20110062A (25 July 2011) and 20110062A (1 September 2011).

The surrounding areas to the north and west of the project site support a mix of native scrub and non-native vegetation, which includes mapped vernal pool habitat (MCB Camp Pendleton 2013). Steep coastal bluffs to the west are interspersed with scrub vegetation, including coast goldenbush (*Isocoma mensiezii*), coyote brush (*Baccharis pilularis*), quail bush (*Atriplex lentiformis*), and sparsely distributed California sagebrush (*Artemisia californica*). Areas to the east and south are also retired agricultural lands that support vegetation similar to the project site.

Within the project site, rodents, invertebrates, and small reptiles may occur, and songbirds and raptors may occasionally use the project site for foraging. The project site is unlikely to serve as a wildlife travel corridor for larger species or provide more than limited and low-quality habitat for most species due to the level of disturbance and ongoing maintenance.

The coastal bluff to the west of the project site and open areas to the northwest provide habitat for ground-nesting birds that may be present during the breeding/nesting season. Beyond the bluff is beach/dune habitat that supports a variety of wildlife including the federally listed western snowy plover (*Charadrius alexandrinus nivosus*). This species is discussed in Section 3.5.1.4.

3.5.1.3 Migratory Bird Treaty Act Species

Virtually all birds found on MCB Camp Pendleton throughout the year are protected under the Migratory Bird Treaty Act (MBTA). MBTA species would not be expected to occur within the project site beyond incidental use, although these species could be present within existing native vegetation to the north of the project site and along the coastal bluff to the west of the project site.

3.5.1.4 Threatened and Endangered Species

No species federally listed as threatened or endangered under the ESA occur within the project site, although one federally listed species, western snowy plover (*Charadrius alexandrines nivosus*), is known to occur in the project vicinity (i.e., within 1,000 ft [304 m] of the project site) based on historical records, recent surveys, and/or the presence of similar suitable habitat (USMC 2010a; MCB Camp Pendleton 2013). The western snowy plover is listed by the USFWS as threatened. This species forages above the mean high-water line of coastal beaches, gathering invertebrates from sand surface, kelp, marine mammal carcasses, or low foredune vegetation. The closest historical occurrence of nests for this species (2011) was observed on the beach below and out of the line of sight of the project site, approximately 150 ft (46 m) from the project boundary and on the beach approximately 600 ft (183 m) from proposed project facilities (MCB Camp Pendleton 2013).

3.5.1.5 Wetlands and Other Waters of the U.S.

No wetlands or other Waters of the U.S., as defined by the U.S. Army Corps of Engineers, occur within the project site or in the project vicinity. Therefore, wetlands and other Waters of the U.S. are not analyzed further in this EA.

3.5.2 Environmental Consequences and Mitigation Measures

The following analysis assumes the incorporation of the Special Conservation Measures, listed in Section 2.1.4.2, to avoid, reduce, and mitigate for potential impacts on biological resources. The locations analyzed for potential impacts on biological resources include the project site where ground disturbance would occur from new construction and road and utility upgrades, and in the surrounding project vicinity that could be affected by noise, dust, human presence, and soil erosion, including areas that could receive runoff from the project site.

3.5.2.1 Alternative 1: MCTSSA South Expansion

Plant Communities and Associated Wildlife

Alternative 1 would result in the permanent loss of a small amount of low-quality, disturbed habitat that consists primarily of non-native upland plant species within the project site, due to construction of the permanent radar antennae, vehicle testing track, support facilities (maintenance facility, two C4I test laboratory/office buildings, and vehicle parking area), and site improvements (access road, maintenance road, and sidewalks). Loss of this habitat would represent a negligible reduction in low-quality and common plant communities. Similarly, the small amounts of disturbed, low-quality habitat proposed for removal would represent an inconsequential loss of available habitat for common wildlife at the project site and no mitigation is required.

An increase in dust, noise, or other construction-related disturbances may temporarily alter or disturb the behavior of common wildlife occurring within the project site and in the project vicinity. Direct impacts to common, less-mobile wildlife species, such as lizards and rodents, may occur but would not affect populations present on MCB Camp Pendleton. Based on the short-term nature of dust- and noise-producing construction activities, impacts on common wildlife located in the project vicinity would not be significant and no mitigation is required. During operations, undeveloped portions of the project site would continue to be mowed by MCTSSA as needed (Special Conservation Measure 3) to maintain vegetation. Operational activities would not result in a significant increase in noise levels over those that currently exist in the mostly developed project vicinity. Therefore, operation of Alternative 1 would not result in significant impacts to common wildlife species and no mitigation is required.

Migratory Bird Treaty Act Species

The project site does not support suitable habitat for MBTA species that occur at MCB Camp Pendleton. Increased noise, vibration, and dust during construction activities could temporarily affect the suitability of habitat to the north of the project site and along the coastal bluff to the west of the project site and, as a result, reduce the nesting success of these species during the breeding season. However, construction activities would occur over 500 ft (152 m) from suitable habitat on the coastal bluff, and construction of buildings, utilities, and radar pads would occur at least 200 ft (60 m) from suitable habitat to the north of the project site. Therefore, construction is not expected to result in adverse impacts to MBTA species. A small portion of the ATFP fence and test track would be constructed within 30 ft (9 m) of suitable habitat. However, these activities would not result in sufficient noise or dust to adversely impact MBTA species. Operational activities would not result in a significant increase in noise levels over those that currently exist in the mostly developed project vicinity. In addition, exterior lighting on project facilities would be shielded away from sensitive habitats that could support MBTA species (Special Conservation Measure 4), undeveloped portions of the project site would continue to be mowed monthly (Special Conservation Measure 3) to maintain vegetation, and any new aboveground utility lines would be raptor-safe (Measure 5). Therefore, Alternative 1 would not result in significant impacts to MBTA species and no mitigation is required.

Threatened and Endangered Species

The project site does not provide habitat for federally listed threatened and endangered species and no listed species are known to occur at the project site. Therefore, Alternative 1 would not result in direct impacts to federally listed species or their habitats within the project site and no mitigation is required.

The beach along the Pacific Ocean supports suitable habitat for the federally listed western snowy plover. This species is known to nest in the project vicinity, although construction activities would occur over 600 ft (183 m) from the closest historical nesting site. Additionally, the project site would be located on a bluff above and outside of the line of sight of the former snowy plover nest location, further reducing the likelihood of any disturbance. Based on the distance from project construction activities, temporary noise levels anticipated from project construction would not be expected to cause adverse impacts to the snowy plover, and would likely qualify as a Class IV activity (i.e., would not have the potential to affect listed or proposed species) under the *Riparian and Estuarine/Beach Biological Opinion* (USFWS 1995). In addition, operational activities associated with Alternative 1 would not result in a significant increase in noise levels over those that currently exist in the mostly developed project vicinity. Therefore, construction and operation of Alternative 1 would not result in significant impacts to federally listed species and no mitigation is required.

3.5.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, vehicle test track, support facilities, and associated site improvements would not occur. Therefore, no impacts on biological resources would occur and no mitigation is required.

3.6 Air Quality

3.6.1 Affected Environment

3.6.1.1 Regional and Local Air Pollutants

Ambient air quality refers to the atmospheric concentration of a specific pollutant compound (i.e., amount of a pollutant in a specified volume of air) at a particular geographic location. Ambient air quality levels are determined by pollutant emissions (e.g., type and amount of pollutant emitted into the atmosphere), meteorology (e.g., weather patterns affecting pollutant emissions), and chemistry (e.g., chemical reactions that transform emitted compounds into other pollutants). Air quality in a given location is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$) of the pollutant. MCB Camp Pendleton is located within San Diego County, which is in the San Diego Air Basin (SDAB).

One aspect of air quality significance is a pollutant's concentration in comparison to a national and/or state ambient air quality standard. These standards represent the maximum atmospheric concentrations that may occur and still protect public health and welfare with a reasonable margin of safety. The national standards for seven pollutants of concern (i.e., criteria pollutants), as established by the USEPA, are termed the National Ambient Air Quality Standards (NAAQS). California standards are established by the California Air Resources Board (ARB) and are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS are at least as restrictive as the NAAQS and include pollutants for which national standards do not exist. Table 3.6-1 summarizes the national and state ambient air quality standards.

The main pollutants of concern for the project region include volatile organic compounds (VOCs), ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Although VOCs or NO_x (other than nitrogen dioxide [NO_2]) have no established ambient standards, they are important as precursors to O_3 formation. Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone concentrations are the highest during the warmer months of the year and coincide with the period of maximum insolation (i.e., direct solar radiation).

The USEPA designates all areas of the U.S. in terms of having air quality better (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 the county generally west of the interior desert region) is also a maintenance area for CO.

In regard to the CAAQS, the SDAB is presently in attainment for all air pollutants except O_3, PM_{10}, and $PM_{2.5}$. San Diego County is considered a severe ozone nonattainment area by the ARB.

Toxic air contaminants (TAC) include air pollutants that can cause serious illnesses or increased mortality, even in low concentrations. Toxic air contaminants 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.

Table 3.6-1. National and California Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards*	*National Standards* [a]	
			Primary [b,c]	**Secondary** [b,d]
Ozone (O_3)	8-hour	0.07 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as primary
	1-hour	0.09 ppm (180 µg/m^3)	---	---
Carbon monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	---
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	---
Nitrogen dioxide (NO_2)	Annual	0.03 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
	1-hour	0.18 ppm (339 µg/m^3)	0.10 ppm (188 µg/m^3)	---
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	---	---
	3-hour	---	---	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	---
PM_{10}	Annual	20 µg/m^3	---	---
	24-hour	50 µg/m^3	150 µg/m^3	Same as primary
$PM_{2.5}$	Annual	12 µg/m^3	12 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
	30-day average	1.5 µg/m^3	—	—

ppm = parts per million; µg/m^3 = micrograms per cubic meter

Notes:

a Standards other than the 1-hour ozone, 24-hour PM10, 24-hour PM2.5, and those based on annual averages generally 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 parentheses.

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 3 years after that state's implementation plan is approved by the USEPA.

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: ARB 2013a

3.6.1.2 Greenhouse Gas Emissions

Greenhouse gases (GHGs) 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.

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; 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 snowpack. 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).

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (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 (1). 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.

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 USEPA *Mandatory Reporting of Greenhouse Gases Final 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 USMC and DoD have implemented a number of renewable energy projects (NAVFAC Southwest 2006). 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 potential effects of proposed GHG emissions are by nature global and cumulative impacts because individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, the impact of proposed GHG emissions on climate change is discussed in the context of cumulative impacts in Chapter 4. Appendix E presents estimates of GHG emissions generated by each project alternative.

3.6.2 Applicable Regulations and Standards

The federal Clean Air Act (CAA) of 1970 and its subsequent amendments establish air quality regulations and NAAQS and 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 San Diego County Air Pollution Control District (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 project alternatives.

3.6.2.1 Federal Regulations

Clean Air Act

Section 176(c) of the CAA, as articulated in the USEPA 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 USEPA-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 USEPA-approved SIP if its annual construction or operational emissions do not exceed 100 tons of VOCs, CO, or NO_x. The conformity evaluation for the proposed action is summarized in Section 3.6.3 and presented in complete form in Appendix E of this EA.

3.6.2.2 State Regulations

The California CAA, as amended, outlines a program to attain the CAAQS for O_3, NO_2, SO_2, and CO by the earliest practical date. Since the CAAQS are more stringent than the NAAQS, attainment of the CAAQS will require more emission reductions than what will be required to show attainment of the NAAQS. The ARB delegates the authority to regulate stationary source emissions to local air quality management districts. The ARB requires these agencies to develop their own strategies for achieving compliance with the NAAQS and CAAQS, but maintains regulatory authority over those strategies.

3.6.2.3 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). SDCAPCD Rule 1501 implements the USEPA General Conformity Rule.

3.6.3 Environmental Consequences and Mitigation Measures

For the purposes of this air quality analysis and for air pollutants designated as in nonattainment or maintenance of a NAAQS and therefore subject to general conformity requirements, if the total emissions estimated for a project 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 be less than 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 USEPA Prevention of Significant Deterioration (PSD) threshold for new major sources of 250 tons per year as an indicator of significance of proposed air quality impacts. Although the PSD permitting program is not applicable to mobile sources, PSD thresholds are used as criteria for measuring air quality impacts under NEPA.

