ENVIRONMENTAL ASSESSMENT
Borrow Pits

U.S. ARMY YUMA PROVING GROUND

December 2014

U.S. Army Garrison Yuma Proving Ground
Environmental Sciences Division
Yuma, Arizona 85365

Finding of No Significant Impact

TITLE OF ACTION: *Environmental Assessment for Borrow Pits; U.S. Army Garrison Yuma Proving Ground*.

BACKGROUND: The U.S. Army Garrison Yuma Proving Ground (USAG YPG) prepared an environmental assessment (EA) to establish multiple long-term borrow pit sites in close proximity to USAG YPG cantonment areas The EA was prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing National Environmental Policy Act (NEPA) [40 Code of Federal Regulations (CFR) 1500-1508]; Department of Defense (DoD) Directive 4715.9, *Environmental Planning and Analysis* (1996); and *Environmental Analysis of Army Actions* (32 CFR Part 651; March 29, 2002).

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES: The purpose of the proposed action is to establish multiple long-term borrow pit sites in close proximity to USAG YPG cantonment areas. These borrow pit sites are needed to provide aggregate material for construction and maintenance of facilities on USAG YPG. Establishing the pits near the respective cantonment area is necessary to reduce the costs associated with hauling material from the pits to construction sites. The borrow pits are intended to be in well-defined locations and would be reused for future construction and maintenance projects in years to come. The proposed pits were sited near the cantonment areas because fill material is often needed near these locations.

<u>Alternative A (Proposed Action)-To Establish Three (3) Borrow Pits</u> - establish three borrow pit sites in the vicinity of the major cantonment areas on USAG YPG. These three sites would be the Howard Cantonment Area (HCA, formerly known as MAA) Pit, Ocotillo Pit, and 6th Street Pit. The proposed pits are located along existing roads and have had varying degrees of previous surface disturbance to portions of the sites. Portions of the proposed HCA, Ocotillo, and 6th Street pits have previously been used at some time in the past as borrow pit sites.
The pit locations were chosen primarily based on proximity to existing access roads and previous surface disturbance. Prior to use all pit boundaries would be clearly marked to ensure that no additional areas would be disturbed or expanded.

<u>Alternative B-No Action Alternative</u>
Under the no action alternative, the borrow pits would not be established. Aggregate fill material would be obtained on a project-by-project basis from available sources located in remote areas or from commercially available sources.

<u>Alternatives Considered but Eliminated from Detailed Analysis</u>
During the planning process, USAG YPG considered 14 additional sites to meet the purpose and need of the proposed action; however, those alternatives were eliminated from further consideration because they did not meet one or more of the selection criteria. They were eliminated due to conflicts with ongoing military activity, safety, or environmental concerns.

SUMMARY OF ENVIRONMENTAL EFFECTS: The evaluation of affected resources and the potential for environmental consequences initially encompassed a broad range of Valued Environmental Components (VECs); however, the potential for environmental impacts to some of the resource areas were determined to be nonexistent, unlikely, or negligible. Chapter 3 of the EA provides a discussion of those VECs not carried forward for further detailed analysis. As a result, the scope of environmental analysis focused on the VECs listed below because they

were determined to be potentially affected in connection with activities associated with the proposed action.

- Air Quality
- Biological Resources
- Cultural Resources
- Health and Safety
- Recreation
- Soil Resources
- Traffic and Transportation
- Water Resources

The analysis found that no significant impacts to environmental resources would result from establishing the three borrow pits, as proposed under Alternative A (Proposed Action).

The analyses in the EA included a consideration of potential cumulative effects associated with of the proposed action that could occur on a regional scale, including those that could result from incremental impacts. The analysis found that cumulative impacts to the natural and human environment on a regional scale are not likely to occur as a result of implementing the proposed action.

PUBLIC PARTICIPATION: Scoping letters were sent to Federal, State, Tribal, and local agencies; and to public stakeholders on September 18, 2014. The U.S Army Garrison Yuma Proving Ground published a public notice in the Yuma Sun on January 11, 2014 announcing the availability of the EA and draft Finding of No Significant Impact (FONSI) for review and comment. Copies of the EA and draft FONSI were sent to several stakeholders that requested copies during the scoping process. The EA and DRAFT FONSI were made available on USAG YPG's public website at http://www.yuma.army.mil/Documents.aspx. The public review period ended February 11, 2015 and USAG YPG received comments from four organizations. USAG YPG considered these comments in issuing this FONSI. Comments received did not result in a change in the proposed action or analysis of potential environmental effects.

As per comment received from the Arizona Department of Environmental Quality, USAG YPG will sample for the presence of polychlorinated biphenyls (PCBs) prior to mining or disposal of the concrete slabs located at the HCA pit.

CONCLUSION: Based on the analysis presented in the EA for establishing borrow pits on USAG YPG no significant environmental impacts are anticipated as a result of implementing the project as proposed under Alternative A (-To Establish Three (3) Borrow Pits). Therefore, preparation of an Environmental Impact Statement is not required and a FONSI is the appropriate decision document to conclude the NEPA process.

I have read and concur with the findings and analyses documented in the Environmental Assessment and hereby approve the Finding of No Significant Impact.

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Date: 2015.03.12 06:58:45 -07'00'

Gordon K. Rogers
Garrison Manager

Date

ACRONYMS AND ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
AR	Army Regulation
AGFD	Arizona Game and Fish Department
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
DOD	Department of Defense
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FNSI	Finding of No Significant Impact
Garrison	U.S. Army Garrison Yuma Proving Ground
HCA	Howard Cantonment Area (formerly known as MAA)
HMA	Herd Management Area
HMAP	Herd Management Area Plan
KFR	Kofa Firing Range
MAA	Main Administrative Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
NWR	National Wildlife Refuge
O_3	Ozone
Pb	Lead
$PM_{2.5}$	Particulate Matter (2.5 microns or less in diameter)
PM_{10}	Particulate Matter (10 microns or less in diameter)
RCRA	Resource Conservation and Recovery Act
SDZ	Surface Danger Zone
T&E	Threatened and Endangered (species)
tpy	tons per year
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
VEC	Valued Environmental Component
VOC	volatile organic compound
WSC	Wildlife of Special Concern
WCA	Walker Cantonment Area (formerly known as YTC)
YPG	Yuma Proving Ground
YTC	Yuma Test Center

REVIEW SIGNATURE PAGE

Reviewed by:

11 Dec 2014

Charles F. Ruerup
Chief, Environmental Sciences Division

Reviewed by:

Angelica Bharat
Director of Public Works

Reviewed by:

LTC Kary B. Reed
Command Judge Advocate

Approved by:

17 DEC 2014

Gordon K. Rogers
Garrison Manager

1.0 PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

The U.S. Army Garrison (USAG) Yuma Proving Ground (YPG) is the Army's center for natural desert environment testing. The primary mission at YPG is test and evaluation of medium and long range artillery; aircraft target acquisition equipment and armament; armored and wheeled vehicles; munitions; personnel and supply parachute systems; and other specialized equipment. The installation, located in southwest Arizona (see Figure 1), encompasses more than 3390 square kilometers (1309 square miles). YPG is ideally suited to testing a wide variety of military equipment due to the natural terrain and desert climate (YPG, 2001a).

YPG completed a Range Wide Environmental Impact Statement (RWEIS) in 2001. This Environmental Assessment (EA) is tiered from the RWEIS (YPG, 2001a) and has been prepared to support the decision making process pursuant to the requirements of the National Environmental Policy Act (NEPA) and Army Regulation (AR) 200-2 (32 Code of Federal Regulations, Part 651). This EA addresses the Proposed Action, reasonable alternatives to the Proposed Action, and site specific information regarding potential impacts on environmental resources associated with the development and use of borrow pits on YPG.

1.2 BACKGROUND

U.S. Army Garrison Yuma Proving Ground (Garrison) manages the land, facilities, and infrastructure in support of Yuma Test Center (YTC) and other components. The Directorate of Public Works (DPW) is tasked with construction and maintenance of facilities and infrastructure on YPG.

As new buildings, roads, or other facilities are constructed or maintained on YPG, DPW must obtain aggregate material (sand and rock) to use as fill for leveling or road construction. Due to YPG's remote location, commercial aggregate sources are extremely expensive to haul long distance. There is abundant aggregate material on YPG within previously disturbed areas in close proximity to the cantonment areas. Using existing disturbed areas on YPG as borrow pits will save money and reduce traffic and vehicle emissions during construction activity while providing ample aggregate resources. Furthermore, centralizing borrow pit operations in a network of established borrow pits will reduce the need for disturbing additional areas in the future to support construction in/around the administrative areas.

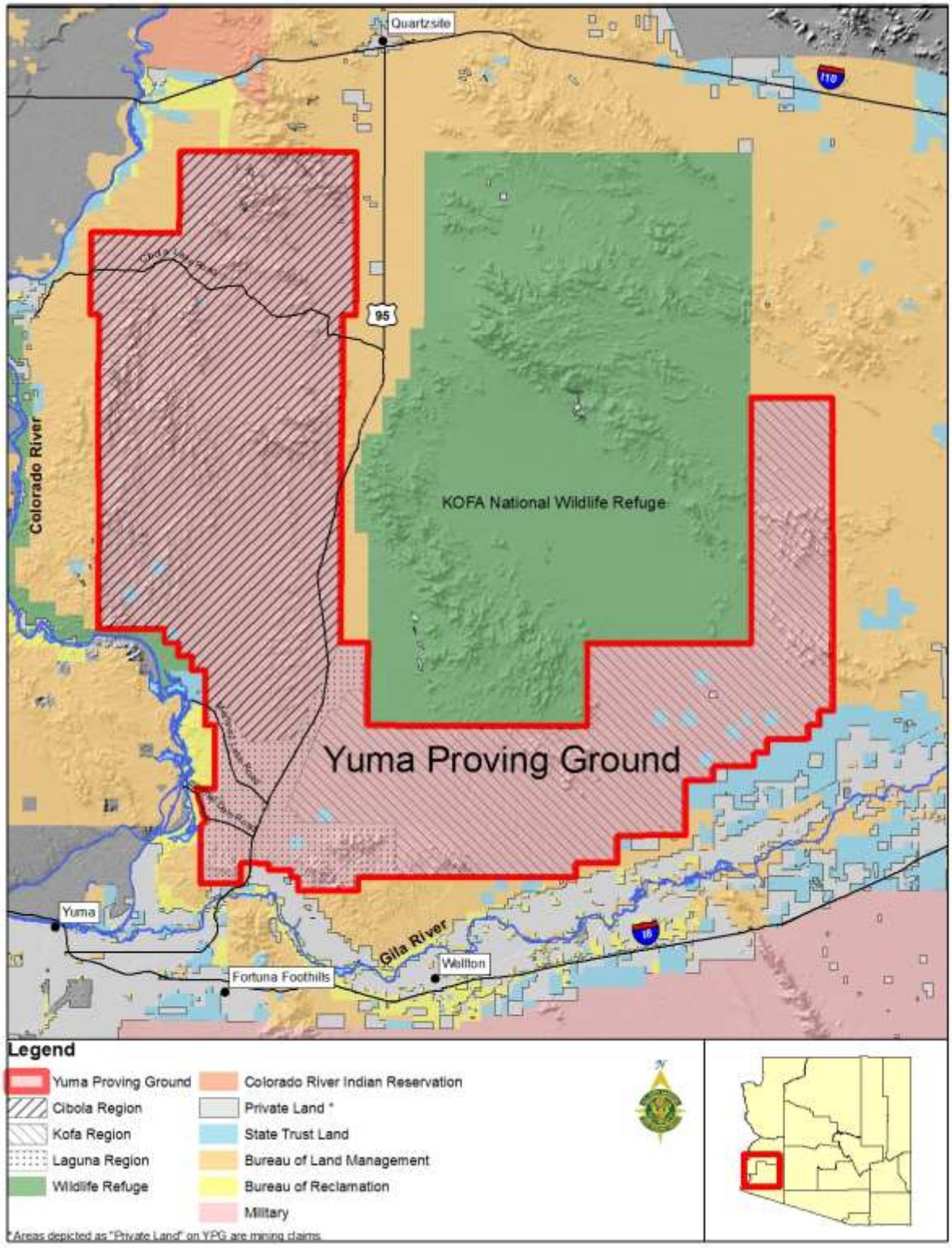

Figure 1 General Location of Yuma Proving Ground

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to establish multiple long-term borrow pit sites in close proximity to YPG cantonment areas. These borrow pit sites are needed to provide aggregate material for construction and maintenance of facilities on YPG. Establishing the pits near the respective cantonment area is necessary to reduce the costs associated with hauling material from the pits to construction sites.