3.6.3.1 Alternative 1: MCTSSA South Expansion

Air quality impacts from construction of Alternative 1 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* (USEPA 1995), *EMFAC2011 Model* for on-road vehicles (ARB 2013b), the *In-Use Off-Road Equipment 2011 Inventory Model* for off-road construction equipment (ARB 2013c), and the California Emissions Estimator Model (CalEEMod) version 2013.2 (California Air Pollution Control Officers Association 2013). Appendix E includes data and assumptions used to calculate proposed construction emissions. As a conservative approach, the analysis assumed that all construction activities would occur within one calendar year.

Table 3.6-2 summarizes the annual and total emission estimations for the construction of Alternative 1. These data show that the total pollutant emissions generated from proposed construction would equate to small fractions of their applicable conformity *de minimis* or PSD threshold. As a result, construction of Alternative 1 would produce less than significant air quality impacts and no mitigation is required. Implementation of standard fugitive dust and construction equipment emission control measures (Special Conservation Measures 6a and 7) would minimize emissions from proposed construction.

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, there would be minimal ambient impacts of TACs in a localized area. 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 minor amounts of air emissions due to: 1) consumption of electricity, 2) use of natural gas–fired space and water heaters, 3) routine mowing of vegetation within the facility and along the ATFP perimeter fence and access roads, and 4) fugitive dust generated from the operation of vehicles on unpaved surfaces. The testing of vehicles onsite would not result in new emissions, as it would replace existing testing activities that currently occur within the region. In addition, since personnel from the existing MCTSSA Cantonment Area would conduct operations for Alternative 1, no additional commuter vehicles trips would occur from proposed operational activities. Therefore, operation of Alternative 1 would produce less than significant air quality impacts and no mitigation is required. Implementation of standard fugitive dust and operational equipment emission control measures (Special Conservation Measures 6b and 8) would minimize emissions from proposed operations.

Table 3.6-2. Annual and Total Emissions Due to Construction of the MCTSSA Cantonment Area Expansion at MCB Camp Pendleton – Alternative 1

Alternative/Activity	*Air Pollutant Emissions (Tons)*						
	VOCs	***CO***	***NO_x***	***SO_2***	***PM_{10}***	***$PM_{2.5}$***	***CO_2e***
Alternative 1							
Site Preparation/Light Grading	0.01	0.04	0.19	0.00	0.79	0.09	17.01
Construct Maintenance Facility	0.37	1.84	0.63	0.02	0.29	0.06	91.12
Construct Two C4I Test Labs/Office Buildings	0.08	0.30	0.10	0.00	0.01	0.01	14.67
Pave Vehicle Parking Area and Sidewalk	0.00	0.00	0.02	0.00	0.02	0.00	2.05
Construct Radar Pads	0.00	0.00	0.02	0.00	0.00	0.00	1.46
Construct Internal Access Road	0.00	0.01	0.03	0.00	0.02	0.00	2.46
Pave Internal Access Road	0.00	0.00	0.01	0.00	0.02	0.00	1.40
Construct Vehicle Test Track	0.00	0.02	0.07	0.00	0.04	0.01	6.59
Pave Vehicle Test Track	0.00	0.00	0.01	0.00	0.02	0.00	1.17
Construct Maintenance Road within Perimeter Fence	0.00	0.01	0.03	0.00	0.03	0.00	2.63
Pave Maintenance Road within Perimeter Fence	0.00	0.00	0.02	0.00	0.03	0.00	1.71
Install Utilities	0.00	0.01	0.02	0.00	0.00	0.00	2.37
Install Perimeter Fence	0.00	0.00	0.01	0.00	0.00	0.00	0.96
Total Emissions – Alternative 1[a]	**0.48**	**2.23**	**1.15**	**0.02**	**1.27**	**0.18**	**145.60**
NEPA Significance Thresholds[b]	**100**	**100**	**100**	**250**	**250**	**250**	**NA**

C4I = Command, Control, Communications, Computers, and Intelligence; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; MCB = Marine Corps Base; MCTSSA = Marine Corps Tactical Systems Support Activity; NA = not applicable; NEPA = National Environmental Policy Act; NOx = nitrogen oxides; PM2.5 = particulate matter less than 2.5 microns in diameter; PM10 = particulate matter less than 10 microns in diameter; SO_2 = sulfur dioxide; VOCs = volatile organic compounds

Notes:
a Assumes all emissions would occur within a calendar year.
b Conformity *de minimis*/USEPA Prevention of Significant Deterioration (PSD) thresholds are 100/250 tons per year.

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

3.6.3.2 No-Action Alternative

Under the No-Action Alternative, construction activities would not occur and training would continue under current conditions. Therefore, no impacts on air quality would occur and no mitigation is required.

3.7 Cultural Resources

3.7.1 Affected Environment

Cultural resources are comprised of districts, buildings, sites, structures, areas of traditional use, or objects with historical, architectural, archeological, cultural, or scientific importance. They include archeological resources (both prehistoric and historic), historic architectural resources (physical properties, structures, or built items), and traditional cultural resources (those important to living Native Americans for religious, spiritual, ancestral, or traditional reasons).

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures regarding historic properties. Federal regulations define historic properties to include prehistoric and historic sites, buildings, structures, districts, or objects listed or eligible for listing on the National Register of Historic Places (NRHP), as well as artifacts, records, and remains related to such properties (NHPA, as amended [16 USC 470 *et seq*.]). Compliance with Section 106 of the NHPA, which directs federal agencies to take into account the effect of a federal undertaking on a historic property, is outlined in the Advisory Council on Historic Preservation's regulations, Protection of Historic Properties (36 CFR Part 800).

3.7.1.1 Definition of the Area of Potential Effects

The Area of Potential Effects (APE) of an undertaking is defined at 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." The APE for the proposed action consists of all areas of ground disturbance associated with proposed construction and operational activities. The approximately 34-acre (14-hectare) APE is shown in Figure 2.1-1. Although construction is not proposed for the entire APE, this large area allows for flexibility in the placement of buildings and facilities. The current project layout is conceptual (Figure 2.1-1) and would be refined by the construction contractor. However, the conceptual project layout was designed to represent the maximum level of disturbance and all areas potentially disturbed are included within the boundaries of the APE.

For historic architectural resources, the APE includes any viewsheds of historic buildings that may be affected by construction. For Native American resources, the APE includes the construction footprint and the viewsheds of any traditional cultural resources that could be affected by construction.

3.7.1.2 Prehistoric and Historic Setting

Current knowledge of the prehistory of MCB Camp Pendleton and its relationship to developments throughout southern California is detailed in Reddy and Byrd (1997) and summarized below. The sequence begins in the Paleoindian period (11,500 to 8,500 Before Present [B.P.]), a time in which adaptations were formerly believed to be focused on the hunting of large game, but are now recognized to represent more generalized hunting and gathering, with considerable emphasis on marine resources (Erlandson and Colten 1991; Erlandson 1994; Jones 1991). The following period, the Archaic (8,500 to 1,300 B.P.), is generally considered as encompassing both a coastal and an inland focus, with the coastal Archaic represented by the shell middens of the La Jolla Complex and the inland Archaic represented by the Pauma Complex. Coastal settlement is also seen as having been significantly affected by the stabilization of sea levels around 4,000 years ago that led to siltation of coastal lagoons and a general decline in the productivity of many coastal habitats (Warren et al. 1961; Warren and Pavesic 1963; Warren 1968; Gallegos 1987; Masters and Gallegos 1997). Nevertheless, recent research on MCB Camp Pendleton has documented continued occupation along the coast well after this decline was in progress (Byrd 1996, 1998).

The Late Prehistoric period (1,300 to 200 B.P.) is marked by the appearance of small projectile points indicating the use of the bow and arrow, the common use of ceramics, and the replacement of inhumations with cremations, all characteristic of the San Luis Rey Complex as defined by Meighan (1954). Along the coast of northern San Diego County, deposits containing significant amounts of the little bean clam shell (*Donax gouldii*) are now widely assigned to the Late Prehistoric Period, based on a well-documented increase in the use of this resource at this time (Byrd 1996). Recent investigations on MCB Camp Pendleton also indicate increasing settlement of upland settings at this time.

When the Spanish arrived in southern California, the area of MCB Camp Pendleton was occupied by the Native American group known as the Luiseño, whose territory is thought to have comprised some 1,500 mi^2 (3,890 km^2) of coastal and interior California. Kroeber (1925) estimated a population of only 5,000 pre-contact Luiseño, while White (1963) and Shipek (1977) estimated a population closer to 10,000. Recent ethnohistoric studies for the MCB Camp Pendleton vicinity (Johnson and O'Neill 2001) identified several Luiseño communities within MCB Camp Pendleton boundaries. Identified communities within MCB Camp Pendleton include *Pange* and *Zoucche*, both within leased areas along San Mateo Creek; *Topomai* (or *Topome*), located partially within the grounds of the Ranch House complex and partially within MCAS Camp Pendleton; *Quigaia*, located in the Ysidora Basin area, within or near November training area; *Uchme*, located at the Las Flores ruins; *Chacape* and *Mocuachem*, both possibly within or near Papa One training area; and *Pomameye*, apparently within or near the Zulu Impact Area.

The area of MCB Camp Pendleton entered the historic record in 1769, when several locations now within MCB Camp Pendleton boundaries were described by members of the Portola expedition passing through on its way to Monterey. After Mission San Luis Rey was established in 1798, most of the land that was to become MCB Camp Pendleton was held by the mission, which used it primarily for grazing cattle and limited farming. After secularization, most of the area became part of the Rancho Santa Margarita y Las Flores, held by Pio and Andres Pico and subsequently sold, in part, to Juan Forster and eventually (in 1883) to James C. Flood and Richard O'Neill, who presided over a number of improvements to the ranch. In addition to ranching, extensive dry land farming took place along the coastal terraces. The Magee family leased land to farm lima beans in the Las Flores/Red Beach area, and this farming continued after the government purchased the land.

Just before the U.S. entry into World War II, the U.S. Army had considered the purchase of the rancho as a training facility. After the U.S. Army decided against it, the USMC acquired the 125,000-acre (50,587-hectare) property in 1942, naming the facility after Joseph H. Pendleton, a popular 40-year veteran of the USMC. In 1944, MCB Camp Pendleton was declared a permanent installation, with the stated goal to be the center of all West Coast activities and the home of the 1st Marine Division. MCB Camp Pendleton served its role as a training and replacement command through both the Korean War and Vietnam War. The USMC broadened its mission capabilities during the 1980s and 1990s by combining infantry, armor, supply and air power deployment in Grenada, Panama, Persian Gulf, Somalia, and during Operation Desert Shield and Desert Storm.

3.7.1.3 Cultural Resources within the Project Site

A site records search was conducted at the South Coastal Information Center (SCIC) on 23 May 2011 to identify previous archeological investigations and recorded cultural resources within one mile (1.61 kilometers) of the APE. Electronic databases and GIS layers provided by MCB Camp Pendleton were used to confirm and supplement the data from the SCIC. The following provides a summary of those findings.

Archeological Survey Coverage. Twenty-five archeological investigations have been previously conducted within 1 mile of the APE, of which five overlapped with the APE: Arrington (2006), Brown (1994, 1996), Cupples (1976), Reddy (1998), and Schultz (2011). Even though the APE was previously surveyed, SAIC (2013b) conducted an archeological survey of the entire APE in January 2012 because recent agricultural use of this land, including plowing, could have exposed previously undiscovered archeological sites, artifacts or features.

Archeological Resources. Sixteen previously recorded archeological sites are located within one mile (1.6 kilometers) of the APE, five of which are located within the agricultural field adjacent to the APE. Three of these sites were newly recorded by SAIC (2013b). The five sites consist of prehistoric shell scatters and lithic scatters, as well as a few historic artifacts. None of the sites were observed within the APE.

Historic Buildings and Structures. There are no recorded historic buildings or structures located in the project APE or immediately adjacent to the APE.

Traditional Cultural Resources. There are no known traditional cultural recourses within or adjacent to the APE.

3.7.2 Environmental Consequences and Mitigation Measures

Section 106 of the NHPA requires that federal agencies take into account the effects of their proposed actions on historic properties. Impacts on cultural resources are considered significant if a historic property, as defined under 36 CFR 60.4, would be physically damaged or altered, would be isolated from the context considered significant, or would be affected by project elements that would be out of character with the significant property or its setting.