The borrow pits are intended to be in well-defined locations and would be reused for future construction and maintenance projects in years to come. The proposed pits were sited near the cantonment areas because fill material is often needed near these locations.

1.4 SCOPE OF ANALYSIS

This EA has been prepared to assess the potential impacts to the natural and human environment associated with implementing the proposed action at YPG and the impacts associated with alternatives considered, including the "no action" alternative.

YPG determined that the proposed action could potentially affect the Valued Environmental Components (VEC) listed below; therefore, the focus of the analysis in this EA is on these resource areas.

- Air Quality
- Biological Resources
- Cultural Resources
- Health and Safety
- Land Use, Airspace, and Recreation
- Soil Resources
- Transportation and Infrastructure
- Water Resources

Chapter 3 provides a description of these VECs and their context in relation to the proposed action.

The evaluation of affected resources and the potential for environmental consequences initially encompassed a broad range of VECs; however, the potential for environmental impacts to some of the resource areas was determined to be nonexistent, unlikely, or negligible, and they were not carried forward for further detailed analysis (see discussion in Chapter 3).

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES CONSIDERED

2.1 INTRODUCTION

YPG is proposing to establish borrow pit sites near the cantonment areas for the production of aggregate material for construction. YPG considered a range of alternatives to accomplish the proposed action, and representatives from, Public Works, Engineering, Environmental Sciences, and the YPG Real Property Planning Board were involved in identification and approval of the proposed action. The following criteria were considered during the planning process and used to evaluate each alternative.

- To the extent possible, use of sites with existing surface disturbance
- Avoids conflicts with other mission activities and associated safety danger zones
- Adjacent to existing roads
- Avoids interference or potential to damage existing infrastructure (e.g., buried fiber optic cable, waterline, power lines)
- Avoids major drainages or washes
- Avoid creating dust near flight paths which can pose a hazard to aircraft.

2.2 ALTERNATIVE A (PROPOSED ACTION)-TO ESTABLISH THREE (3) BORROW PITS

The proposed action would establish three borrow pit sites in the vicinity of the major cantonment areas on YPG. These three sites would be the Howard Cantonment Area (HCA, formerly known as MAA) Pit, Ocotillo Pit, and 6th Street Pit (See Figures 1 through 4). The proposed pits are located along existing roads and have had varying degrees of previous surface disturbance to portions of the sites. Portions of the proposed HCA, Ocotillo, and 6th Street pits have previously been used at some time in the past as borrow pit sites.

The pit locations were chosen primarily based on proximity to existing access roads and previous surface disturbance. Prior to use all pit boundaries would be clearly marked to ensure that no additional areas would be disturbed or expanded.

Use of these sites would involve excavation of material from the pits by heavy equipment such as bulldozers and loaders. Material would be loaded onto trucks and hauled away to individual project sites. Since the material would be used mainly for construction fill, there would be no shakers, concrete plants, asphalt plants or other processing facilities established at the pits.

The duration of use for the pits would depend on the material needs. The pits would operate during daylight hours. When construction or maintenance activities need material, the pit would be active. Once an individual project was complete, the pit operator would conduct interim reclamation by ensuring there are no high walls. Excess aggregate material from construction sites may be deposited in the pits for later use.

Pit operators would ensure that pit slopes do not exceed a $1^1/_2$ to 1 horizontal to vertical ratio. The Army Corps of Engineers' Safety and Health Requirements Manual (EM 385-1-1 Section 25 Excavation and Trenching) states "for excavations less than 20 ft [feet] (6 m [meters]) in depth, the maximum slope shall be 34° measured from the horizontal ($1^1/_2$ horizontal to 1 vertical)."

Invasive plants in and around the pits would be controlled in accordance with the Installation Weed Management Plan. Methods of control may include mechanical or chemical treatment.

Mechanical treatment could include cutting or uprooting. Chemical treatment would involve the use of herbicides in accordance with the Installation Integrated Pest Management Plan.

Once the desired aggregate material is exhausted from a site, the pit would be reclaimed by reducing the slopes of the pit edges and contouring the surface to promote vegetation growth. Contouring would include ripping of compacted soils and pitting to allow seed and moisture retention. A locally collected native seed mix would be spread once the soil has been prepared through ripping or contouring. The pit operator will consult with the YPG Natural Resources Manager prior to conducting final reclamation to ensure they are using effective techniques. If, during operation of the pit, some areas become naturally reclaimed, native vegetation may be preserved to promote natural revegetation.

2.2.1 Proposed Borrow Pit Sites

2.2.1.1 HCA Pit

The HCA Pit is approximately 3.8 acres in size and is located just north of the Cantonment Area. The proposed pit is surrounded by dirt roads and the eastern portion of the pit was previously used as a borrow pit. There is an abandoned construction pad with several concrete slabs and remnants of disposed electrical conduit in the center of the site that served as a substation or similar function to a nearby solar electrical generating field, both constructed in the early 1990s. The slabs and conduit would be demolished and properly disposed of as the material is mined. Material would be hauled along existing dirt roads and be used at the HCA or other nearby facilities.

2.2.1.2 Ocotillo Pit

The Ocotillo Pit is approximately 11.3 acres and is located east of the Laguna Army Airfield (LAAF) and north of the Walker Cantonment Area (WCA). This pit lies adjacent to two paved roads (Ocotillo and Martinez Lake roads). The eastern part of this site was previously used as a borrow pit and identified on National Geographic TOPO! 1:24,000-scale map. Material would be hauled along Ocotillo Road and used for construction at LAAF, WCA or other nearby facilities.

2.2.1.3 6th Street Pit

The 6th Street Pit is approximately 3.6 acres and is located north of the Kofa Firing Range (KFR) Cantonment Area. This site is adjacent to 6th Street and 8th Street. The southern portion of the site is an existing borrow pit. Material would be hauled along either 6th Street or 8th Street. The existing pit on this site floods periodically when the wash to the east overflows into the pit. In order to prevent flooding of the pit and preserve natural flow in the wash, a berm would be constructed along the east boundary of the pit.

2.3 NO ACTION ALTERNATIVE

Under the no action alternative, the borrow pits would not be established. Aggregate fill material would be obtained on a project-by-project basis from available sources located in remote areas or from commercially available sources.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

During the planning process, YPG considered several sites to meet the purpose and need of the proposed action, however, several sites were eliminated because they did not meet one or more

of the selection criteria (see section 2.1). Table 1 documents the alternatives considered and the criteria that were not met.

Table 1: Alternative Sites Eliminated From Analysis

Proposed Site	Criteria for Elimination
HCA # 1	Site was too close to the travel camp. Noise and dust generation would have been a nuisance to visitors.
Ocotillo Alternate	Original configuration was too near the approach angle for LAAF airfield.
Pit 1 North	Debris on site suggested the possibility of UXO.
Pit 1 South	Eliminated due to proximity to testing activity.
Pit 8	Eliminated due to proximity to testing activity.
Pit 5	Eliminated due to proximity to testing activity.
Pit 2	Eliminated due to proximity to testing activity.
Pit 7	Eliminated due to proximity to testing activity.
Pit 9	Eliminated due to proximity to testing activity.
Pit 10	Eliminated due to proximity to testing activity.
Pit 6	Eliminated due to proximity to testing activity.
Walker Pit	Site is located within historic Camp Laguna. There is probability of affecting cultural resources.
FOB Pit	Site access would require major road improvements. This pit would result in long haul distances to enter the LAAF perimeter fence.
2nd Street Pit	This site was a previous sewage lagoon which had been closed and backfilled.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Environmental effects can be direct, indirect, or cumulative and short-term or long-term. Direct effects are caused by the action and occur at the same time and place. Indirect effects are the reasonably foreseeable consequences of the action but occur later in time or are further removed in distance from the direct effects. Cumulative effects result from the incremental effect of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

The assessment of potential impacts and significance of implementing the proposed action was determined based on the requirements set forth in 40 CFR 1508.27. Impacts are evaluated at three levels: (1) no impact—no impact to the resource is predicted; (2) no significant impact—an effect is predicted, but the impact does not meet the intensity/context significance criteria for the specific resource; and (3) significant impact—an effect (either beneficial or adverse) that meets the intensity/context significance criteria for the specific resource.

All known mitigating measures have been included in the proposed action. It is assumed that the proposed action will be implemented as described, using accepted guidelines, standard operating procedures, and best management practices (BMPs); therefore, consequences described below

are short-term, temporary, and not significant in most cases. The analysis of environmental effects from establishing borrow pits on YPG initially considered a broad range of resources and VECs. The evaluation of potential for environmental consequences on affected resources conducted by YPG included the VECs listed below and were not carried forward for further analysis because the potential for environmental impacts to these resources was determined to be nonexistent, unlikely, or negligible. This allowed the analysis to maintain focus on the resource areas where an impact is more likely to occur

Coastal Zone Management: The primary focus of the Coastal Zone Management Act is to manage, preserve, protect, develop, restore, or enhance the resources of the nation's coastal zones. YPG is not located in a coastal area, and there are no activities planned in the proposed action that would impact any coastal resources.

Environmental Justice: Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires federal agencies to identify and address adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Proposed activities will not disproportionately affect minority and/or low-income populations through substantial degradation of air or water quality; or exposure to hazardous materials, substances, or waste.

Floodplains: Executive Order 11988 *Floodplain Management* restricts federal agencies from constructing in a floodplain. No construction or other modification of a floodplain area is proposed.

Geology and Geography: The scale of activities proposed cannot reasonably be expected to affect these large-scale resource areas; therefore, they were not carried forward for detailed analysis.

Hazardous and Toxic Substances: Federal, state, and local agencies regulate hazardous materials and hazardous waste. Use of regulated substances as a result of the proposed action would be limited to fuel consumption from vehicle use and heavy equipment operation during material excavation and will be managed in accordance with applicable guidance and regulations. Unintentional release of hazardous materials or toxic substances due to accidental release would not likely create a substantial potential public health or safety hazard.