3.7.2.1 Alternative 1: MCTSSA South Expansion

Alternative 1 includes ground-disturbing activities associated with construction and operations within the project site. There are no recorded archeological sites located within the APE. There are also no historic buildings or structures and no known traditional cultural resources within or adjacent to the APE. It is possible that agricultural activities may have obscured the presence of archeological materials in the APE; therefore, the possibility that subsurface archeological material may be encountered during construction activities cannot be ruled out. A professional archeologist and a Native American representative would monitor ground-disturbing activities during construction to ensure that any cultural resources that may be discovered during construction would not be adversely affected (Special Conservation Measure 9). With implementation of this measure no impacts on cultural resources would occur and no other mitigation is required. The California State Historic Preservation Officer (SHPO) reviewed the proposed undertaking (File No. USMC_2014_0203_001) and concurred that the proposed undertaking would have no adverse effect on any historic properties (Appendix C).

3.7.2.2 No-Action Alternative

There would be no construction or ground-disturbing activities associated with the No-Action Alternative; therefore, no impacts on cultural resources would occur and no mitigation is required.

3.8 Utilities

3.8.1 Affected Environment

3.8.1.1 Potable Water System

MCB Camp Pendleton derives most of its potable water supply from existing underground aquifers located on Base. These aquifers are located in four basins on the Base: Santa Margarita River Basin, Las Pulgas Creek, San Mateo Creek, and San Onofre Creek. Additional water is purchased and/or provided from Orange County. The water system at MCB Camp Pendleton consists of wells, water mains, pumps, treatment facilities, booster pump stations, chlorination facilities, conveyance mains, and storage reservoirs. A backup water supply is also available through two separate water lines that connect the Santa Margarita and the Las Flores systems in the southern portion of the Base, and the San Mateo and San Onofre systems in the northern portion.

The closest potable water line to the project site is located in the existing MCTSSA Cantonment Area. MCTSSA is supplied by the Santa Margarita River Basin from a 12-inch main that runs parallel to the MCTSSA access bridge and connects with the Base's potable water supply system east of I-5.

3.8.1.2 Wastewater System

MCB Camp Pendleton's wastewater system consists of four Sewage Treatment Plants (STPs) and associated gravity mains, force mains, sewage lift stations, oil/water separators, and manholes. Three of the STPs are located in the northern and central portion of the Base while the southern portion of the Base is served by a single treatment facility. The Base's wastewater system has recently been upgraded to provide tertiary treatment capabilities in the southern portion of the Base. Tertiary treatment is conducted at STP-9, and the tertiary treated water is disposed of via deep well injection. The maximum regulatory permitted flow for the STPs ranges from 0.35 to 3.6 million gallons per day, with actual flow rates averaging 0.12 to 2.2 million gallons per day during 2008 (USMC 2010a). The Base's wastewater collection pipeline is mostly vitrified clay pipe, as used in the 1940s. The closest wastewater system lines to the project site are located in the existing MCTSSA Cantonment Area, which is served by the South Regional Tertiary Treatment Plant (USMC 2010a).

3.8.1.3 Electrical Systems

Electrical power for MCB Camp Pendleton is purchased from the regional utility company, San Diego Gas and Electric (SDG&E), which has two major power lines transiting MCB Camp Pendleton. The electrical system consists of mostly aboveground lines, with a limited number of underground lines that serve certain housing areas. The main substation, the Haybarn Substation, is located near the junction of Basilone Road and Vandegrift Boulevard. The closest electrical lines to the project site are located in the existing MCTSSA Cantonment Area, which receives electrical power from an underground 12-kilovolt (kV) line that runs parallel to the railroad and I-5 near the MCTSSA access bridge (USMC 2010a). The electrical distribution to MCTSSA was replaced in 2002 and operates at approximately 40 percent of capacity (2010a).

3.8.1.4 Natural Gas

SDG&E supplies natural gas to MCB Camp Pendleton from two regional lines. The first line consists of a 12-inch gas main owned by Southern California Gas Company and runs from Long Beach to San Diego, with eight interconnects through SDG&E that deliver gas to on-Base locations at San Mateo, San Onofre, Horno, Las Pulgas, Las Flores, Stuart Mesa, Del Mar, and Wire Mountain. The second line consists of

a six-inch SDG&E line that enters the Base near Serra Mesa House from the east and provides natural gas to the Headquarters area of the Base (USMC 2010a). The nearest natural gas line to the project site is located in the existing MCTSSA Cantonment Area (USMC 2010a).

3.8.1.5 Communication System

The communication system at MCB Camp Pendleton consists of three dynamic voice switches and synchronous optical network common referred to as the SONET backbone. This system consists of figure, copper, and microwave connectivity. The system also consists of several telephone switches located throughout the Base and a voice radio system including handheld radio devices. The majority of the cable infrastructure (primarily fiber and copper) is located on overhead poles.

3.8.1.6 Solid Waste Disposal

Solid waste produced on MCB Camp Pendleton is collected by Base personnel and disposed of at the Las Pulgas and San Onofre landfills located on Base. The Las Pulgas landfill accepts eligible biosolids for disposal, while the San Onofre landfill accepts USMC construction debris only. The Las Pulgas landfill currently has a capacity of 5,422,895 tons (4,919,568 metric tons), while the San Onofre landfill has a capacity of 563,677 tons (511,359 metric tons). The first phase of a five-phase expansion program has been completed on both landfills. With completion of Phase 5, the Las Pulgas landfill is not expected to reach capacity until 2188, while the San Onofre landfill is not expected to reach capacity until 2267. The Base currently participates in a recycling program that is managed by MCB Camp Pendleton ES through the Defense Reutilization and Marketing Office.

3.8.2 Environmental Consequences and Mitigation Measures

3.8.2.1 Alternative 1: MCTSSA South Expansion

Potable Water System

Implementation of Alternative 1 would include construction of additional water distribution mains that would connect directly to the existing infrastructure and systems within the existing MCTSSA Cantonment Area (Figure 2.1-1). Alternative 1 would result in a minimal increase in demands on the MCTSSA potable water system to support proposed facilities (i.e., test laboratory/office buildings and maintenance facility). Proposed water demands associated with this alternative would be similar to existing demands at cantonment area facilities on the Base. Overall potable water demands at MCB Camp Pendleton would not increase as a result of this alternative. This is because construction of facilities at the project site would not result in a change in the level of operational activities and associated number of personnel. Therefore, significant impacts on the potable water system would not occur and no mitigation is required.

Wastewater System

Alternative 1 would extend wastewater mains from the existing sewer line within the existing MCTSSA Cantonment Area to serve the two test laboratory/office buildings and the maintenance facility (Figure 2.1-1). Although there would be no change in the level of operational activities associated with Alternative 1, operation of these facilities at the project site would generate additional demands on the MCTSSA wastewater system. However, the existing wastewater system has sufficient capacity to accommodate the minimal changes in wastewater flows generated under this alternative. Therefore, no significant impacts on the wastewater system would occur and no mitigation is required.

Electricity and Communication Systems

Electrical and communication system improvements would include provisions for power distribution, lighting, telecommunications, fire alarm system, intercom, LAN wiring, cable TV, and public address system. This alternative would also include exterior lighting for safety and security purposes and to illuminate buildings. The proposed transmission line alignment would connect to existing distribution systems in the MCTSSA Cantonment Area (Figure 2.1-1). Electrical power service lines would be installed at the project site with connections to the two proposed test laboratory/office buildings and maintenance facility (Figure 2.1-1). The transmission line alignment would be placed within the right-of-way for the proposed access road. Proposed electrical system upgrades would be designed consistent with SDG&E standards and would be sized to meet the needs of proposed development. Therefore, no significant impacts on the electrical and/or communication systems would occur and no mitigation is required.

Natural Gas

Alternative 1 would include installation of new natural gas utility lines to support onsite operations. Proposed improvements would result in an increase in the natural gas usage over existing conditions. However, construction of the proposed gas line would provide sufficient capacity to support this alternative. As there would be no change in the level of operational activities associated with Alternative 1, operational activities would not increase demands on natural gas such that the existing supply would be inadequate. Therefore, significant impacts on natural gas would not occur and no mitigation is required.

Solid Waste Disposal

Construction activities associated with Alternative 1 would generate solid wastes (e.g., soil, rock, wood, plaster, drywall, roofing, and metal). Any solid waste that could not be recycled would be disposed of at the MCB Camp Pendleton San Onofre Landfill. Sufficient capacity exists within that landfill to accommodate the small volume of solid waste expected to be generated by Alternative 1. Since there would be no change in the level of operational activities associated with this alternative, significant impacts on solid waste would not occur during operations and no mitigation is required.

3.8.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of the radar antennae, office/test laboratories, maintenance facility, vehicle test track, support facilities, and associated site improvements would not occur. Existing conditions would remain as described in Section 3.8.1 and utility demands would remain unchanged. Therefore, no impacts on utilities would occur under the No-Action Alternative and no mitigation is required.

3.9 Public Health and Safety

3.9.1 Affected Environment

3.9.1.1 Protection of Children (EO 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 areas within MCB Camp Pendleton adjacent to the project site are military in nature and not accessible to the general public. No facilities used by children, such as family housing units, schools, or childcare centers, are located within the project vicinity. The closest such facility is a family housing area located 1.2 miles (2 kilometers) northeast of the project site (USMC 2010a).

3.9.1.2 Hazardous Materials and Waste

Installation Restoration Sites

The USMC's Installation Restoration (IR) Program (IRP) is responsible for identifying CERCLA releases, considering the risk to human health and the environment, and developing and selecting response actions when it is likely that a release could result in an unacceptable risk to human health and the environment. There are 74 locations on MCB Camp Pendleton identified as sites where the disposal or discharge of hazardous wastes may have resulted in potential environmental contamination. Once identified, these sites are researched, investigated and remediated through the MCB Camp Pendleton IR Program. The Base has grouped the 74 contaminated sites into five operable units, based on similarities, such as the types of environmental issues, selected cleanup methods, and/or geographic location. To date, 58 of these IR sites have been remediated and/or closed with respect to regulatory compliance. The remaining 16 active IR sites are in different phases of the cleanup process (USMC 2010a, 2013).

There are no IR sites located in the project vicinity. The closest active IR site is IR Site 1120 (the Stuart Mesa Pesticide Maintenance Areas) located approximately 1,300 ft (400 m) northeast of the project site at the closest point, on the northeast side of I-5 (Figure 3.9-1) (USMC 2013; MCB Camp Pendleton 2013). The closest inactive IR site (IR Site 2G – Surface Disposal Area) is a grease disposal pit located on the ocean bluffs, approximately 800 ft (246 m) northwest of the project site (MCB Camp Pendleton 2013; USMC 2010a).

Pesticide Contamination

A human health and ecological risk assessment (HHERA) was completed on the project site to evaluate the risk of residual pesticide concentrations in onsite soils as a result of pesticide use and storage during past agricultural activities. For risk assessment purposes, adverse health effects are classified into two broad categories, including carcinogens and noncarcinogens. Both types were detected during soil sampling at the project site, including elevated concentrations of the carcinogenic compound toxaphene, which is present at levels that would: 1) cause a residential risk throughout most of the site; and 2) locally cause a risk to industrial workers; but 3) would not cause a risk to construction workers. The noncarcinogenic hazards do not exceed the benchmark level of concern for all human receptors, which indicates that assumed exposures to residual pesticide concentrations are unlikely to result in adverse

noncarcinogenic health effects for all human receptors (Parsons 2011). As discussed in Section 2.1.2.2, the soil within this area has been remediated in accordance with local, state, and federal regulations. These removal actions were subject to the requirements of the CERCLA (40 CFR Part 300) and RCRA (40 CFR 260). CERCLA removal actions are exempted from the procedural requirements of NEPA. Therefore, any such actions are not evaluated in this EA.

Petroleum Site Remediation Program

Active remediation is occurring at multiple petroleum-based cleanup sites at MCB Camp Pendleton. Identification, assessment, and remedial actions of petroleum-contaminated sites at the Base are managed by the ES Remediation Branch, which manages two categories of remediation sites including RCRA Facility Assessment (RFA) sites and underground storage tank (UST) sites. The RFA study conducted site inspections at 257 suspected contaminated sites throughout the Base. Of these sites, 107 require further investigation and possible cleanup actions, while 150 sites are recommended for "No Further Action." Seven RFA sites were closed by the RWQCB based on completed remedial actions. The UST cleanup program was initiated to meet federal and California state requirements that stipulated any UST installed before 1988 must be upgraded with secondary leak protection, replaced, or removed by 22 December 1998. MCB Camp Pendleton met this requirement with a mass tank removal operation. By the end of 1998, 580 USTs from 454 locations were removed. Of the total USTs removed, 266 had failed integrity and released contamination into the subsurface environment, requiring future remedial actions (USMC 2010a).