Meteorological Conditions (Climate): The CEQ Guidance on Federal Greenhouse Gas Accounting and Reporting (CEQ, 2010) defines six types of greenhouse gases of concern because of their heat-trapping abilities and atmospheric lifetimes and thus their global warming potential. Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. The scope and scale of activities associated with the proposed action would result in insignificant local or regional emissions of greenhouse gases, primarily from short term vehicle and generator use, and would not affect meteorological conditions or result in changes in climate.

Noise: The U.S. Army Public Health Command (formerly the U.S. Army Center for Health Promotion and Preventive Medicine) has developed noise zones to assess military-related noise effects that establish threshold noise levels commensurate with sociological considerations and compatible land uses. Noise contour maps from the study of YPG indicate that all Zone II and III areas[1] are contained within the bounds of the installation with the exception of one small area located in a remote portion of the Kofa NWR (USAPHC, 2011); therefore, potential

[1] Land use contours are not meant to imply that sound generating activities cannot be heard beyond the YPG boundary, only that the level of sound does not meet the land use restriction threshold. Land use activities in Zone III areas are those that are not likely to be impacted by sound levels such as industrial activities or the firing positions on the Kofa Range. Land use activities in Zone II areas are restricted to administrative type activities. Zone I areas are unrestricted and the only areas where sensitive receptors, schools, and medical activities for example, can be located.

noise impacts were eliminated from further analysis.

Prime Farmland: The Farmland Protection Policy Act protects prime or unique farmlands from unnecessary and irreversible conversion to non-agricultural uses. YPG does not contain prime farmlands; therefore, no activities associated with the proposed action will affect any prime farmland.

Socioeconomic Values: The proposed action takes place entirely on YPG and would not have potential impacts associated with employment, income, conflicts with county and local plans, population growth, displacement of persons and businesses, or community disruption.

Visual and Aesthetic Resources: The proposed action will not obstruct, damage, dominate, or substantially modify a scenic view from public viewing areas and will not have a substantial adverse effect on a scenic vista.

Wild and Scenic Rivers: A wild and scenic river, defined as a free-flowing river or segment of a river that has exceptional scenic, recreational, geologic, fish and wildlife, historic, cultural properties, or other similar values, can be designated by act of Congress or by the Secretary of the Interior at the request of a governor as part of the National Wild and Scenic Rivers system. There are no designated Wild and Scenic Rivers located on YPG.

Analysis of impact significance was evaluated based on the significance criteria used in the *U.S. Army Yuma Proving Ground Range Wide Environmental Impact Statement*, (YPG, 2001) and adapted for use in this analysis. The significance criteria were developed using compliance standards, best professional judgment, and stakeholder input. Table 2 provides a listing of the VECs carried forward for detailed analysis and the significance criteria used to evaluate potential impacts. The following sections provide a description of these VECs and their context in relation to the proposed action and potential environmental consequences.

Table 2. Significance Criteria Used to Evaluate Environmental Effects

VEC	Significance Criteria Used In This Analysis
Air Quality	• Emissions cause exceedance of an air quality standard established under the Clean Air Act • Emissions exacerbate an existing air quality violation • Exposes sensitive receptors to substantial pollutant concentrations
Biological Resources	• Habitat necessary for all or part of the life cycle of a species is lost because of the proposed action (e.g. lambing areas, migratory corridors, or wildlife watering areas) • Threatened or endangered species are adversely affected • A regional or local species is extirpated • Ecological processes are damaged to the extent that the ecosystem is no longer sustainable or biodiversity is impaired
Cultural Resources	• Prehistoric and historic sites listed on or eligible for the National Register of Historic Places are adversely affected • Native American religious or other cultural activity areas are adversely impacted
Health and Safety	• Public or YPG personnel health or safety is adversely affected • Established Federal, State, and local health and safety laws and regulations are violated • A new off-post safety hazard is created
Land Use, Recreation, and Airspace	• Land is degraded so it cannot be used for current or planned use • Results in conflicts with existing YPG land uses and established off-post land use (especially along the boundary) • Eliminates the regional availability of a recreational opportunity • Results in long-term closure of an important public access point
Soil Resources	• Activities result in severe soil erosion or sedimentation • Soil subsidence occurs over large areas • Permanent contamination of soil occurs that would restrict future land use
Transportation and Infrastructure	• Transportation characteristics are reduced to a level that impacts safety or movement of people, goods, and services • Utilities or infrastructure are taxed beyond their capacity to support installation mission requirements • A substantial negative effect to the YPG mission occurs • Changes do not conform to State Transportation Improvement Plans.
Water Resources	• Surface water is contaminated by storm water runoff to levels above Federal or State water quality standards • "Waters of the U.S." are degraded by actions that exceed limits authorized under the Clean Water Act, as amended • Groundwater is depleted to the degree that subsidence causes fissures to form • Groundwater quality is degraded below established Clean Water Act standards • Substantially alters the existing drainage pattern of the site or area, including the alteration of the course of a wash, stream, or river in a manner that would result in substantial erosion, siltation, or flooding onsite or offsite

3.1 AIR QUALITY

The Clean Air Act (CAA), as amended, established National Ambient Air Quality Standards (NAAQS) to protect human health and welfare. The Arizona Department of Environmental Quality (ADEQ) was delegated regulatory authority for enforcing these standards through adoption of the U.S. Environmental Protection Agency (EPA) federal standards. (http://www.epa.gov/air/criteria.html).

3.1.1 Nonattainment of NAAQS and Conformity Determination

Criteria pollutants with established primary and secondary NAAQS are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), sulfur dioxide (SO_2), and particulate matter equal to or less than 10 microns in size (PM_{10}) and equal to or less than 2.5 microns in size ($PM_{2.5}$). Areas that do not meet the standards set for these pollutants are called "nonattainment" areas. ADEQ, in conjunction with the EPA, has defined areas that are in nonattainment of the NAAQS. Portions of Yuma County were designated a moderate nonattainment area for the 24-hour standard of PM_{10}. Agricultural activities and blowing dust were determined to be the primary cause of this non attainment designation. The Yuma PM_{10} nonattainment area is located in the southwestern potion of Yuma County comprising about 456 square miles or 300,000 acres. The nonattainment area is defined as follows (40 CFR 81.303):

- Township 7S, Ranges 21 and 22W,
- Township 8S, Ranges 21-24W,
- Township 9S, Range 21-25W, and
- Township 10S, Ranges 21-25W

A small portion of YPG is located in Township 7S, Range 21W and falls within the Yuma PM_{10} nonattainment area. The proposed borrow pit sites are a source of fugitive emissions that are not required to be quantified or assessed for this category of facility as required in 40 CFR 93, Subpart B.

3.1.2 Construction and Operating Permits

The CAA requires that regulations be established for the implementation of construction permit (Title 1) and Operating Permit (Title V) programs. ADEQ has combined these programs and requires a facility with emissions to obtain a construction/operating permit for all new and existing stationary sources of air emissions. Due to potential emissions of nitrogen oxides (NO_x), CO, and volatile organic compounds (VOCs) exceeding 100 tons per year (tpy), YPG is classified as a Class I Major Source pursuant to Arizona Administrative Code R18-2-101.64, and ADEQ issued YPG a Title V Air Permit (#43492) in June of 2010.

Generators (driven by internal combustion engines) are used as backup power sources and in areas on the range that do not have access to electrical lines or hard power in order to operate necessary equipment such as lights, air conditioners, and computers to support training programs. The YPG Title V Air Permit has specific requirements for operation, record keeping,

and reporting associated with generators[1] (Arizona Department of Environmental Quality, 2010). Generator usage related to the proposed action is categorized as non road engine use and will not be classified as stationary sources due to short term, temporary use. Operation of the borrow pits would not involve the use of any non metallic minerals processing equipment or other stationary source. Only haul trucks and loaders will be used and the ADEQ regulation regarding the control of fugitive emissions created by the use of said areas will be obeyed.

YPG submits an annual air emissions inventory to ADEQ that reports emissions of criteria pollutants. Data from the most recent YPG air emissions inventory (2011) and Yuma County (2008) are presented in Table 3. These data show that emissions from point sources at YPG account for a fraction of total emissions in the region.

Table 3. Yuma County and YPG Air Emissions for Criteria Pollutants

	Yuma County (1)	YPG (2)
Pollutant	**Total (tpy)**	**Point Source (tpy)**
CO	34,765	2.95
NO_X	6,782	0.31
Pb	1	0.27
SO_2	184	0.78
VOCs	8,203	13.75
PM_{10}	12,661	1.46
$PM_{2.5}$	2,615	Not Determined

(1) Source: http://www.epa.gov/air/emissions/where.htm. Data from most recent year available (2008).
(2) Source: Yuma Proving Ground (2011) Annual Air Emission Inventory.

Environmental Consequences and Mitigation

Proposed Action

Minor, localized, and short-term increases in dust and air emissions would occur from operation of borrow pits. Emissions would primarily consist of compounds released from burning of fossil fuels in vehicular equipment and fugitive dust releases. Emissions from motorized vehicles would contribute only a small amount of pollutants intermittently and only during operation of the pits.

Dust emissions from the site would be localized, and increases in air pollutants at YPG would not be anticipated partly due to good dispersal by strong winds and lack of topographic features to inhibit dispersal. Dust emissions would be minimized as needed with appropriate BMPs and dust abatement measures (such as watering, chemical suppressants, or placement of gravel) to prevent significant deterioration of air quality. The proposed areas are currently in attainment for all NAAQS. None of the existing or proposed sites are anticipated to impact or exacerbate air quality exceedances in the PM10 non attainment area. No sensitive receptors are known to occur within the vicinity of any of the sites included under the proposed action.

[1] If generators are used for more than one year, they will be classified as "stationary sources" and will be added to the YPG Title V air permit. The units will be managed and operated in accordance with applicable provision specified in Attachment B. III (Internal Combustion Engines) of the YPG Title V Permit (#43492 June 4, 2010) and any pertinent amendments.

The following mitigation measures may be implemented if necessary to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the site:

a. Minimize land disturbance;
b. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air;
c. Cover trucks when hauling soil;
d. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
e. Stabilize the surface of soil piles;
f. Create wind breaks
g. Revegetate any disturbed land not used
h. Remove unused material;
i. Remove soil piles via covered trucks.

No Action Alternative

Under the no action alternative, material would be obtained from YPG areas or imported on a case by case basis. This could result in higher vehicle emissions due to hauling distances for material. The proposed pit locations all have prior surface disturbance and are prone to windblown dust.

3.2 BIOLOGICAL RESOURCES

YPG is located in the arid Lower Colorado River subdivision of the Sonoran Desert. It is characterized by broad, flat valleys and low mountain ranges with barren rock that supports many plant and animal species native to the Sonoran Desert (YPG, 2012a). The following sections provide a summary description of vegetation and wildlife known to occur on or near the borrow pit sites and those with the potential to occur based on habitat requirements.

3.2.1 Vegetation

The extreme aridity characterizing the Lower Colorado River subdivision is reflected in open plains covered sparsely with drought-tolerant shrubs, grasses, and cacti (YPG, 2012a). Most common is creosote bush (*Larrea tridentata*), found in widespread stands, or mixed with combinations of ocotillo (*Fouquieria splendens*), bursage (*Ambrosia* spp.), teddy bear cholla (*Cylindropuntia bigelovii*), and foothills paloverde trees (*Parkinsonia microphylla*), depending on landform features (Turner and Brown, 1994; Shreve and Wiggins, 1964). Hillsides support brittlebush (*Encelia farinosa*) in various combinations with other plants such as cacti, in particular the saguaro cactus (*Carnegiea gigantea*). The open plains are dissected with washes that can support less drought-tolerant plants. These plants, including blue paloverde (*P. florida*), ironwood (*Olneya tesota*), honey mesquite (*Prosopis glandulosa*), and other tree species, can grow in dense bosques throughout washes. Smoke tree (*Psorothamnus spinosus*) is primarily found in to large wash systems (Turner and Brown, 1994).

The Lower Colorado River Valley Subdivision prevails on low and gently sloping alluvial fans and terrace areas commonly referred to as bajadas. There are four plant communities (or series)

of the Lower Colorado River Valley Subdivision (Turner and Brown, 1994) that are represented on the installation:

- Creosotebush-White Bursage Series- These two plants either together or alone compose the most widespread and important community of the Lower Colorado River Valley subdivision (Turner and Brown, 1994).
- Mixed Scrub Series- Typically areas along washes and similar places are more diverse vegetation communities within the overall Creosotebush-White Bursage series. Dense assemblages of paloverde (*Parkinsonia* spp.), Ironwood (*Olneya tesota*), Desert lavender (*Hyptis emoryi*), Smoke tree (*Psorothamnus spinosus*), Jojoba (*Simmondsia chinensis*) and other typical Sonoran desert species may participate (Turner and Brown, 1994).
- Creosotebush-Big Galleta Series- Typically sandy areas generally found in the lowest and hottest reaches of the desert. This series is dominated by creosotebush and big galleta grass (*Pleuraphis rigida*) (Turner and Brown, 1994).
- Saltbush Series- This series is a community of gently sloping lands and valleys. Soils supporting the Saltbush series are commonly more saline than Creosotebush-White Bursage Series (Turner and Brown, 1994).

Of these plant communities, the prevailing community represented at all three proposed borrow pit locations is Creosotebush-White Bursage Series. All three proposed sites have varying levels of previous disturbance.

Proposed Site	Vegetation and Habitat Characteristics
6th Street Pit	The proposed pit is located near the Kofa firing front which is a relatively flat region cut by numerous washes. Most vegetation is concentrated within the washes which are dominated by palo verde and ironwood while the uplands are sparse creosote bush scrub. The pit site is heavily disturbed desert pavement. Part of the site is an existing borrow pit. Unimproved roads and other ground disturbance cover the site and the area immediately west of the site. A large wash dominated by paloverde and ironwood lies just east of the pit. During rain events water flows from the wash into the existing pit resulting in a pool of water that can persist for several weeks.
HCA Pit	The site is just outside the Howard Cantonment Area boundary. West of the pit lies the Gila Gravity Canal and the region is characterized by rolling hills which progressively get more rugged to the east. The site is south of a large wash dominated by paloverde and ironwood. There is a small wash immediately north of the pit. Saguaro cactus grows along the hill outside the pit boundaries. Bighorn sheep have been observed passing through this area. The proposed pit location is along a series of small hills and erosional features with heavy surface disturbance on much of the site. The eastern side of the pit was previously used as a borrow pit and the central part of the pit is an abandoned foundation from past infrastructure that has since been removed.
Ocotillo Pit	This pit is located along Martinez Lake Road. This region is characterized by sandy soils and the terrain ranges from flat to hilly. Vegetation in the area consists of creosote big galleta grass and bursage. The northern side of the pit was formerly used as a borrow pit. The southern part of the pit is hilly creosote scrub.

Non-native Species

Non-native plant species from other parts of the world have colonized portions of YPG and can result in changes to community composition and species abundance, particularly in the annual grasses. This invasion can prevent successful establishment of native annual plants (Van Devender et al., 1997), including food for native wildlife. A few of the non-native plant species known to occur on the installation are described below.

Athel tamarisk (*Tamarix aphylla*) and Salt Cedar (*T.* hybrids): Athel tamarisk was originally planted on the HCA sometime around 1954 and has since spread several miles downwind, mostly where water flow has been altered through road and other construction and where water accumulation and retention occurs in low lying areas (e.g., borrow pits). Salt cedar (hybrids of various *Tamarix* spp., possibly *T. chinensis* and *T. ramosissima* [Gaskin and Schaal, 2002]) is another *Tamarix* group found on the installation that was established mostly as a result of human activity, such as the alteration of water flow. Tamarisk was observed at the HCA pit.

Sahara mustard (*Brassica tournefortii*), Mediterranean and Arabian grass (*Schismus barbatus* and *S. arabicus*, respectively): These species are exotic winter-spring annuals that compete with native annuals and grasses for rainfall, nutrients, and microhabitats and are widely naturalized in the Sonoran Desert. These species were observed at all of the proposed sites.

Buffelgrass (*Pennisetum cilare*): YPG staff have observed and reported small stands of this species on portions of the installation (primarily on the KFR). The YPG Environmental Sciences Division removes buffelgrass when it is identified and then monitors the location for at least three years for re-growth. This species was not observed at any of the proposed locations.

3.2.2 Wildlife

Wildlife on YPG is typical of Sonoran desert scrub habitat. Some species are restricted to specific plant associations whereas others range over a wide area. Common species observed at or near the proposed borrow pit sites include mourning dove (*Zenaida macroura*), Gambel's quail (*Callipepla gambelii*), zebra-tailed lizard (*Callisaurus draconoides*), and side-blotched lizard (*Uta stansburiana*).

Other common species found on the installation that may transit the areas are mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), kingsnake (*Lampropeltis getula*), western diamondback rattlesnake (*Crotalus atrox*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), roadrunner (*Geococcyx californianus*), turkey vulture (*Cathartes aura)*, red-tailed hawk (*Buteo jamaicensis*), and mockingbird (*Mimus polyglottos*).

Desert bighorn (*Ovis canadensis mexicana*) sheep are found in the rugged hills near HCA. They travel to and from the canal for water, often passing near the cantonment area. Sheep have been observed passing by the proposed HCA pit location.

The dense vegetation growing along washes is particularly important for wildlife both for foraging and shelter. These wash woodlands are particularly important for birds and nesting, foraging and migratory stopover habitat. Bats may also forage along the vegetation in washes as well as near the Gila Gravity Canal and the HCA.

3.2.3 Special Status Species

Special status species include those listed and protected under the Endangered Species Act (ESA) as threatened and endangered (T&E), the Arizona's Native Plant Law (Arizona Revised Statutes, Title 3, Chapter 7, Article 1), and Species of Greatest Conservation Need (SGCN) in Arizona (Arizona Game and Fish Department [AGFD], 2012). Specific surveys have not been conducted for special status species for the entire installation (1,308 square miles). Table 4 presents a summary listing of special status species in Yuma county that have potential to occur at or near the proposed borrow pit sites based on habitat features or migratory patterns. The table was generated using the Arizona Game and Fish Habimap program and Heritage Data Management System database (AFGD, 2014). The Habimap program allows for specific areas within a map to be selected and returns results based on the United States Geological Survey (USGS) seven and a half minute quad map in which the selected area resides. For additional resources on species known to occur within the YPG boundaries, refer to the YPG Integrated Natural Resource Management Plan (YPG, 2012a).

Table 4: Special Status Species with Potential to Occur at or Near the Proposed Borrow Pit Sites.

Nomenclature		Status* ESA	Status* State	Comment
Amphibians				
	Sonoran Desert Toad (*Bufo alvarius*)		1B	
Birds				
	Gilded Flicker (*Colaptes chrysoides*)		1B	
	Lincoln's Sparrow (*Melospiza lincolnii*)		1B	
	Gila Woodpecker (*Melanerpes uropygialis*)		1B	
	Arizona Bell's Vireo (*Vireo bellii arizonae*)		1B	
	Yellow-billed Cuckoo (Western U.S. DPS) (*Coccyzus americanus*)	PS:C	1A	Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.
	Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	LE	1A	Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.
	Bald Eagle (*Haliaeetus leucocephalus*)	SC	1A	Occasionally observed along the Colorado River.
	Black-necked Stilt (*Himantopus mexicanus*)	PS		Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.
	Least Bittern (*Ixobrychus exilis*)		1C	Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.
	California Black Rail (*Laterallus jamaicensis coturniculus*)	SC	1B	Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.

Nomenclature	Status* ESA	State	Comment
Yuma Clapper Rail (*Rallus longirostris yumanensis*)	LT	1A	Occurs in Imperial Reservoir USGS quad map. No suitable habitat near the proposed project.
Plants			
Saguaro (*Carnegiea gigantea*)		HS, SR	Occurs near the proposed project
Mammals			
Sonoran Pronghorn (*Antilocapra americana sonoriensis*)	LE	1A	10 (j) population in King Valley. East of the proposed project
Harris' Antelope Squirrel (*Ammospermophilus harrisii*)		1B	
Little Pocket Mouse (*Perognathus longimembris*)		1B	
Kit Fox (*Vulpes macrotis*)		1B	
Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*)	SC	1B	
Spotted Bat (*Euderma maculatum*)	SC	1B	
Greater Western Mastiff Bat (*Eumops perotis californicus*)	SC	1B	
California Leaf-nosed Bat (*Macrotus californicus*)	SC	1B	
Cave Myotis (*Myotis velifer*)		1B	
Yuma Myotis (*Myotis yumanensis*)	SC	1B	
Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)		1B	
Mexican Free-tailed Bat (*Tadarida brasiliensis*)		1B	
Reptiles			
Sonoran Desert Tortoise (*Gopherus morafkai*)	C	1A	
Gila Monster (*Heloderma suspectum*)	SC	1A	

* Federal: SC= Species of Concern, LE= Listed Endangered, LT=Listed Threatened PS:C= Partial Status: Candidate (not entire range of species), C= Candidate
* State: WSC= Wildlife Species of Concern, HS= Highly Safeguarded, SR= Salvage Restricted, SGCN= Species of Greater Conservation Needed
NOTE: Only listed T&E species under the ESA, classified as SGCN in Arizona, or those categorized as Highly Safeguarded and Salvage Restricted (HS, SR) under the AZ Native Plant law and that may be found at the specific project location are included in the table. A detailed list of protected plant species in Arizona can be found at the Arizona Department of Agriculture Website http://www.azda.gov/ESD/protplantlst.htm and detailed lists of federally protected species can be found on the U.S. Fish and Wildlife Service Website at http://ecos.fws.gov/tess_public.
+ Data for this table was obtained using the Arizona Game and Fish Habimap program at http://www.habimap.org/

Protected Native Plants

The only native plant species protected under Arizona's Native Plant Law identified in the project vicinity is the Saguaro. There are no saguaros present within the footprint of the proposed pits. Saguaros in the vicinity would be avoided.