A 1,000-gallon aboveground gasoline tank was located in the central project site approximately 100 ft (31 m) south of the proposed parking area (Figure 3.9-1). This tank was presumably used for fueling agricultural vehicles during past agricultural activities at the project site. A human health risk assessment completed for the project site (Parsons 2011) did not discuss the fuel tank or analyze soil samples for fuel hydrocarbons. Similarly, a MCTSSA Remediation Area figure in the *MCB Camp Pendleton Master Plan* (USMC 2010a, Figure 16a) does not indicate that the tank site is a remediation area. The tank was removed in 2013 as part of remedial activities at the project site as described in Section 2.1.2.2. A 250-gallon gasoline storage tank is located immediately north of the project site, within the existing MCTSSA Cantonment Area, and several gasoline and oil storage tanks are located approximately 1,000 ft (308 m) east of the project site (MCB Camp Pendleton 2013).

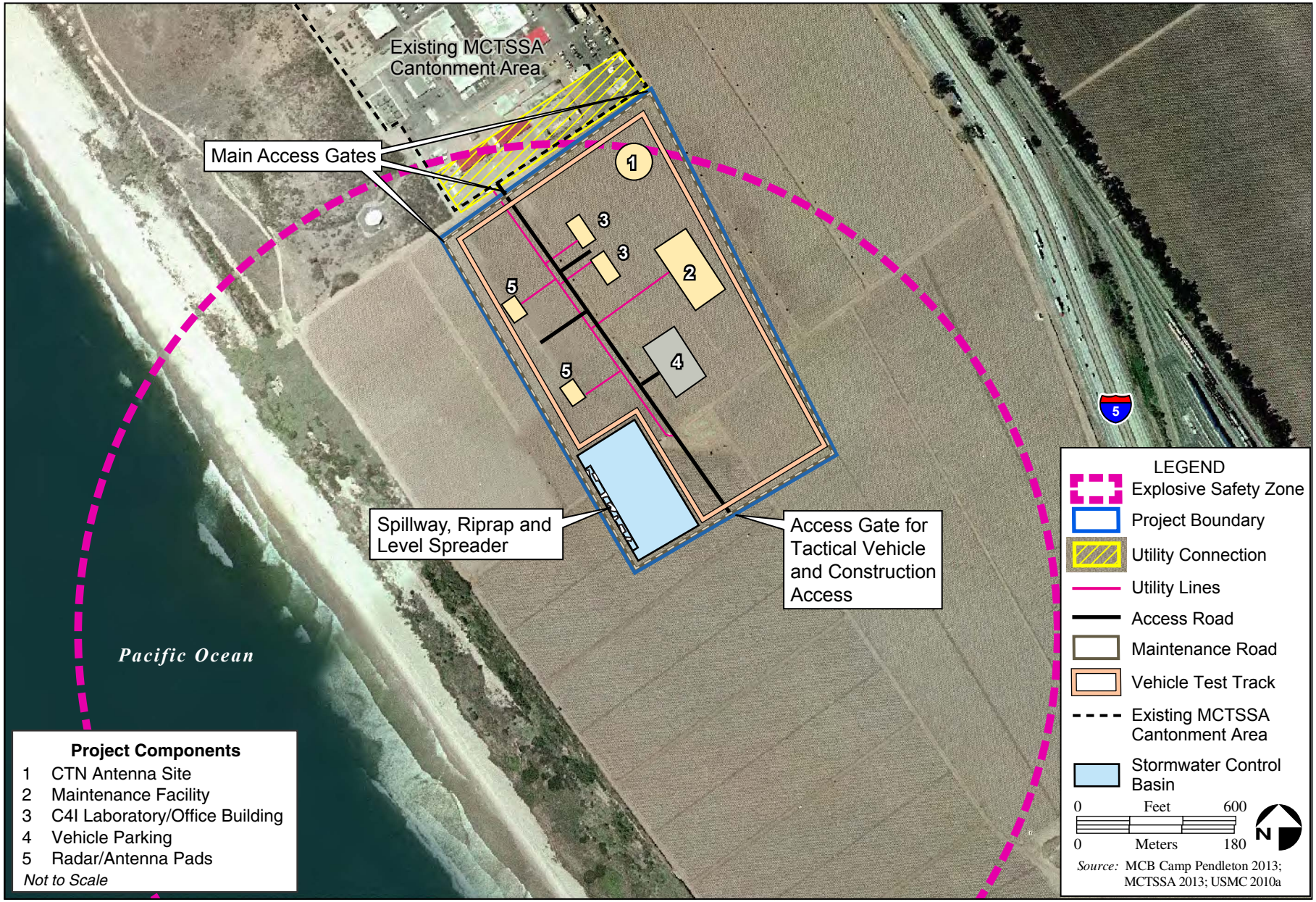
3.9.1.3 Ordnance Safety Zones and Aviation Safety Zones

The project site is located within an Explosive Safety Area associated with a nearby explosive handling site, used for the transfer of ammunition and explosives from Del Mar Beach on the Base to naval ships, in support of training operations and deployments (Figure 3.9-2). Personnel are required to evacuate buildings within this area during explosive handling operations (USMC 2010b).

The DoD established the Air Installations Compatible Use Zone (AICUZ) program to plan effectively for land use compatibility surrounding military air installations. The purpose of the AICUZ includes minimizing public exposure to potential safety hazards associated with aircraft operations. The project site is not located within a designated aircraft Accident Potential Zone. However, the site is located within an Approach-Departure Clearance Zone of the Marine Corps Air Station Camp Pendleton airfield. Acceptable heights of buildings, towers, poles, and other possible obstructions to air navigation are defined by Imaginary Surfaces, which radiate at various increasing heights from the runway. There are no manmade or terrain obstructions that extend into the Imaginary Surfaces in the vicinity of the project site (USMC 2010a). An FAA VORTAC facility is located southeast of the project site within the former agricultural field and would not be moved as a result of the proposed action. The facility provides three individual services for aircraft operations: VOR azimuth, TACAN azimuth, and TACAN distance.

MCB Camp Pendleton
IR Site and Storage Tank Locations

FIGURE
3.9-1



Del Mar Beach Explosive Safety Zone

FIGURE 3.9-2

Transmitted signals of VOR and TACAN are identified by a three-letter code transmission and are interlocked, so that pilots using a VOR azimuth with a TACAN distance know that both signals are from the same ground station. The frequency channels of the VOR and the TACAN at each VORTAC facility are "paired" in accordance with a national plan to simplify airborne operations. Construction within a 1,000 ft (304 m) radius around the VORTAC facility is severely limited to prevent radio wave interference between the VORTAC site and using aircraft (FAA 1986).

3.9.1.4 Other Federal Health and Safety Requirements

DoN has historically maintained safety and health programs to protect its personnel and property, and occupational health is a key 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 at MCB Camp Pendleton must meet the requirements of EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*), 64 *Federal Register* (FR) 30851 (1999), EO 13148 (*Greening the Government through Leadership in Environmental Management*), and 65 FR 24595 (2000). 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 included in all construction contractor documents at MCB Camp Pendleton.

3.9.2 Environmental Consequences and Mitigation Measures

3.9.2.1 Alternative 1: MCTSSA South Expansion

Protection of Children (EO 13045)

No schools, day-care centers, or family housing units are located in the project vicinity. Therefore, no children would be exposed to environmental conditions or military activities at or in the project vicinity. Accordingly, no impacts would occur with respect to child safety as a result of this alternative and no mitigation is required.

Hazardous Materials and Waste

There are no active IR sites located in the project vicinity (Figure 3.9-1). The closest active IR site is IR Site 1120 (Stuart Mesa Pesticide Maintenance Areas) located approximately 1,300 ft (400 m) northeast of the project site at the closest point, on the northeast side of I-5. IR Site 2G (Surface Disposal Area), located along the coastal bluff northwest of the project site, is no longer active. Alternative 1 would not increase the potential for flooding or inundation of IR Site 1120 or otherwise alter conditions at this IR site. Similarly, this alternative would not alter the risks of exposure to soil or groundwater contaminants associated with IR Site 1120. During construction, if soil contamination is discovered (e.g., may be indicated by discoloration and odor), the IRP and Environmental Security, Remediation Branch would be contacted and remedial requirements would be implemented in accordance with applicable federal, state, and local regulations. In addition, there are no known groundwater plumes located upgradient of the project site (personal communication, Tracy Sahagun 2014). Therefore, significant health and safety impacts associated with this IR site would not occur and no mitigation is required.

Pesticide Contamination

Portions of the site would be covered by buildings, asphalt, or concrete; however, the majority of the site would remain unpaved. Residual concentrations of organochlorine pesticides were detected in soils at the project site. Therefore, the potential exists for humans to be exposed to chemicals in soils through direct dermal contact with soil and by incidental soil ingestion. Elevated levels of carcinogenic toxaphene were detected in a portion of the project site that previously housed a storage shed associated with past agricultural activities (Parsons 2011). However, the soil within this area has been remediated in accordance with local, state, and federal regulations. CERCLA removal actions are exempted from the procedural requirements of NEPA; consequently, any such actions are not part of evaluations in this EA. However, appropriate hazardous constituent sampling and testing would be completed for all soils removed from the project to determine the offsite disposal designation in accordance with 40 CFR 260 (*Federal Hazardous Waste Regulations*), and CCR Title 22 (*Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes*). If soil is determined to be hazardous waste, it would be stored and transported in accordance with 40 CFR and Title 22 regulations and other applicable local, state, and federal regulations. Hazardous waste must be removed from MCB Camp Pendleton within 60 days of initial generation, and proper hazardous waste manifest procedures would be followed for all hazardous waste generated and transported off-Base. All hazardous waste manifests would be signed by the ES Hazardous Waste Branch before the waste leaves MCB Camp Pendleton.

With respect to areas that did not require remediation, an HHERA completed for the project site indicated that assumed exposures to residual pesticide concentrations are unlikely to result in adverse noncarcinogenic health effects for all human receptors (Parsons 2011), including onsite personnel and persons downwind from the site that might be affected by blowing dust. The prevailing wind direction blows dust toward I-5; however, fugitive dust control measures would be implemented during construction and operations, as specified in Special Conservation Measure 6. Therefore, Alternative 1 would not result in significant health effects associated with existing pesticide-contaminated soil at the project site and no mitigation is required.