Threatened and Endangered Species

Sonoran (Morafka's) Desert Tortoise: In December of 2010, the U.S. Fish and Wildlife Service (USFWS or Service) designated the "Sonoran" population (desert tortoises that occur east and south of the Colorado River) of the desert tortoise (*Gopherus agassizii*) as a Candidate species for listing as Threatened or Endangered. Since that decision, this population of desert tortoise was proven to be a genetically distinct species and has been named Morafka's desert tortoise (*Gopherus morafkai*) (Murphy *et al*., 2011). According to the USFWS, recognizing the Sonoran desert tortoise as a new species confirms the Service's decision to evaluate this population independently from the Agassiz's desert tortoise and will not change the status of either species under the ESA or change existing recovery plans (U.S. Department of Interior, 2011). The AGFD classifies the Sonoran desert tortoise as a "Species of Greatest Conservation Need." A low density population of Sonoran desert tortoises has been known to occur on YPG, particularly on the East Arm portion and throughout northern Cibola Range.

Sonoran Pronghorn: The USFWS and AGFD have implemented a project to re-establish the endangered Sonoran pronghorn (*Antilocarpa americana sonoriensis*) within its historic range, which includes the Kofa National Wildlife Refuge (KNWR), parts of the Barry M. Goldwater Range, and Yuma Proving Ground. As part of the re-introduction, the Sonoran Pronghorn Recovery Team has built a captive-breeding pen for Sonoran pronghorn within the central portion of KNWR. This population is classified as a nonessential experimental population under section exception 10 (j) of the Endangered Species Act (ESA).

In January 2013, the USFWS released 9 Sonoran pronghorn from the captive-breeding pens into King Valley in the KNWR. In 2014 they released an additional 24. Pronghorn released from the captive breeding pens may be encountered on YPG in the Eastern Kofa Region which is over 25 miles from the proposed project. However, since this population is classified as a nonessential experimental population the exception 10(j) take of pronghorn from the nonessential experimental population area is allowed on YPG: "...when it is incidental to, and not the purpose of, carrying out an otherwise lawful activity within the boundaries of YPG…" (USFWS, 2010:43, 112). The only requirement on DOD lands is to report to the Service if incidental take occurs within one of the designated population areas because of military operations (USFWS, 2010).

For the purposes of Section 7 consultation, 10 (j) species are treated as if they are proposed for listing which requires conferencing on any project likely to jeopardize the continued existence of the species. Because the nonessential experimental population is, by definition, not essential to the continued existence of the species, conferencing would not be required (USFWS, 2010).

Southwestern Willow Flycatcher: Southwestern willow flycatchers are typically found in riverine habitat, especially within significant willow habitat. Although critical habitat for this species has been identified in Yuma County along the Colorado River, there is no riverine habitat near the project area, and therefore this species will not be affected by the proposed action.

Yuma Clapper Rail: Yuma clapper rails are typically found in fresh-water marshes dominated by cattail or bulrush. Critical habitat within Yuma County has not been established for this species. The proposed action areas fall outside of any marsh land habitat therefore this species will not be affected by the proposed action.

Yellow Billed Cuckoo: The western population of yellow-billed cuckoo has been proposed for listing as a threatened species by the USFWS and Critical Habitat is proposed along the Colorado River and associated wetlands west of YPG. Western cuckoos breed in large blocks of riparian habitats, particularly woodlands with cottonwoods (*Populus fremontii*) and willows (*Salix* sp.) The proposed action areas fall outside of any wetland or woodland habitat therefore this species will not be affected by the proposed action.

Wild Horse and Burro

Some of the most conspicuous non-native animal species found on YPG are wild horses and burros (*Equus caballus* and *asinus*, respectively). Both species are managed by the Bureau of Land Management (BLM) under the Wild and Free Roaming Horse and Burro Act of 1971, Public Law 92-195, and Cooperative Management Agreement updated in September 1989. Management of these species is guided by the Cibola-Trigo Herd Management Area Plan (HMAP, 1980), and the Resource Management Plan (BLM, 2010). Neither animal is considered wildlife by AGFD. In the Resource Management Plan (2010), portions of the Herd Management Area (HMA) east of Highway 95 were eliminated for safety reasons and the HMA now includes portions of the Cibola and Laguna regions on YPG and public lands managed by BLM adjacent to these areas. Horses and burros occupy those portions of YPG that are included within the Cibola-Trigo HMA and continue to occupy the Kofa Firing Range, pending fencing of Highway 95 and moving of the animals to the west of the highway. Burros and burro sign (tracks and scat) were found near all proposed borrow pit sites. YPG continues to cooperate fully with BLM in implementing the current HMAP (YPG, 2012a).

3.2.4 Environmental Consequences and Mitigation

Habitat and vegetation communities found at each of the proposed borrow pit sites are common throughout the installation, and wildlife will be able to move to adjacent areas. There are no federally listed wildlife species known to occur within the boundaries of the proposed sites, and there are no species of federally protected native vegetation within the perimeter of the proposed pit areas.

Impacts to wildlife could include disruptions in normal behavior such as feeding, breeding, or predation. Larger, mobile animals such as foxes, mule deer, and birds can avoid the activities. Smaller, less mobile species, such as lizards and snakes, may become injured or killed by vehicles or equipment operating in the project area.

Sensitive bat species are unlikely to be affected by this project because the proposed borrow pit sites are not located near potential roost sites. Any impact to foraging bats would be minimal and intermittent.

The proposed borrow pits are not located in an area consistent with Sonoran desert tortoise habitat. The surrounding land features lack adequate burrowing or shelter sites. All of the proposed pit locations are located several miles from the nearest potential habitat and no tortoises have been located nearby.

In the event that Sonoran desert tortoises are encountered during pit excavation,, Arizona Game and Fish Department Guidelines for Handling Sonoran Desert Tortoise Encountered on Development Projects (AGFD, 2007) will be followed for the removal of the tortoise(s) from immediate dangers or threats.

Pronghorn released on the Kofa NWR may move onto YPG, particularly in the Kofa Region. These animals are very mobile and would be able to avoid most human activity. The probability of death or injury to an individual pronghorn due to military activities is extremely low. No incidental take has ever been documented on Barry M. Goldwater Range or Luke Air Force Base (Federal Register, Vol. 76, No. 87, May 5, 2011). The extent of any impact to pronghorn from this project would be restricted to YPG and would have no impact on populations of pronghorn located on Barry M. Goldwater Range, Cabeza Prieta NWR, Kofa NWR, Organ Pipe National Monument, or Mexico.

Since the proposed borrow pits cover such a small area and the habitat was previously disturbed, it is unlikely that operation of these borrow pits will have an impact on local wildlife populations. Sloping the edges of the borrow pits to 34° ($1^1/_2$:1) will allow small animals to climb out of the pit. Implementing mitigation measures from section 7.2.2 of the Integrated Natural Resources Management Plan (INRMP) will further reduce the likelihood of mortality for individual animals.

The following are standard mitigation management measures that will be implemented, as appropriate to eliminate or avoid adverse impacts to biological resources during site preparation activities.

- To the extent practicable, avoid and minimize disturbance during the breeding and nesting season of sensitive species to prevent injury and mortality of young
- Avoid or minimize trimming trees during the breeding and migrating season (March 15th to September 15th)
- Limit vehicle use to existing roads and facilities to the greatest extent practicable
- Conduct plant surveys for rare natives and plants listed in the Arizona Plant Law, and, when feasible, protect in situ or remove and plant elsewhere if military activities will result in death of vegetation
- Construction and design of the pits will incorporate measures that avoid accumulation and retention of water in unfenced areas that could attract wild horses and burros to the area or promote growth of non-native vegetation species.
- Monitor and remove invasive species in accordance with the Integrated Pest Management Plan.

3.3 CULTURAL RESOURCES

Cultural resources include any prehistoric or historic district, site, building, structure, object included on, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such properties or resources.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires that federal agencies with jurisdiction over a proposed federal project take into account the effect of the undertaking on cultural resources listed, or eligible for listing, on the NRHP, and afford the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) an opportunity to comment with regard to the undertaking. To facilitate this, Garrison YPG has performed numerous archaeological surveys to identify potential cultural resources.

Detailed information about cultural resources on the installation and their management is available in the Garrison YPG *Integrated Cultural Resources Management Plan* (Rhode and McDonald, 2012) and is hereby incorporated by reference in this environmental analysis. The following discussion focuses on cultural resources specific to the proposed action.

3.3.1 Area of Potential Effect

Under the no action alternative, no new borrow pits would be developed, and there would be no impact to cultural resources; therefore, the action alternative being considered (Alternative A) comprises the Areas of Potential Effect with regard to cultural resources. The following discussion focuses on information specific to the proposed locations borrow pits.

Many prehistoric sites in this region are located on terraces above river floodplains and are surface manifestations with few diagnostic artifacts that can be dated to a specific prehistoric period. Prehistoric sites consist mainly of lithic artifact scatters, rock features, cleared circles, ceramic sherds, and trails or combinations thereof. Although cleared circles are a common feature at previously recorded prehistoric cultural sites near the proposed borrow pits, recent and ongoing studies show that many of these features are natural occurrences and not manmade as originally thought (McAuliffe and McDonald, 2006; McDonald et al., 2004).

Historic sites tend to occupy transportation corridors along river valleys, between mountain ranges, and over mountain passes, and are often located at or near the same locations as prehistoric sites, indicating similar needs for access to water and other resources. Historic sites in the vicinity of the borrow pits tend to be military training sites.

3.3.2 Site-specific Cultural Investigations

Each of the three locations for the proposed borrow pits exhibit heavy surface disturbance from apparent earlier use. Older topographic maps (USGS pre-1986) denote one of the areas (Ocotillo Pit) as “Borrow Pit.”

The three locations for the proposed borrow pits have been previously surveyed via Class III archaeological pedestrian surveys (Dosh, 2009; Dosh and Marmaduke, 1995; Effland and Schilz, 1987), the HCA and Ocotillo project areas were resurveyed at this time (McDonald, 2014). No archaeological sites are located within the boundaries of the proposed pit areas and seven isolated occurrences, six in the Ocotillo Pit and just one just outside the boundary of the HCA Pit, are non-diagnostic and have been determined not eligible for inclusion in the NRHP. The proposed action is not expected to affect any historic properties.

3.3.3 Traditional Cultural Properties

In accordance with Section 106 of the NHPA, YPG Garrison has consulted with federally recognized Tribes who have expressed an interest in undertakings at Yuma Proving Ground. At this time, no traditional cultural properties or properties of traditional religious or cultural significance have been identified that would be impacted by the proposed action.

3.3.4 Environmental Consequences and Mitigation

Consultation with the State Historic Preservation Officer under Section 106 of the NHPA was completed December 29, 2014; SHPO concurred with the agency determination of “no historic properties affected. The project is also not anticipated to affect Native American religious or other cultural activity areas. No mitigation is required.

Unanticipated discoveries of archaeological remains may occur even in areas that have been previously surveyed. To avoid disturbance of known and previously undiscovered or undocumented cultural resources or remains, the following measures will be taken.