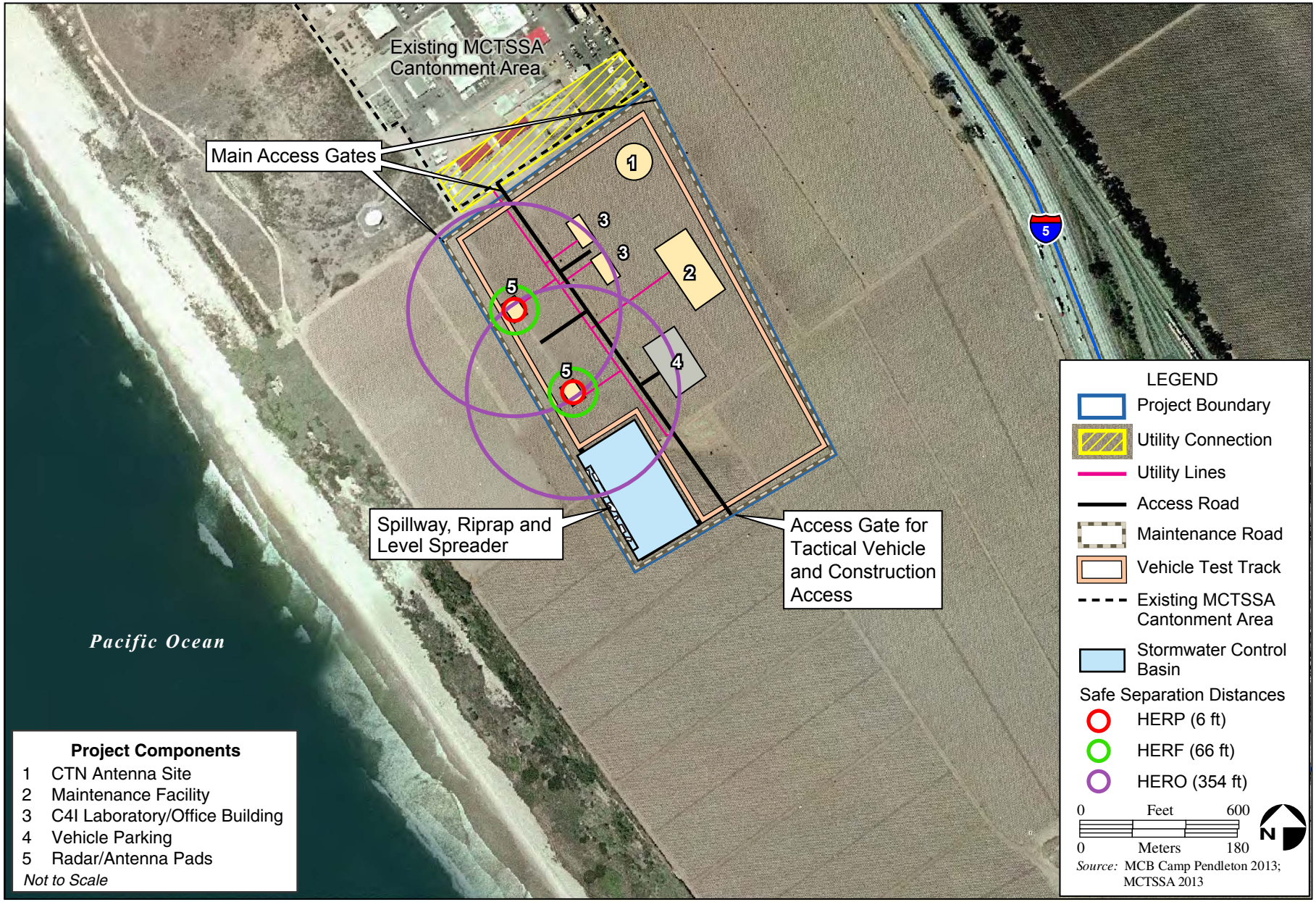
Petroleum Sites

A gasoline storage tank is located immediately north of the project site, within the existing MCTSSA Cantonment Area, and several oil and gasoline storage tanks are located approximately 1,000 ft (308 m) east of the site, some of which appear to be hydrologically upgradient (Figure 3.9-1). However, there are no existing groundwater plumes associated with these storage tanks (personal communication, Tracy Sahagun 2014). In addition, a safe separation distance of 66 ft (20 m) would be established and maintained between the proposed radar antennae and fuel to plan effectively for safety and land use compatibility within the project site (Figure 3.9-3).

Therefore, significant health and safety impacts associated with these petroleum storage tanks would not occur and no mitigation is required.

Ordnance Safety Zones and Aviation Safety Zones

The project site is located within an Explosive Safety Area associated with a nearby explosive handling site, as used for the transfer of ammunition and explosives from Del Mar Beach on Base to naval ships, in support of training operations and deployments (Figure 3.9-2). However, personnel associated with Alternative 1 would be required to evacuate buildings within this area during explosive handling operations. In addition, an ordnance safe separation distance of 354 ft (108 m) would be established and maintained around the radar antennae to plan effectively for safety and land use compatibility surrounding the project site (Figure 3.9-3). As a result, significant health and safety impacts would not occur and no mitigation is required.



Safe Separation Distances for Personnel, Fuel, and Ordnance from Proposed Radar Antennae

FIGURE 3.9-3

The project site is not located within a designated aircraft Accident Potential Zone. However, the project site is located within an Approach-Departure Clearance Zone of the Marine Corps Air Station Camp Pendleton airfield. A proposed 85 ft (26 m) high, movable radar antenna, in the northeast portion of the project site, would not extend into the Imaginary Surfaces of the Approach-Departure Clearance Zone. This CTN antenna would include aviation warning lights. Therefore, no public health and safety impacts would occur and no mitigation is required.

A VORTAC site is located approximately 2,000 ft (610 m) southeast of the closest proposed structure (maintenance facility). The FAA requires a 1,000 ft (304 m) separation between structures and the VORTAC site to maintain proper VORTAC functionality. Therefore, no impacts related to aircraft safety would occur and no mitigation is required.

Other Federal Health and Safety Requirements

Proposed requirements of EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*) and EO 13148 (*Greening the Government through Leadership in Environmental Management*) would be specified in construction contractor contracts and implemented using standard BMPs associated with Alternative 1 (Chapter 2). Protocols and requirements to protect human health and safety associated with current activities at the existing MCTSSA Cantonment Area would apply to future activities at the proposed facilities. This would include fueling the proposed test track vehicles in the existing MCTSSA Cantonment Area, thereby reducing any potential fuel spills at the project site. In addition, personnel would be trained on and maintain a safe separation distance of 6 ft (2 m) from active radar antennae within the project site (Figure 3.9-3). Therefore, Alternative 1 would not result in significant health and safety impacts during construction and operations and no mitigation is required.

3.9.2.2 No-Action Alternative

Under the No-Action Alternative, the MCTSSA Cantonment Area would not be expanded and construction and operation of radar antennae, the vehicle test track, support facilities, and associated site improvements would not occur. Therefore, no safety and environmental health–related impacts would occur and no mitigation is required.

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 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.

4.1.1 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 (Table 4.1-1). For the purposes of this EA, the timeframe of current and/or reasonably foreseeable projects extends from 2013 to 2016.

4.2 Cumulative Impact Analysis

4.2.1 Land Use and Coastal Zone Management

The preservation of natural resources within the coastal zone is regulated through the CZMA, which governs development within the coastal zone. Past, present, and future actions within the project vicinity have been and would be subject to guidelines for preservation of natural resources within the coastal zone stipulated in the CZMA. Implementation of the proposed action would not introduce incompatible land uses and would be consistent with guidelines for preservation of natural resources within the coastal zone stipulated in the CZMA. Similarly, construction or operation of related and cumulative projects would be modified during the project review process to ensure compatibility with existing land uses and consistency with provisions stipulated in the applicable federal, state, and/or local land use management plans. Implementation of the proposed action, in conjunction with development of reasonably foreseeable projects, would not result in any adverse cumulative impacts to land use and coastal zone resources.

Table 4.1-1. Related and Cumulative Projects

Project Title	*Project Description*	*Project Status*	*Relevant Cumulative Environmental Factors*
Stuart Mesa West Training and Conversion	Development of a new training area at the Stuart Mesa West Agricultural Field on MCB Camp Pendleton that can accommodate combined land, air, and sea training operations.	Project is currently in the design phase.	Land Use and Coastal Zone Management; Aesthetics; Water Resources; Biological Resources; Air Quality; Utilities.
PPV Housing Phase VI	Development of up to 172 military family housing units on 77 acres (31 hectares) at the Stuart Mesa agricultural field abutting the existing Stuart Mesa Housing to the east. The development includes construction of off-street parking spaces for each dwelling unit, one full-size basketball court, one half-size basketball court, three tot lots, one play lot.	An environmental assessment (EA) was prepared and a Finding of No Significant Impact (FONSI) was signed in September 2009. This project has been completed.	Land Use and Coastal Zone Management; Aesthetics; Water Resources; Air Quality; Utilities.
PPV Housing Phase VII	Development of up to 132 acres (53 hectares) of former agricultural land to construct, operate, and maintain up to a maximum of 351 military family housing units and supporting infrastructure.	An EA has been completed for this action and a FONSI was signed in June 2011. This project has not been built.	Land Use and Coastal Zone Management; Aesthetics; Water Resources; Air Quality; Utilities.
Santa Margarita River Railroad Bridge Replacement and Second Track Project	Replacement of the Railroad bridge downstream from the Stuart Mesa Bridge by North County Transit District. The new bridge would be 755 feet long and consist of a 500-foot main bridge structure spanning the Santa Margarita River and a 255-foot approach trestle spanning the tidal marsh to the south.	Construction began in 2010 and is currently underway.	Topography, Geology, and Soils; Land Use and Coastal Zone Management; Air Quality
Grow the Force Initiative	Construction of temporary and permanent facilities and infrastructure at MCB Camp Pendleton to support an increase in the number of Marines stationed at the Base.	Grow the Force Initiative is ongoing. An EA evaluating the potential impacts of 39 projects has been completed and the FONSI signed. The remaining 21 projects have received Categorical Exclusions (CATEXs).	Water Resources; Air Quality; Utilities.

Table 4.1-1. Related and Cumulative Projects

Project Title	Project Description	Project Status	Relevant Cumulative Environmental Factors
Advanced Water Treatment Facility/Utility Corridor Project (P-113)	Construction, operation, and maintenance of an Advanced Water Treatment Facility (P-113) and associated infrastructure, including adding treatment processes to the Haybarn Canyon Drinking Water Iron/Manganese Removal Treatment Facility and constructing a pipeline for disposal of brine generated by the facility. The brine disposal pipeline would extend approximately 10 miles (16 kilometers) from the Haybarn Facility to the Pacific Ocean.	An EA has been completed and the FONSI signed in June 2010. Construction began in 2011 and is currently underway with a completion date estimated in September 2014.	Water Resources; Air Quality; Utilities.
Basewide Utility Infrastructure Improvements	Construction of new or upgrade of existing utility systems to provide reliable and compliant water, wastewater, natural gas, electrical and communications systems to support military training and operations and delivery of life support and quality of life services.	See P-1093, P-1043, P-1048. An environmental impact statement (EIS) has been completed and the Record of Decision (ROD) signed in September 2010.	Water Resources; Air Quality; Utilities.
Northern Region Tertiary Treatment Plant (P-1043)	Converts Sewage Treatment Plant (STP) 12 to a Tributary Area Pump Station (TAPS) (TAPS12). Construct raw sewer pipeline to convey wastewater from TAPS12 to the Northern Region Tertiary Treatment Plant (NRTTP). Construct an effluent pipeline to convey 5 million gallons per day of treated wastewater from the NRTTP to both the San Onofre Percolation Ponds and the Sierra One Percolation Ponds. Construct solar farm to generate 5.3 megawatts (direct current [DC]) of power. Contract options include eight one-year Operation and Maintenance periods for the NRTTP, major raw wastewater transmission facilities, and effluent disposal facilities.	Under construction; estimated completion is February 2015.	Hydrology and Water Quality; Biological Resources; Air Quality; Utilities.
Basewide Water Infrastructure (P-1044 and P-1045)	Construction, operation, and maintenance of infrastructure upgrades, expansions, and improvements to the Basewide water system. Projects would include construction of a Northern Advance Water Treatment Plant and associated facilities in the northern part of the Base (P-1044) and connection to the Base's northern and southern water systems (P-1045).	An EIS has been prepared and a ROD signed in September 2012.	Water Resources; Air Quality; Utilities.
Upgrades to Electrical Systems and Associated Facilities (P-1048)	Construct a 69-kilovolt (kV) electrical transmission system to provide improved efficiency and reliability, system redundancy, and energy cost savings. The fourth substation would convert the proposed 69 kV line to the existing 12 kV system and would provide distribution of electrical power through four different connecting segments integrated into northern and southern loops designed to service the entire Base.	Under construction; estimated completion is July 2015.	Water Resources; Air Quality; Utilities.

Table 4.1-1. Related and Cumulative Projects

Project Title	Project Description	Project Status	Relevant Cumulative Environmental Factors
Base-wide Communications Upgrades (P-1093) and Electrical Distribution Facility (P-1094)	Located at Case Springs, Roblar Road, this project would expand the existing intercamp Base fiber optic network with a communications system that provides a minimum of two separate line paths to each area on Base. All communication lines would be underground. An EIS has been prepared for this action.	P-1093 is complete. P-1094 is under construction; estimated completion date is November 2014.	Water Resources; Biological Resources; Air Quality; Utilities.
Desalination Project	A desalination plant is being considered north of the proposed MCTSSA site within the Stewart Mesa West agricultural field.	This project is currently in the planning process.	Water Resources
PPV = Public/Private Venture			

4.2.2 Aesthetics

Potential cumulative impacts on aesthetics could result from the combined incremental change in visual character, introduction of development visually incompatible with existing uses, and increased night lighting and glare resulting from probable future development at MCB Camp Pendleton (e.g., Stuart Mesa West Training and Conversion, Public/Private Venture (PPV) Housing Phase VI, PPV Housing Phase VII, and Grow the Force Initiative). Generally, projects that have the potential to alter the quality or distinguishable characteristic of the perceived environment may be considered as having an impact on the aesthetics of that area. The significance of a change in visual character is influenced by social considerations, including public value placed on the resource, public awareness of the area, and general community concern for visual resources in the area.

Many of the cumulative projects represent repair and upgrades to existing utility infrastructure and would not likely substantially contribute to changing the region's visual character. Some future projects (e.g., Stuart Mesa West Training and Conversion and PPV Housing Phase VII) would be within areas that are within public views characterized by important topographic, vegetation, or other unique visual qualities. Proposed activities associated with construction and operation of C4I system support facilities and infrastructure would be visually consistent with current military activities that occur in the MCTSSA Cantonment Area. Although construction of radar and technical communications facilities and infrastructure would represent a substantial change from the site's existing undeveloped natural character, this change would not be adverse and the proposed facilities would be visually compatible with existing military activity in the project vicinity. Overall, proposed action activities would contribute minimally to cumulative loss of visual quality. The limited adverse impacts associated with the proposed action would contribute minimally to adverse impacts on aesthetics associated with the combined development projects proposed and underway at MCB Camp Pendleton and adjacent areas/communities that would cumulatively result in the build-out of undeveloped areas. Therefore, the cumulative impacts to aesthetics from the proposed action, in conjunction with other projects on and in the regional vicinity, would not be cumulatively significant.

4.2.3 Topography, Geology, and Soils

As discussed in Section 3.3, the proposed action would affect topography, geology, and soils by grading and development of areas within the project site. New facilities would be designed and constructed to comply with the requirements of 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. Geotechnical hazards such as potential slope instability and seismically induced ground movement are generally site-specific and not cumulatively significant with respect to other past, present, and reasonably foreseeable future projects on MCB Camp Pendleton. Other past, present, and reasonably foreseeable future actions on MCB Camp Pendleton would also comply with applicable DoD, NAVFAC, and federal regulations. Therefore, proposed action in conjunction with other projects on and in the regional vicinity would not be cumulatively significant.

4.2.4 Water Resources

The region of influence for hydrology and water quality includes those areas that contain surface water or groundwater features within the same watershed as the proposed action. Direct impacts to water resources include the discharge of waste materials that would affect downstream water quality, the increase in structures and other impermeable surfaces that affect the volumes or patterns of surface flow or increase potentials for flooding within drainage areas, and increases in soil disturbance during construction and operations resulting in additional sedimentation into area creeks and the Pacific Ocean. As discussed in Section 3.4, surface soils within the project site contain residual pesticide concentrations. However, these

levels are below regulatory thresholds. Special Conservation Measures 1 and 2 were developed to accompany standard MCB Camp Pendleton BMPs (Appendix D) and the required permits that assure project actions avoid, minimize, and mitigate these potential effects. Therefore, implementation of the proposed action would not result in a significant impact to water resources including surface water and groundwater quality, construction-induced erosion, or increased flooding potential on or offsite. Past, present, and reasonably foreseeable future actions on MCB Camp Pendleton, specifically the Stewart Mesa West Training and Conversion and Desalination Plant located adjacent to the project site, could generate pollutant runoff during construction and operation (including migration of residual pesticide concentrations in unpaved surface soils as a result of past agricultural activities) and alter the local hydrology (temperature, rate, volume, and duration of runoff). However, like Alternative 1, these projects would comply with applicable DoD and federal regulations and/or requirements, and would implement similar types of protection measures to manage stormwater runoff and associated water quality impacts during construction and operation. Therefore, the proposed action in conjunction with other cumulative projects would not be cumulatively significant.

The proposed action and the cumulative projects listed in Table 4.1-1 would use groundwater from four Base groundwater basins, including Santa Margarita River, Las Pulgas Creek, San Mateo Creek, and San Onofre Creek basins. The Santa Margarita River Basin provides the majority of the groundwater for MCB Camp Pendleton due to the size of the basin. In consideration of cumulative impacts to water supply and groundwater, the Bureau of Reclamation and Stetson Engineering have conducted several technical studies and reports to determine the sustainable groundwater yield while minimizing environmental impacts within the lower Santa Margarita River Basin (Stetson Engineers 2007). These studies consider the natural variations of the hydrologic condition and changes to the hydrologic regime resulting from other related and cumulative projects, when determining sustainable groundwater yield for the basin. Therefore, implementation of the proposed action, in conjunction with other past, present, and reasonably foreseeable projects, would not result in cumulatively significant impacts to water resources.

4.2.5 Biological Resources

For the purposes of biological resources, the geographic scope for the assessment of cumulative impacts varies and is based on the presence of suitable habitat and known occurrences of a specific resource. 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 reduction in adjacent habitat quality from temporary actions. 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.

All projects at MCB Camp Pendleton are required to adhere to various protection measures designed to minimize effects to vulnerable species and their habitats, including riparian, wetlands, coastal sage scrub, and estuarine/beach habitats. Furthermore, the potential for cumulative effects on biological resources at MCB Camp Pendleton associated with habitat and wildlife disturbance is much reduced because of ongoing 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 MCB Camp Pendleton 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, such as the USFWS Biological Opinion covering the Riparian and Estuarine/Beach Ecosystem conservation plans and programmatic activities (USFWS 1995). As a result, potential cumulative impacts on federally listed species are effectively reduced through avoidance, minimization, and/or compensation measures as

required. Collectively, these requirements ensure that the incremental effects of individual projects do not result in cumulatively significant impacts to biological resources.

As discussed in Section 3.5, the proposed action would not result in significant impacts to biological resources. Implementation of Special Conservation Measures 3 through 5 would ensure construction and operational activities associated with the proposed action would contribute minimally to adverse effects on biological resources. Similarly, the spatial and temporal extent of impacts to biological resources from other cumulative projects are expected to be limited due to implementation of Special Conservation Measures and permit conditions that are comparable to those associated with the proposed action. As a result, the proposed action, combined with other cumulative projects, would not result in cumulatively significant impacts on biological resources.

4.2.6 Air Quality

4.2.6.1 Criteria Pollutants

The region of influence for the criteria air pollutant cumulative analysis is primarily the SDAB. As described in Section 3.6.3 of this EA, construction activities associated with the proposed action 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 proposed construction 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 6a and 7) would ensure that air emissions from proposed construction activities would result in less than significant cumulative impacts.

As described in Section 3.6.3, operational activities associated with the proposed action would produce nominal emissions. Consequently, proposed operational activities would also not result in a cumulatively significant impact to criteria pollutant levels.

4.2.6.2 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 (USEPA 2013) to determine the relative increase in proposed GHG emissions. Appendix E presents estimates of GHG emissions generated by Alternative 1.

Table 4.2-1 summarizes the maximum annual GHG emissions generated from Alternative 1. These data show that the ratio of CO_2e emissions from the alternative to the CO_2e emissions associated with the net U.S. sources in 2011 is approximately 0.00013/5,797 million metric tons, or about 0.000002 percent of the U.S. CO_2e emissions inventory. Since GHG emissions from Alternative 1 would equate to minimal amounts of the U.S inventory, they would not substantially contribute to global climate change.

Therefore, GHG emissions from the proposed action would not produce cumulatively significant impacts to global climate change.

Table 4.2-1. Maximum Annual GHG Emissions from Alternative 1

Scenario	*Metric Tons per Year* [1]			
	CO_2	CH_4	N_2O	CO_2e
Alternative 1 Emissions	-	-	-	132
U.S. 2011 Net Emissions (10^6 metric tons)[2]	-	-	-	5,797.3
Emissions as a percent of U.S. Emissions	-	-	-	0.000002

CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrogen dioxide
Notes:
1. $CO_2e = (CO_2 * 1) + (CH_4 * 21) + (N_2O * 296)$
Source: USEPA 2013

Although the proposed action 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 Fiscal Year (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 USMC's *"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 DoN 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 U.S. Department of Agriculture 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 the proposed action 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 MCB Camp Pendleton 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.

4.2.7 Cultural Resources

The proposed action and No-Action Alternative would not result in disturbance of known cultural resources, including historic properties, archaeological resources, historic architectural resources, or traditional cultural resources. Therefore, the proposed action and No-Action Alternative, in conjunction with other projects on or in the vicinity of MCB Camp Pendleton, would not result in cumulatively significant impacts on cultural resources.

4.2.8 Utilities

The geographic region of analysis for utility cumulative impacts is centered on the utility supply at MCB Camp Pendleton. The proposed action would not involve a significant net change in utilities usage. Proposed water demands associated with operations would be similar to existing demands. Operations would result in minimal changes in the amount of wastewater produced under existing conditions. Proposed electrical system upgrades would be designed consistent with SDG&E standards and would be sized to meet the needs of proposed facilities. The proposed action would not increase demands on natural gas such that the existing supply would be inadequate. Sufficient capacity exists within the landfills at

MCB Camp Pendleton to accommodate the increase in solid waste generation from construction and there would be no consequential change in the level of operational activities associated with the proposed action. The demands on potable water, sewage treatment, electricity, natural gas, and solid waste disposal of the other relevant projects, in combination with the demands from either alternative, would be accommodated by existing supplies and capacities and planned upgrades. Therefore, the cumulative utility impacts from the proposed action, in conjunction with other projects on and in the regional vicinity, would not be cumulatively significant.

4.2.9 Public Health and Safety

The proposed action would not result in significant impacts to the health and safety of public or military personnel. In addition, the proposed action would not result in environmental health risks or safety risks to children. Localized, residual concentrations of pesticides within the project site resulting from past agricultural operations have been remediated in accordance with local, state, and federal regulations. Therefore, the project site would not be affected by potential soil and/or groundwater contamination related to past, present, and future actions listed in Table 4.1-1, thus minimizing cumulative impacts. The project site is located within an Explosive Safety Area associated with a nearby explosive handling site. However, personnel are required to evacuate buildings within this area during explosive handling operations. Related and cumulative projects located within potential Explosive Safety Areas, Clear Zones, Accident Potential Zones, or Approach-Departure Clearance Zones would similarly adhere to established Base safety protocol, minimizing potential cumulative health and safety impacts. All proposed projects on MCB Camp Pendleton would follow strict health and safety regulations for all construction and operational activities, thereby avoiding any unsafe conditions. Therefore, implementation of the proposed action, in conjunction with other related and cumulative projects, would not result in cumulatively significant impacts related to public health and safety.

5 Other NEPA Considerations

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

The proposed action would result in an overall increase in energy use at MCB Camp Pendleton. However, energy (electricity and natural gas) and water consumption, as well as demand for services, would not increase significantly due to implementation of the proposed action (refer to Section 3.8).

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 also is 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 proposed action 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 proposed action would not result in the destruction of 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 Local Short-Term Use of the Human Environment and Maintenance and Enhancement of Long-Term Productivity

NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have on 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 the proposed action 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 proposed action 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 proposed action 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.

6 List of Preparers

Lead Agency

USMC
MCB Camp Pendleton
San Diego, California
Murray Roe (MCTSSA), Project Leader

This EA was prepared for the USMC under the direction of DoN by Leidos (formerly a part of 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***
Trevor Pattison	NEPA Project Manager/ Environmental Scientist	B.S., Geological Sciences-Earth Systems	14	Program Manager; Biological Resources Quality Assurance/Quality Control (QA/QC)
Catrina Gomez	Environmental Planner	MSEM, Environmental Science and Management	11	Project Manager; QA/QC
Jessica Degner	Environmental Planner	B.A., Environmental Studies	10	Land Use and Coastal Zone Management; Aesthetics
Perry Russell	Geologist/ Hydrogeologist	M.S., Geological Sciences	24	Topography, Geology, and Soils; Water Resources; Public Health and Safety
Debra Barringer	Biologist	M.S., Ecology	17	Biological Resources
Chris Crabtree	Air Quality Specialist	B.A., Environmental Studies	21	Air Quality QA/QC
Stephen Bryne	Senior Cultural Resources Specialist	M.S., Anthropology	15	Cultural Resources
Karen Foster	NEPA Project Manager/ Cultural Resources Manager	Ph.D., Anthropology	22	Cultural Resources QA/QC
Vanessa Emerzian	Environmental Planner/Conservation Ecologist	M.S., Natural Resources	10	Utilities
Heather Duvall	Word Processing Specialist	A.A., Office Technology	18	Word Processing
Jennifer Wilson	Publications Manager/Technical Editor	B.A., English Literature	12	Copy Editing
Catherine FitzGerald	Graphic Artist	A.A., Fine Arts	30+	Graphic Design
Chris Woods	GIS Programmer	B.A., Geography	13	GIS
Andrew Lissner	Senior Program Manager	Ph.D., Biology	30+	QA/QC

7 Persons and Agencies Contacted or Consulted

U.S. Government

U.S. Navy

Ryan Maynard, NAVFAC SW Environmental Planner

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MCTSSA - MCB Camp Pendleton Tenant Command

Captain Kanella Hatchett, MCB Camp Pendleton, MCTSSA Logistics

Murray Roe, MCB Camp Pendleton, MCTSSA Operations

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Appendix A

Public Participation Process

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Public Participation Process

As part of this EA, the USMC conducted a public involvement process to solicit input from interested parties on the proposed action. The USMC published an NOA of the Draft EA in the *San Diego Union Tribune North County Edition* and *Orange County Register* newspapers on March 28, 29, and 30. The DoN will announce the release of the Final EA and Finding of No Significant Impact (FONSI) by publishing an NOA in the above-listed newspapers. The Final EA and FONSI will be available on the MCB Camp Pendleton website or by contacting ES, Camp Pendleton.