- Construction equipment and traffic will use existing roads or marked routes to access project sites.
- Grading and smoothing of surface soils will be confined to the delineated boundaries for expansion areas and related access roads.
- If archaeological remains are uncovered or discovered during site preparation or use, all activities in the area of the find would be stopped, and the YPG Cultural Resources Manager will be notified immediately. The remains would be handled pursuant to Attachment F of the Programmatic Agreement Among the United States Army Garrison, Yuma Proving Ground, The Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Operations, Maintenance, and Development of Yuma Proving Ground, Arizona (USAG YPG PA).
- If human remains are encountered, all project activity on or near the discovery site shall cease immediately. The human remains shall be protected from further disturbance, the Garrison Manager, Cultural Resources Manager, and the Emergency Services Directorate will be notified immediately, and Stipulation VI of the USAG YPG PA will be followed.

3.4 HEALTH AND SAFETY

The standards applicable to the evaluation of health and safety effects differ for workers and the public. The Occupational Safety and Health Administration is responsible for protecting worker health and safety in non-military workplaces. Regulations that specify and implement safety procedures for Army operations and activities at YPG applicable to the proposed action are:

- Yuma Proving Ground Standing Operating Procedure for Range Operations YP-YTPO-P1000 (most current version) prescribes general range control procedures, instructions, and information necessary for safe conduct of all types of test operations, demonstrations, training, and ground and airspace utilization at Yuma Proving Ground.
- Yuma Proving Ground Regulation 385-1 (June, 2014) provides specific guidance for all safety programs at YPG and applies to all personnel working and living at YPG to include military, civilian, contractor, tenant personnel, and dependents.
- Army Regulation (AR) 385-63 (January, 2012) prescribes Army-wide range safety policies and responsibilities for firing ammunition, lasers, guided missiles, and rockets and provides guidance for the application of risk management in range operations.

Health and safety risks are inherent to the mission, terrain, and climate at YPG. Emergency medical facilities at YPG are limited to an outpatient medical clinic. Transport time from within the installation to the clinic ranges from 15 to 60 minutes. Serious injuries or illness can be treated at Yuma Regional Medical Center, and helicopters are available for emergency transportation. Fire protection at YPG is provided by fire stations at Laguna Army Airfield (LAAF), Kofa Firing Range (KFR), and a secondary station in the Main Administrative Area (HCA). YPG Law Enforcement and Security Division provide law enforcement personnel and security services to YPG (YPG, 2001a, COE, 1992b).

The installation's remote location poses inherent, potential risks such as exposure to the extreme heat, lack of water, unexploded ordnance (UXO), and dangerous wildlife (e.g., rattlesnakes,

Africanized honey bees, and scorpions) to YPG personnel. In addition, construction activities associated with the proposed action have potential to impact worker safety.

3.4.1 Installation Restoration Program and Cleanup

A number of sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and its extension, the Superfund Amendments and Reauthorization Act, and the Resource Conservation and Recovery Act (RCRA) occur on Yuma Proving Ground. Although YPG has conducted the appropriate site investigations for portions of the installation, a few of the CERCLA and RCRA sites have not been fully investigated and characterized. The proposed borrow pit sites are not located on or adjacent to any sites at YPG that are being investigated or undergoing restoration in accordance with CERCLA or RCRA.

3.4.2 Environmental Consequences and Mitigation

Implementation of the proposed action would require additional construction activity on YPG, increasing the likelihood of potential impacts to worker safety at construction sites; however, best management practices would minimize or eliminate potential impacts. In addition, the locations of the proposed sites and associated access roads were chosen with ease of construction and emergency vehicle accessibility in mind.

YPG has developed a Facility Emergency Response Plan to facilitate quick, appropriate responses in the event of an unauthorized release of potentially hazardous material. In addition, YPG has stringent operating and security procedures designed to minimize or eliminate accidents and injuries as a result of mission related activities (YPG, 2012b).

Due to YPG BMPs, preparation and operational activities at the proposed borrow pit sites will not adversely affect the health and safety of YPG personnel or the public and will not result in violation of Federal or State health and safety regulations.

3.5 LAND USE, RECREATION, AND AIRSPACE

The land base of YPG is dedicated to military training, testing, and evaluation, which requires that most of the land be reserved for firing ranges, impact areas, mobility (vehicle) test courses, drop zones, mine fields, and other testing and training mission related support facilities. Many of these activities and facilities require large open areas with associated safety and buffer areas, as well as restricted airspace.

3.5.1 Installation Land Use

YPG is subdivided into three geographic and functional areas; (1) the Laguna Region, (2) the Cibola Region, and (3) the Kofa Region (see Figure 1). Below is a brief description of each of these regions and the types of activities that typically occur within each.

Cibola Region: This region is mostly the area of YPG located west of U.S. Highway 95 (excluding the Laguna Region). The activities in the Cibola Region are diverse and include testing of aviation weapons and systems including unmanned aerial systems, air cargo delivery systems, ground combat systems, a variety of mine and countermine activities, including detection and elimination systems for improvised explosive devices, and soldier and tactical weapons training activities.

Kofa Region: This region is the area east of Highway 95, including the East Arm portion of YPG and is primarily used for direct and indirect firing of artillery and other weapons and munitions test activities such as deployed mines, improved conventional munitions, instrumented projectiles, mine and countermine activities, radar/sensor systems, counter electronic warfare, and soldier and tactical weapons training activities.

Laguna Region: This region is the area where cantonment areas and population centers are primarily located. The cantonment areas in this region include the Howard Cantonment Area (HCA), where most public works functions, Family Morale, Welfare, and Recreation services, and post housing are located; Laguna Army Airfield (LAAF), where aviation support functions are based; and the Walker Cantonment Area (WCA) formerly known as the Yuma Test Center, which is the location of Command functions (Garrison and Test) and their associated offices. In addition, WCA areas and drop zones used by the Military Free-Fall School and training units are located in this area. The Kofa cantonment area adjacent to the KFR is located west of Firing Front Road and east of U.S. Highway 95 and is comprised of administrative offices and operational support functions; therefore, it is also included as part of the Laguna Region. Soldier and non-firing tactical training activities also take place within the Laguna Region. The proposed action would take place in the Laguna Region.

3.5.2 Recreation

General recreation activities and facilities at YPG are mostly located within or near HCA and include a RV camp, a variety of events and museums available to the public, and recreational facilities (gym, pool, stables, etc) for YPG personnel and families.

In compliance with the Sikes Act (1964) YPG has established a hunting program that accommodates hunting in designated areas on the installation (see figure 4) during established hunting seasons as per the Yuma Proving Ground Hunting Program Rules and Regulations (http://www.yuma.army.mil/hunting_rules.shtml). Current hunting season dates are January 1st through the last day of quail season and from September 1st through December 31st. Access to designated hunting areas on YPG requires a valid license from AGFD and an access permit issued by the YPG Environmental Sciences Division.

3.5.3 Airspace Resources

The majority of airspace associated with YPG is classified as restricted (refer to Figure 2), and the proposed sites are located within restricted airspace with suitable operational designations (i.e., surface to 30,000 feet).

3.5.4 Surrounding Land Use

Most of the land adjacent to YPG is public lands managed by other federal agencies for specific purposes, such as wildlife refuge or recreation (refer to Figure 1). There are a few discrete areas of private or state land; however, there are no large cities or towns that abut the installation boundary. Most of the land is remote desert landscape with little or no development. The nearest area with development is along the southern portion of the YPG's western boundary and is centered around Martinez Lake and other recreational establishments on the Colorado River.

3.5.5 Environmental Consequences and Mitigation

The proposed pits are located within the Laguna Region and are compatible with existing land use in that region. These sites will not degrade the land to the extent it will prohibit current or planned uses. The pits are not in areas available for public access.

The HCA pit is located immediately north of the Howard Cantonment Area. Access to the pit would be along existing roads. This site has been previously used as a borrow pit. Previous structures that were used on the site were demolished and remaining concrete pads on the site are abandoned. Removal of the concrete and use of the area for a borrow pit will not affect current activities on YPG or surrounding lands.

The Ocotillo Pit is located north east of the Laguna Army Airfield (LAAF). There is a tall ridge south of the proposed pit blocking the airfield from the pit. Due to the distance of the pit from the airfield and topography, the proposed pit would not affect any operations at LAAF. This pit would be behind the existing security fence and would not be accessible to the public. Furthermore the pit has been sited to avoid all underground utility lines. The proposed pit would have no effect on surrounding land uses.

The 6th Street Pit is located at the Kofa Firing Range (KFR). The pit would not be accessible by the public. These sites have been used for borrow pits in the past and their continued use would not affect ongoing activities at KFR. The pits are sited west of all gun positions at KFR so operation of the pits would not impact military testing or training activity.

Under the no action alternative, these borrow pits would not be established. Aggregate material would be obtained on a case by case basis. Additional haul distances for material could result in increased traffic on existing roads and more traffic through security checkpoints.

3.6 SOIL RESOURCES

The surface soils of YPG were mapped and described by the Natural Resources Conservation Service (formerly the Soil Conservation Service) and have been classified by the U.S. Department of Agriculture as aridic and hyperthermic with lithic and typic torriorthents on the hilly and mountainous terrain. Mean soil temperatures are at least 72°F with more than a 9°F difference between summer and winter temperatures (U.S. Army Yuma Proving Ground, 2001). Soil depths at YPG range from very deep in alluvial basins to very shallow in the mountain regions where bedrock is often exposed. The majority of YPG soils were characterized as ranging from extremely gravelly or cobbly sand, to very fine, sandy loam (Soil Conservation Service, 1991).

The proposed HCA pit is located on soils in the Gunsight-Chuckwalla complex and these soils are comprised of sandy loams with varying amounts of gravel and cobbles. Soils in this complex form on fan terraces, are typically well drained, and considered to be deep soils meaning there is usually considerable depth before encountering bedrock.

The proposed Ocotillo Pit west of the intersection of Ocotillo Road and Martinez Lake Road, and east of the air delivery compound is located on soils in the Superstition-Rositas complex and are mostly sand and fine sand with some stratified layers of loamy sand at depth. Soils in the complex formed on beach terraces and dunes. They are considered to be well drained and deep but due to a lack of fines (silt and clay sized particles) may be excessively permeable. .

In the Kofa Administrative Area the 6th Street pit is located on soils in the Cristobal-Gunsight complex. These soils that are made up of loams and sandy loams with varying amounts of gravel and cobbles near the surface. Soils in this complex are considered to have formed on fan terraces and are considered to be made up of mixed and fan alluvium, are very deep and well drained, and moderately to slowly permeable.

3.6.1 Environmental Consequences and Mitigation

Disturbance of soil during site preparation will be limited to the greatest extent practicable and will be contained within the designated pit area. Where possible, pit areas have been located in areas of previous disturbance. Significant adverse impacts to soil resources will not occur as a result of the proposed action; however, the following mitigation and management will be implemented during site preparation and operations to avoid or minimize potential impacts to soil resources.

- Disturbance of soil will be kept to the minimum necessary for operational purposes and will be confined to the delineated boundaries for each of the sites and access roads to the greatest extent practical.
- Erosion control procedures and techniques will be used to avoid or minimize potential for severe erosion to occur.
- Drip pans will be used under construction equipment when not in operation to prevent soil contamination from undetected leaks and under any generators that are used at each site.
- Vehicle and equipment traffic will use designated access roads.
- Any leaks or accidental releases of petroleum products (i.e., fuel or lubricants) will be immediately contained and cleaned up in accordance with the YPG Spill Prevention, Control, and Countermeasures plan.