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Appendix B

California Coastal Commission Negative Determination Concurrence Letter

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CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE (415) 904- 5200
FAX (415) 904- 5400
TDD (415) 597-5885

May 12, 2014

W.J. Christensen, Head
Environmental Planning
U.S. Marine Corps
Marine Corps Installations West
Marine Corps Base Camp Pendleton
Box 555008
Camp Pendleton, CA 92055-5010

ATTN: Matthew Lorne

Re: **ND-0006-14**, U.S. Marine Corps Negative Determination, Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area Expansion, Marine Corps Base Camp Pendleton, San Diego Co.

Dear Mr. Christensen:

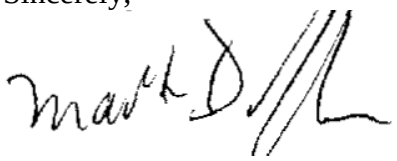
The Coastal Commission staff has reviewed the above-referenced negative determination for the expansion of Marine Corps facilities at the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area, off Cockelburr Rd., west of I-5 and north of the Santa Margarita River on Marine Corps Base Camp Pendleton. The expansion would involve activities on 31 acres of land, south of and adjacent to the existing MCTSSA, and would consist of installing temporary and permanent radar antennae, two test laboratory/office buildings, with associated parking and utilities. The facilities are needed to implement Marine Corps Antiterrorism/Force Protection measures. The expansion area does not contain any environmentally sensitive habitat. It was previously farmed and is currently fallow, and the farmer formerly leasing the property has ceased operations.

The antennae and other structures would be sited and designed to avoid being within a line of sight from which predators could observe (and thus prey upon) snowy plovers present in beach areas to the west of the site. Construction noise as well would avoid effects on snowy plovers. No public access exists at the site, as it is restricted in this area due to military security needs. While the site is visible from I-5, the visual impact would be minimal: the distance from I-5 is 1,200 ft., the buildings would have low profiles, and the antennae and buildings would appear as similar to the existing MCTSSA facilities just to the north. Moreover, due to the need for clear areas around radar towers, to

maximize their operational capabilities, approximately 80+% of the site would remain undeveloped. Low-energy and LEED designed standards would be incorporated into the project. Solar panels would be designed to avoid creating any daytime glare affecting any public areas.

In conclusion, the Commission staff **agrees** with the Marine Corps that the proposed project would not adversely affect coastal zone resources. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine of the Commission staff at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,



(for) CHARLES LESTER
Executive Director

cc: San Diego District

Appendix C

SHPO Concurrence Letter

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OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
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April 03, 2014

Reply in Reference To: USMC_2014_0203_001

Ms. Danielle Page
Head, Cultural Resource Management Branch
Assistant Chief of Staff, Environmental Security
United States Marine Corps
Box 555010
Camp Pendleton, CA 92055-5010

Re: Consultation for Marine Corps Tactical Systems Support Activity (MCTSSA) Expansion, Marine Corps Base CamPen, San Diego, California (your letter 5090, ENV/CRS of January 22, 2014)

Dear Ms. Page:

Thank you for initiating consultation regarding the United States Marine Corps' efforts to comply with Section 106 of the *National Historic Preservation Act of 1966* (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800. MCB Camp Pendleton proposes to expand the existing Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area (CA) by adding approximately 36 acres of land to it. The proposed expansion area is located immediately to the southeast of the MCTSSA CA. This proposed undertaking would include the following actions:

- Grading of the expansion area;
- Construction of a maintenance facility, two test laboratory/office buildings, a vehicle test track, an antennae site, two permanent radar pads, and a vehicle parking area; and
- Installation of new utilities (electricity, natural gas, potable water, wastewater, and communications), sidewalks, drainage, and a perimeter fence.

The area of potential effects (APE) has been identified as the expansion area, which encompasses approximately 36 acres.

The existing CA is bordered on the east and the south by agricultural fields that have been used for agricultural purposes for approximately 50 years. During that period, the agricultural fields have been plowed and/or disked annually, which has resulted in a discernible plow zone.

Initially the proposed expansion area was larger in size and encompassed approximately 88 acres (which contained the current APE of 36 acres). On May 23, 2011, a records review was conducted at the South Coastal Information Center to identify previous archaeological investigations and recorded cultural resources located within a one mile radius of the 88 acres. That review identified 24 archaeological investigations (including six which included part of the 88 acres) and two archaeological sites (CA-SDI-12629/H, and CA-SDI-12630/H) that were located within the 88 acres. On January 4 & 5, 2012, Stephen Bryne, Cathy Halley, and Craig Kierulff of SAIC conducted a pedestrian survey of the 88 acres. In addition to relocating the two previously known sites, they also identified three new sites (CA-SDI-20928, CA-SDI-20929, and CA-SDI-20930) and five occurrences of isolated artifacts or ecofacts. All of the new sites and the isolated artifacts were located within the 88 acres. The ground surface visibility (approximately 70%) was very good during the pedestrian survey and the survey reliability was considered to be very good or excellent.

As a result of both the records review and the pedestrian survey, MCB Camp Pendleton reduced the size of the expansion area from 88 acres to the current APE of 36 acres. Consequently, the five archaeological sites and the five occurrences of isolated artifacts are now located outside of the revised APE and will not be affected by the proposed undertaking. MCB Camp Pendleton has established buffer zones of 100 feet around each of the five archaeological sites to ensure that those sites will not be impacted.

In the final archaeological survey report (dated August 2013), Mr. Bryne (SAIC) concluded or recommended the following:

- Recognizing both the past agricultural use of the APE and the demonstrated existence of five archaeological sites in the area of the revised APE, he concluded that there is a potential for intact subsurface cultural deposits to be located under the plow zone; and
- He recommended that both archaeological and Native American monitors be present during all ground disturbing activities associated with the proposed undertaking.

As a result of the identification efforts, MCB Camp Pendleton did not identify any historic properties that were located within the revised APE. Therefore, MCB Camp Pendleton has concluded that a finding of No Historic Properties Affected is appropriate for this undertaking.

After reviewing your letter of January 22, 2014, I have the following comments:

(1) In your letter, you stated that MCB Camp Pendleton is consulting with six federally and one non-federally recognized tribal governments, and has notified the public through contacts with the San Diego Archaeological Society in regards to the proposed undertaking;
(2) I agree that there is a potential for the existence of intact cultural resources located below the plow zone. Consequently, I recommend that all ground disturbing activities be monitored by both archaeological and Native American monitors; and
(3) I concur that your finding of No Historic Properties Affected is appropriate for this undertaking.

Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, you may have additional future responsibilities for this undertaking under 36 CFR Part 800. Should you encounter cultural artifacts during ground disturbing activities, please halt all work until a qualified archaeologist can be consulted on the nature and significance of such artifacts.

Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions or concerns, please contact either of the following members of my staff: Ed Carroll at (916) 445-7006 or at e-mail at Ed.Carroll@parks.ca.gov or Duane Marti at (916) 445-7030 or at email at Duane.Marti@parks.ca.gov.

Sincerely,

Carol Roland-Nawi, Ph.D.

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

Appendix D

Standard Construction Measures

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Standard Construction Measures

Several non-project-specific measures that are standard requirements for construction contracts on Marine Corps Base (MCB) Camp Pendleton would also be implemented as part of Alternative 1 (Marine Corps Tactical Systems Support Activity [MCTSSA] South Expansion).

1. A qualified archaeological and Native American monitor will be present during all ground-disturbing activities. This monitor will be hired by the contractor and meet the approval of Camp Pendleton. As required, a qualified archaeologist and Native American monitor would conduct the Special Conservation Measures listed in the Environmental Assessment (EA) (Section 2.1.4.4).
2. Before the bidding process, the construction contractor(s) will be informed of the cultural resources constraints for this project by Camp Pendleton. The contractor(s) will be responsible for impacts to cultural resources that occur as a direct result of construction activities outside the limits of construction. All areas to be avoided will be clearly marked on project maps provided to the contractor. These areas will be designated as "no construction" zones. These areas will be flagged by the project biologist prior to the onset of construction activities. The project footprint, including staging areas and temporary access roads, will be sited to avoid or minimize impacts to cultural resources. Final construction designs for the project will be provided to MCB Camp Pendleton Environmental Security. These designs will include the final footprint of all facilities relative to cultural resources and will include a table showing final permanent and temporary impacts.
3. In the event that archaeological materials (e.g. shell, wood, bone, or stone artifacts) are found or suspected during project operations or the project footprint is altered, work must be halted in the area of discovery and MCB Camp Pendleton Environmental Security notified at (760) 725-9738, as soon as practicable, but no longer than 24 hours after the discovery. Project work at the discovery site shall not proceed until the Base Archaeologist has the opportunity to evaluate the find and gives permission to resume construction activities.
4. Wildfires will be prevented by exercising care when driving and by not parking vehicles where catalytic converters can ignite dry vegetation. In times of high fire hazard, trucks may need to carry water and shovels or fire extinguishers in the field. The use of shields, protective mats, or other fire prevention equipment will be used during grinding and welding to prevent or minimize the potential for fire. No smoking or disposal of cigarette butts will take place within vegetated areas.
5. During construction, field crews will refer environmental issues, including wildlife relocation, dead or sick wildlife, hazardous waste, or questions about avoiding environmental impacts, to Naval Facilities Engineering Command (NAVFAC) Southwest, MCB Camp Pendleton Environmental Security, and the Regional Officer in Charge of Construction (ROICC).
6. Construction vehicles will use existing access roads whenever possible. Where new access is required, all vehicles will use the same route. All access routes outside of existing roads or the construction corridor will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction. All access routes outside of existing roads or the construction area will be delineated on the grading plans and reviewed by the qualified archaeological monitor, NAVFAC Southwest and MCB Camp Pendleton Environmental Security, and approved by the ROICC.

7. Staging areas will be placed within existing roads or inside the limits of construction. To the degree feasible, staging areas will be located in disturbed habitat, such as existing dirt roadways. Staging areas will be delineated on the grading plans, which will be reviewed by the qualified biological monitor, NAVFAC Southwest and MCB Camp Pendleton Environmental Security archaeological monitor, and approved by the ROICC.
8. Fueling and maintenance of equipment will take place within existing paved areas or the identified laydown area, but not closer than 100 feet (ft) (30 meters [m]) to drainages. An appropriate fueling area will be marked on construction plans. Emergency provisions will be in place at all crossings before the onset of construction to prevent accidental spills from contaminated downstream habitats. The construction contractor will also develop and disseminate a Spill Prevention, Control and Countermeasures (SPCC) plan. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. "No-fueling zones" will also be designated on construction maps.
9. Cleaning of vehicles and equipment should take place offsite to the greatest extent possible. If it is necessary to clean vehicles onsite, vehicles may be rinsed with water and designated bermed areas must be used to prevent rinse water contact with stormwater, creeks, rivers, and other water bodies. Soaps or detergents should not be used.
10. The contractor shall follow the requirements for stormwater drainage design found in the MCB Camp Pendleton requirements.
11. Site design must account for both water quality treatment and water quantity/flood control. Contractors must comply with specific stormwater design standards found in the MCB Camp Pendleton Requirements, latest edition, which can be obtained from Public Works. Low Impact Design (LID) strategies are described in detail in Unified Facilities Criteria (UFC) 3-210-10. The *California Stormwater Quality Association Stormwater Best Management Practices Handbook for New Development and Redevelopment* should be used as guidance for design of Best Management Practices (BMPs) and pollutant source control. LID techniques may also be used to meet Leadership in Energy and Environmental Design (LEED) requirements including:

    p. Federal projects with a footprint of 5000 square feet or greater must implement LID in accordance with the Energy Independence and Security Act EISA (2007) and Department of Defense LID policies (2007, 2008, 2010). A comprehensive set of stormwater planning, design and construction elements must be used to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. This will be achieved with LID techniques using the 95th percentile, 24-hour storm, or via a site-specific hydrologic analysis using continuous simulation modeling or other tools.

    q. MCB Camp Pendleton has been designated a Nontraditional Permittee under the California Phase 2 Small Municipal Separate Storm Sewer System (MS4) Permit, State Water Resources Control Board (SWRCB) Order No. 2013-0001-DWQ (NPDES No. CAS000004). Contractors must comply with Post Construction Standards found in Section F.5.g of the Small MS4 Permit. Design storm criteria are given in the permit.
12. The Construction Contractor would obtain coverage under the California Construction General Permit for stormwater, SWRCB Order No. 2009-0009-DWQ (NPDES No. CAS 000002), as amended in 2010 and 2012 for projects that have a total area of one acre or more of soil disturbance, or are less than one acre but are part of a larger project (common plan of development). Soil disturbance includes, but is not limited to, clearing, grading, grubbing, excavation, demolition, stockpiling, trenching, laydown areas, and construction of access roads. Permitted construction projects must comply with the provisions described below:

a) The contractor must complete a Risk Determination and prepare a draft Storm Water Pollution Prevention Plan (SWPPP) in accordance with the risk level requirements in the Permit. Submit the draft SWPPP and Risk Determination to the ROICC for review at least 60 days prior to planned initiation of any soil disturbance. The SWPPP must be prepared, stamped and revised by a Qualified SWPPP Developer (QSD) (licensed engineer, hydrologist or other qualified professional identified in the Permit).

b) The contractor must obtain coverage under the General Permit by uploading a Notice of Intent (NOI), approved SWPPP, Risk Determination, Site Map and other supporting documentation to the California Stormwater Multi-Application and Report Tracking System (SMARTS) website. The ROICC will review, certify and submit the NOI to the SWRCB. The contractor must submit a hard copy of the Certification Statement from SMARTS, together with a check for the permit fee, to the San Diego Regional Water Quality Control Board. The Contractor shall pay the permit fee, excluding the ambient monitoring surcharge. Allow 7-14 days for fee processing. A Waste Discharge Identification (WDID) number must be received from SMARTS prior to initiation of any soil disturbance.

c) The project must comply with all provisions described in the Permit and must strictly follow the SWPPP. The SWPPP must be maintained at the project site and updated as necessary to track modifications, BMP location and implementation, training, etc. The Certification Statement must be included in the on-site SWPPP.

d) On-site stormwater compliance shall be the responsibility of the contractor's QSP (certified professional identified in the Permit). The QSP is responsible for all required inspections, sampling, recordkeeping and corrective actions. The contractor will upload all required documentation to the SMARTS website and notify the ROICC that documents are ready for review, certification and submittal.

e) Annually by 1 August, or upon completion of construction, whichever comes first, the contractor must upload a draft Annual Report, including records of all inspections, sampling and corrective actions to the SMARTS website. The ROICC will review, certify and submit the Annual Report to the State Water Resources Control Board.

f) Upon completion of construction, the contractor must upload the Notice of Termination (NOT) and supporting documentation to the SMARTS website. The ROICC will review, certify and submit the NOT to the State Water Resources Control Board. In order to terminate coverage, the project must meet permanent stabilization requirements specified within the Permit. The Annual Report and Notice of Termination must be accepted by the State Board before the contractor may be released from the contract.

13. If the proposed activity will, or is likely to, involve groundwater extraction (dewatering) at construction sites, foundation dewatering, or groundwater extraction associated with a remediation/cleanup project, contact MCB Camp Pendleton Environmental Security (ES) Stormwater Section for guidance at 725-9760. Disposal options for groundwater may include the following: (1) Low volume discharges of uncontaminated groundwater to land must comply with the San Diego Basin Plan Conditional Waiver No. 3, "Low Threat Discharges to Land" found in San Diego Regional Water Quality Control Board (RWQCB) Resolution No. R9-2014-0041. Land applied water may not run off. (2) Discharges to the sanitary sewer system must be requested through the Facilities Wastewater Operation Supervisor at 725-4018. (3) If options (1) and (2) are not feasible, discharges to storm drains or surface waters (including seasonally dry channels) must obtain coverage under the San Diego General Groundwater Permit, Regional Water Quality Control Board (RWQCB) Order No. R9-2008-0002. Sampling and/or treatment

will be required and are the contractor's responsibility. Application for permit coverage, including baseline sampling and work plan prepared by licensed engineer, must be submitted to the ROICC at least 60 days prior to the planned commencement of the discharge. The ROICC will review and certify the application, and the contractor will then submit the application and permit fee to the RWQCB. A WDID number must be received from the Water Board prior to initiation of dewatering. Permit termination is accomplished via a letter from the contractor certifying all dewatering activities have been completed and the site has been restored, with a cover letter from the ROICC.

14. Erosion and siltation of off-site areas during construction will be controlled and minimized. The contractor will prepare a SWPPP and obtain coverage under the General Construction Storm Water Permit (2009-0009-DWQ). The ROICC will review and approve the SWPPP and provide oversight over SWPPP implementation. The SWPPP will include BMPs such as silt fences, siltation basins, gravel bags, or other controls during construction and revegetation phases of the project as found in the *California Stormwater Quality Association Construction Best Management Practice Handbooks* (California Stormwater Quality Association 2009). Contractors shall use only certified weed-free straw wattles, straw bales, and/or hay bales.

15. Stormwater BMPs shall include but not be limited to the following practices, and these shall be detailed in the SWPPP. Stormwater and erosion controls shall be installed at the very beginning of soil disturbance on the construction site. Silt fencing will be placed around the perimeter of the project site. Stockpiles of soil, concrete material, etc. will be covered with a tarp or blanket and/or surrounded with certified weed-free straw wattles or gravel bags. Slopes will be protected with certified weed-free straw wattles or blankets. Whenever possible, grading will be phased to limit soil exposure. Finished areas will be revegetated or hydroseeded as soon as possible. Storm drain inlets will be protected using gravel bags or straw wattles. Construction entrances will be stabilized. Materials that could impact stormwater runoff will be stored in lockers, on pallets, inside rubber berms or indoors. Material storage areas will be located away from existing storm drains. Sedimentation basins will be constructed where appropriate and shall include additional filters for drainage (gravel bags, silt fencing, filter fabric, etc.) where necessary. Sediment will be allowed to settle out for several days prior to draining sediment basins, and discharge shall be filtered or sprayed onto grass when necessary. Check dams will be used to reduce runoff velocities where necessary. BMPs will be regularly inspected and repaired. Damaged or worn silt fences, wattles, gravel bags, etc. shall be replaced prior to rain events.

16. After construction of new buildings or potable water pipes, irrigation systems or firefighting pipes, hydrostatic testing may be required. If there will be discharges of potable water resulting from hydrostatic testing, repair or maintenance of potable water pipelines, tanks or vessels associated with drinking water purveyance and storage, contact Environmental Security (ES) Stormwater Section at 725-9760. Disposal options may include the following: (1) Low volume discharges to land must comply with San Diego Basin Plan Conditional Waiver No. 3, "Low Threat Discharges to Land" found in San Diego Regional Water Quality Control Board (RWQCB) Resolution No. R9-2014-0041. Land applied water may not run off. (2) Discharges to the sanitary sewer system must be requested through the AC/S Facilities Wastewater Operation Supervisor at 725-4018. (3) If options (1) and (2) are not feasible, discharges to storm drains or surface waters (including seasonal waters) must obtain coverage under the San Diego Regional Water Quality Control Board Order No. R9-2010-0003 (NPDES NO. CAG679001), General Waste Discharge Requirements for Discharges of Hydrostatic Test Water and Potable Water to Surface Waters and Storm Drains or Other Conveyance Systems or the equivalent permit from the State Water Resources Control Board. Dechlorination and BMPs will be required and flow rate may be capped.

17. All landscaping must be in accordance with the most recent version of the *Camp Pendleton Base Exterior Architecture Plan* (BEAP). In accordance with this plan, and Marine Corps Order P5090 2A, 11201.2A which calls for the use of native plants in landscaping, only native plants, and non-native plants found in the BEAP "acceptable plant" list can be planted in landscaping or project revegetation efforts (BEAP, Basewide Master Plant List, pages 3-61 to 3-65).
18. The action proponent, or their contractor, will ensure that construction and demolition debris resulting from construction activities will be properly disposed of, including asphalt or concrete, and must not be discarded onsite. In the event of excavation of asphalt or concrete, excess material should be disposed of in accordance with California Code of Regulations Title 14, Division 3, Article 5.9.
19. All trash shall be disposed of properly. Following project completion, all equipment and waste must be removed from the site. The site shall be restored to the original condition once the project is completed. At least fifty percent (50%) of the construction and demolition debris generated must be diverted from placement in a landfill through recycling or reuse (MCO P5090.2A, Chapter 11 (Sec.2), 11201(4)). Soil will be re-contoured prior to habitat restoration.
20. Implement material and waste management programs during construction, such as solid, sanitary, septic, hazardous, contaminated soil, concrete, and construction waste management; spill prevention; appropriate material delivery and storage; employee training; dust control; and vehicle and equipment cleaning, maintenance, and fueling. Each of these programs would address proper secondary containment requirements, spill prevention and protection, structural material storage needs, proper concrete washout design and containment, perimeter and surface protection for laydown and maintenance areas, and relaying all such requirements to construction staff. Storage, use, and disposal of hazardous materials would be conducted in accordance with local, state, and federal guidelines pertaining to handling, storage, transport, disposal, and use of such materials.
21. All diesel generators over 50 horsepower would be permitted by the San Diego Air Pollution Control District to ensure proper compliance. This includes both portable and emergency generators. Current permits would be kept on site with the permits easily accessible and displayed as per the requirements within the permit.
22. No night work is anticipated for this project; however, if night work and lighting is required, a qualified biologist will monitor all night-time construction activities in and adjacent to sensitive habitat to avoid disturbance to listed or Migratory Bird Treaty Act (MBTA) species. Any night lighting used will be shielded and directed away from any sensitive habitat. Project excavation which intercepts groundwater must comply with the General Waste Discharge Requirements (WDR) for Discharges from Groundwater Extraction and Similar Discharges to surface Waters within the San Diego Region except for the San Diego Bay (Order No. R9-2008-0002). The Contractor must submit a Notice of Intent (NOI), project map, and initial sampling report to the San Diego Regional Water Quality Control Board (RWQCB) to obtain permission to dewater construction excavations and discharge to municipal storm drain, surface water, or dry channels. Discharge would be sampled to ensure that it complies with discharge and receiving water limits. For small discharges, the permit may be avoided if the Facilities Maintenance Department (FMD) Wastewater Supervisor allows the discharge into sanitary sewer. A waiver may be obtained, with assistance from MCB Camp Pendleton Environmental Security, for limited discharge to land.

23. Construction workers will be prohibited from bringing domestic pets to construction sites to ensure they would not affect wildlife through harassment or predation in adjacent natural habitats.
24. Project design for all electrical upgrades and associated facilities will follow the raptor protection guidelines supported by the Base's avian protection program, as stated in Section 4.3.5.2 of the *Integrated Natural Resource Management Plan* (INRMP) (USMC 2007). Following these guidelines would facilitate compliance with the Bald and Golden Eagle Protection Act and MBTA.

References

California Storm Water Quality Association. *California Stormwater Quality Association Construction Best Management Practice Handbooks* (California Stormwater Quality Association 2009). Available at: https://www.casqa.org/store/products/tabid/154/p-167-construction-handbookportal-initial-subscription.aspx.

U.S. Marine Corps (USMC). 2007. *Integrated Natural Resources Management Plan*. Marine Corps Base Camp Pendleton. March.

Appendix E

Record of Non-Applicability (RONA)

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