Under the no action alternative, the borrow pits would not be established. Aggregate material would be obtained from existing sites or imported on a case by case basis. There would be no affect to soil resources.

3.7 TRANSPORTATION AND INFRASTRUCTURE

3.7.1 Transportation

Transportation on the installation is accomplished through a network of paved and unpaved roads and a variety of trails and unimproved roads. Most paved roads are concentrated around the cantonment areas with gravel roads serving as the primary connections to remote areas of the installation. Gravel roads are maintained on a regular basis and other unimproved roads are maintained (graded and or watered) as needed to provide access to various test and training areas.

Roads open to public access that traverse the installation are limited to U.S. Highway 95, Imperial/Laguna Dam Road, Martinez Lake Road, Cibola Lake Road, and Ehrenberg Road. Roads located at HCA are open to residents, employees, and authorized visitors. Other roads in the Kofa and Cibola regions are closed to the general public except in emergency or on a case-by-case basis.

Access to the proposed borrow pits would be along existing roads. Operation of the pits would be intermittent and traffic volumes hauling to and from the pits are not expected to be high. The proposed borrow pits would have no affect on current transportation.

Under the no action alternative, the borrow pits would not be established. Aggregate material would be attained from existing sites or imported on a case by case basis. Additional haul distances for material could result in increased traffic on existing roads and more traffic through security checkpoints.

3.7.2 Utilities and Infrastructure

Infrastructure addresses those facilities and systems that provide power, water, wastewater treatment, and the collection and disposal of solid waste.

Electric Power: Electricity at YPG is obtained from offsite providers with the majority of power being provided by the Western Area Power Administration. Electricity is readily available in the main cantonment areas, such as HCA, WCA, and KFR administrative area. Electrical power in remote areas of the installation is primarily supplied through the use of mobile generators. Some sites also use solar powered street lights to provide lighting. Operation of the proposed borrow pits would not require electric power. The pits would only be operated in daylight hours so there is no need for permanent electrical lightning. Temporary mobile generators may be used for repair or maintenance of equipment at the pits if necessary.

Water: YPG obtains its water supply from groundwater wells and water treatment plants located at HCA, WCA, and KFR to supply potable water to cantonment areas. Bottled water vendors or bulk trucks supply water (potable and non-potable) at remote locations. Water for dust suppression would be hauled in by truck so there will be no need for additional water lines or wells.

Wastewater and Sanitary Services: Wastewater from developed areas is treated in wastewater lagoons located in the main cantonment areas (HCA, WCA, and KFR). Septic systems are used to manage wastewater generated at outlying compounds such as Castle Dome Heliport and Castle Dome Annex. Portable toilets are used in remote areas of the installation and will be used at the proposed borrow pit sites as needed.

Solid Waste: YPG operates a permitted non-hazardous waste landfill for the disposal of inert material. Most solid waste generated on the installation is either disposed in the YPG landfill or collected and transported for offsite disposal in permitted landfills in the area.

Communication Lines: YPG uses communication lines or fiber optics for electronic communication. The proposed pits will not require any electronic communications. The borrow pits have been sited to avoid any underground communication lines.

3.7.3 Environmental Consequences and Mitigation

Existing utilities, infrastructure, and associated support will be sufficient to sustain activities at the proposed borrow pits. No impacts are anticipated from implementation of the proposed action.

Under the no action alternative, there would be no affect to utilities or infrastructure.

3.8 WATER RESOURCES

YPG is within the Colorado/Lower Gila watershed. The Colorado River is located west of the installation and flows in a north to south direction, while the lower Gila River is south of YPG and flows in an east to west direction. Neither river is located within the YPG boundaries.

3.8.1 Surface Water

There are no perennial lakes, streams, or mountain springs within the boundaries of YPG; however, there are numerous ephemeral washes that originate on or cross the installation. Washes within the Kofa Region flow toward the lower Gila River while those within the Cibola Region and Laguna Region primarily flow toward the Colorado River. Several minor ephemeral washes traverse the landscape at the proposed locations. These desert washes are dry most of the year, which is characteristic of Sonoran Desert precipitation patterns. Only after significant rainfall events do these washes carry surface drainage towards the Colorado River to the west.

3.8.2 Groundwater

Groundwater on YPG is found in hydrologic basins located below the surface. The Colorado and Gila rivers replenish groundwater for the Yuma region. Depth to groundwater at the installation varies dependent upon geology, location, and thickness of basin alluvium. Known depths to groundwater range from 30 feet (near HCA) to more than 1,000 feet (in north Cibola Region). Based on the locations of the proposed borrow pits depth to groundwater is estimated to be approximately:

- 70 feet below ground surface (bgs) at the Howard Cantonment Area location,
- 270 feet bgs at the Baranca Road location,
- 250 feet bgs at the 6th Street location.

3.8.3 Environmental Consequences and Mitigation

The proposed borrow pits were sited to avoid washes. There are minor erosional features in or near the sites that drain to the surrounding area. The pits would be excavated in a way to prevent storm water discharge and minimize flooding of the pits after rain events. In addition, access roads may have to cross these washes to provide access to the sites; however impacts will be minimal due to the management practices and mitigations listed below.

To further avoid or minimize the potential for impacts to surface water resources during use of these sites or any necessary construction, the following mitigation and management practices will be required:

- Dredge or fill will not occur in, or affect waters of the U.S. prior to compliance with and completion of applicable Clean Water Act (CWA) section 404 permitting requirements
- The pits would be managed in such a way that allows washes to flow naturally.
- The 6th street pit would be repaired with a berm to prevent storm water from flooding the pit and allow natural water passage in the wash.

Preparation, operation, and activities at the proposed WCA sites will not require great volumes of groundwater resources. Use of drip pans under construction equipment and generators will prevent accidental releases from reaching ground water. Therefore, groundwater quality will not

be degraded below CWA standards, and significant impacts to groundwater are not anticipated as a result of the proposed action.

Under the no action alternative, the borrow pits would not be established. Aggregate material would be attained from existing sites or imported on a case by case basis. Under this alternative there would also be no affect to water resources.

3.9 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(A) (v) of the NEPA requires that environmental analysis include identification of ". . . any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that are not replaceable within a reasonable period. Establishing and operating these borrow pit sites would result in minor commitments of such resources as fuel for operation of vehicles and water for dust suppression. The level of use for these resources is not anticipated to be substantially more than current use.

3.10 CONFLICTS WITH FEDERAL, STATE, OR LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

The proposed action to establish these borrow pits will not result in a conflict with any known Federal, State, or local land use policies and controls. Further, the proposed action is consistent with YPG's designated land use as a military installation. All site preparation, operation, and activities will comply with applicable environmental laws and regulations and the YPG Environmental Sciences Division will oversee or initiate any environmental permitting requirements prior to project activities.

3.11 CUMULATIVE EFFECTS

Cumulative impacts on environmental resources result from incremental impacts of an action, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative effects create spatial (geographic) and temporal (time) perturbations, and may arise from single or multiple actions resulting in additive or interactive effects (CEQ, 1997). Cumulative impacts can result from minor, but collectively substantial actions undertaken over a period of time by various agencies (Federal, State, and local) or individuals (40 CFR 1508.7).

Council on Environmental Quality (CEQ) guidelines state that cumulative effects analyses should be limited to effects that can be evaluated meaningfully by decision-makers. These guidelines further state that the area to use in defining the cumulative impacts geographical boundary should extend to the point at which the resource is no longer affected significantly (CEQ, 1997). For the purpose of this analysis, a geographic boundary of five miles was evaluated to determine the area for consideration for projects that could reasonably be expected to contribute to cumulative impacts when considered in conjunction with the proposed action based on topographic barriers and ecological factors.

Below, Table 5 shows past, present, and reasonably foreseeable actions within five miles of the designated area of analysis.

Table 6: Past, Present, and Future Projects of Regional Interest

Project/Agency	Location/Description	Date [(a)]	Effects Analysis
Long Range Munitions Expansion on Cibola Range	Several sites (< 1 acre) will serve as gun positions for the testing of munitions. Three new impact areas will be designated as well (YPG 2013)	April 2013	The sites have potential for soil disturbance intermittently and creation of some noise; however no impacts were expected to have a significant effect because several sites exhibit previous disturbance to land use resources and noise studies have shown no significant impact.
Cibola Impact Areas, YPG	Designated 21 impact areas within Cibola Region at YPG to support increased work load (YPG, 2011a).	April 2011	The impact areas included in the project are all located within areas of known UXO contamination and access is restricted to YPG personnel and limited to use of existing roads and trails. None of the impact areas are "prepared" (graded, fenced, etc..)
Materials Analysis Laboratory, YPG	Laguna Region at YPG. Construct new laboratory facility to replace existing materials lab at YPG (YPG, 2011b).	September 2011	This facility is planned within the WCA area of the Laguna Region at YPG and is being constructed on previously disturbed land adjacent to the existing laboratory. No significant impacts are anticipated to result from this project and will not contribute cumulative effects to the proposed action.
Optimized Fuel Facilities at U.S. Army Yuma Proving Ground, YPG	Laguna Region at YPG. Construct and operate new state-of-the-art fuel facilities at three locations within the Laguna Region at YPG (YPG, 2011c).	November 2011	These facilities have been planned within the WCA, Kofa, and LAAF areas of the Laguna Region at YPG and are being constructed on previously disturbed land adjacent to the existing roads and buildings. No significant impacts are anticipated to result from this project and will not contribute cumulative effects to the proposed action.
Persistent Surveillance Systems, YPG	Designated several pads for aerostat platforms and sensor technology activities (YPG, 2011d).	December 2011	These facilities were planned in different areas throughout YPG including both the Kofa and Cibola ranges. After evaluation, no significant impacts were expected from the proposed action and any possible cumulative effects were minimized or eliminated due to the temporary nature of construction activities.
Free Fall Simulator	Construction and operation of a free fall simulator facility at the north end of the Walker Cantonment Area. This facility allows students of the freefall school to train inside a simulated environment.	January 2014	This facility was constructed on previously disturbed land adjacent to existing roads and buildings

Past and ongoing projects have potential to affect resources in the analysis area, however due to temporal and spatial separation of projects and the temporary nature of the effects (lasting mainly for the duration of construction); cumulative effects are not expected to be significant.

No mitigation measures are recommended to specifically address the cumulative effects of the proposed action (Alternative A). The potential for a resource, ecosystem, and/or human community to be significantly impacted by the proposed action is unlikely on both a regional and cumulative scale. The proposed action will not significantly add to the stress or ability of a resource, ecosystem, or community to recover and will not leave the ecosystem, resource, or community vulnerable to rapid degradation in conjunction with other past, present, and future projects.

4.0 FINDINGS AND CONCLUSIONS

Valued Environmental Components at YPG and in the region were evaluated against the activities and actions associated establishing and operating the three borrow pit sites. Based on the evaluation in this EA, it was determined that impacts to soils, water, biological resources, cultural resources, air quality, land use, recreation and airspace, health and safety, and transportation, utilities, and infrastructure could result from implementation of the proposed action. The potential for adverse impacts will be minimized by implementation of mitigation measures and BMPs described in Chapter 3. All aspects of the proposed action will follow applicable plans, policies, and procedures and standard BMPs will be implemented to reduce or prevent undesirable effects resulting from the project. Effects to socioeconomic values, environmental justice, visual and aesthetics, wild and scenic rivers, coastal zone management, floodplains, geology and geography, hazardous and toxic substances, meteorological conditions (climate), noise, and prime farmlands were analyzed in Chapter 3.0 and were eliminated from further consideration in this evaluation because impacts to those resources would not occur or would be negligible. The discussion in Chapter 3.0 presented the rationale for why these resources were eliminated from further detailed analysis.

Based on the analysis presented in this EA, implementation of the *Alternative A– To Establish Borrow Pit Sites* including all applicable mitigation measures did not reveal the potential for significant environmental effects. Therefore, preparation of an Environmental Impact Statement is not required, and a Finding of No Significant Impact (FNSI) is recommended.

5.0 COORDINATION AND PREPARATION

YPG sent scoping letters to the government agencies non-government organizations listed below on September 18, 2014. A Public Notice for the EA and draft FNSI was published on December 18, 2014 and copies of the EA and draft FNSI were sent to stakeholders who requested a copy during scoping. The EA and draft FNSI were available by request to the YPG NEPA coordinator at 301 C Street, IMYM-PWE, Yuma, AZ or via email to usarmy.ypg.imcom.mbx.nepa@mail.mil. In addition, the EA was posted on the YPG Website for 30 day public review at http://www.yuma.army.mil/Documents.aspx. YPG assessed comments received and modified the EA, as appropriate.

Federal Agencies

Bureau of Indian Affairs, Western Regional Office
Bureau of Land Management, Yuma Field Office
Bureau of Reclamation, Yuma Area Office
Marine Corp Air Station Yuma, Environmental Department
U.S. Customs and Border Protection, Yuma Sector
U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office
U.S. Fish and Wildlife Service, Cibola National Wildlife Refuge
U.S. Fish and Wildlife Service, Imperial National Wildlife Refuge
U.S. Fish and Wildlife Service, Kofa National Wildlife Refuge
U.S. Fish and Wildlife Service, Southwest Arizona National Wildlife Refuge Complex
USDA Natural Resources Conservation Service, Yuma Service Center

Native American Tribes

Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community
Hopi Tribe
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Tohono O'odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Local Agencies

Yuma Chamber of Commerce, Military Affairs Committee
City of Yuma, Community Development
La Paz County, Community Development
Yuma County, Development Services

Private Entities

Arizona Deer Association
Arizona Desert Bighorn Sheep Society
Arizona Historical Society
Arizona Wilderness Coalition
Audubon Society
Center for Biological Diversity
Sierra Club
Yuma Valley Rod and Gun Club

State Agencies
Arizona Department of Environmental Quality
Arizona Department of Environmental Quality, Federal Project Unit
Arizona Game and Fish Department, Project Evaluation Program
Arizona Game and Fish Department, Yuma Habitat Program Manager

LIST OF PREPARERS AND CONTRIBUTORS

The following interdisciplinary team participated in the analysis of the proposed action and preparation of this EA or contributed information critical to the evaluation.

U.S. Army Garrison Yuma Proving Ground
Sergio Obregon, Environmental Protection Specialist – NEPA Coordinator
Brian Hoon, Environmental Protection Specialist – Water programs
Meg McDonald, Cultural Resources Manager
Daniel Steward, Wildlife Biologist
Laura Merrill, Natural Resources Manager
John Glover, Ecologist
Mike Brandon, Environmental Engineer
Kathleen Tyree, Archaeologist
Marla Lewis, Environmental Protection Specialist

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APPENDIX A

Figure 1. Project Area Overview

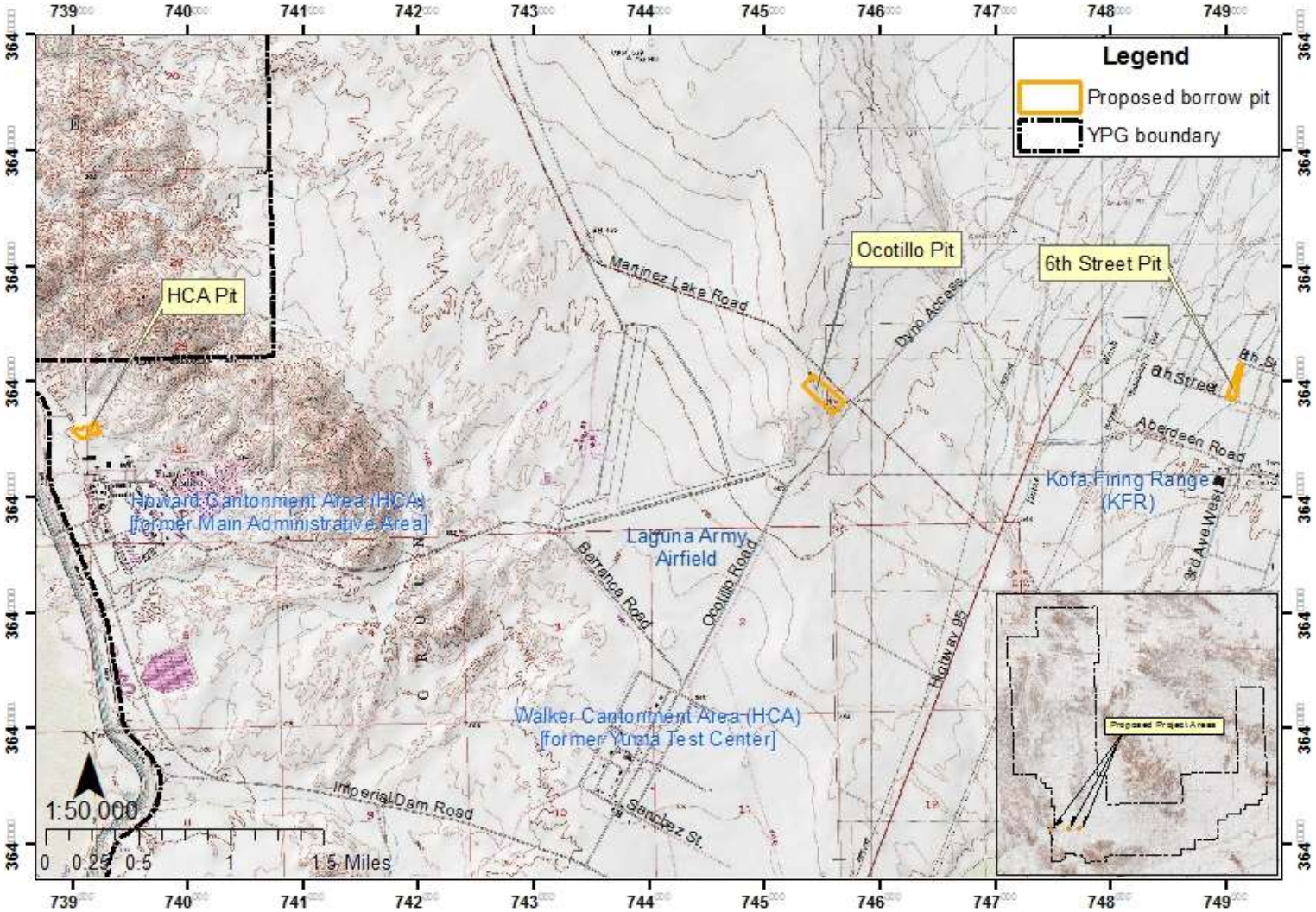

Figure 2. HCA Pit

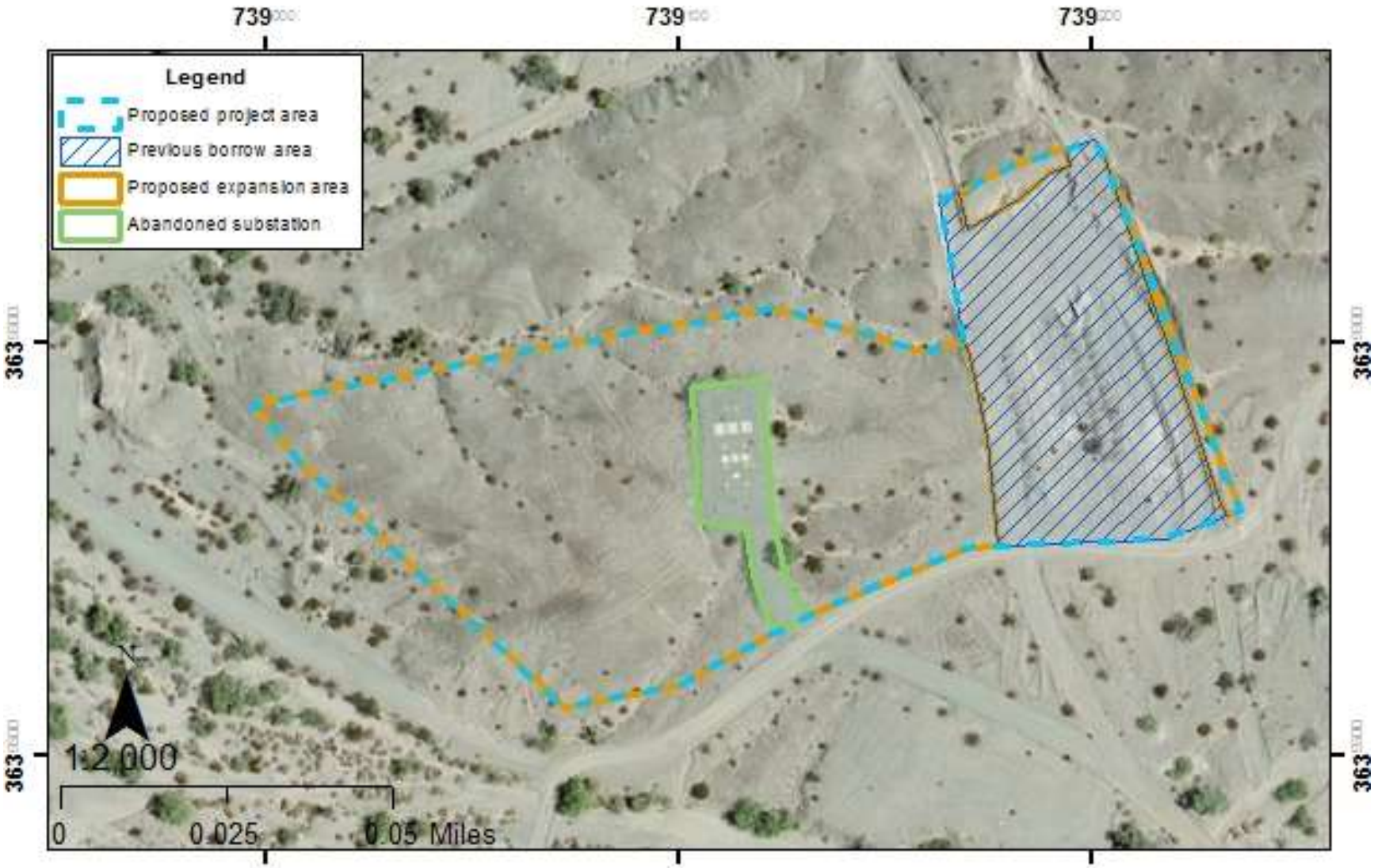

Figure 3. Ocotillo Pit

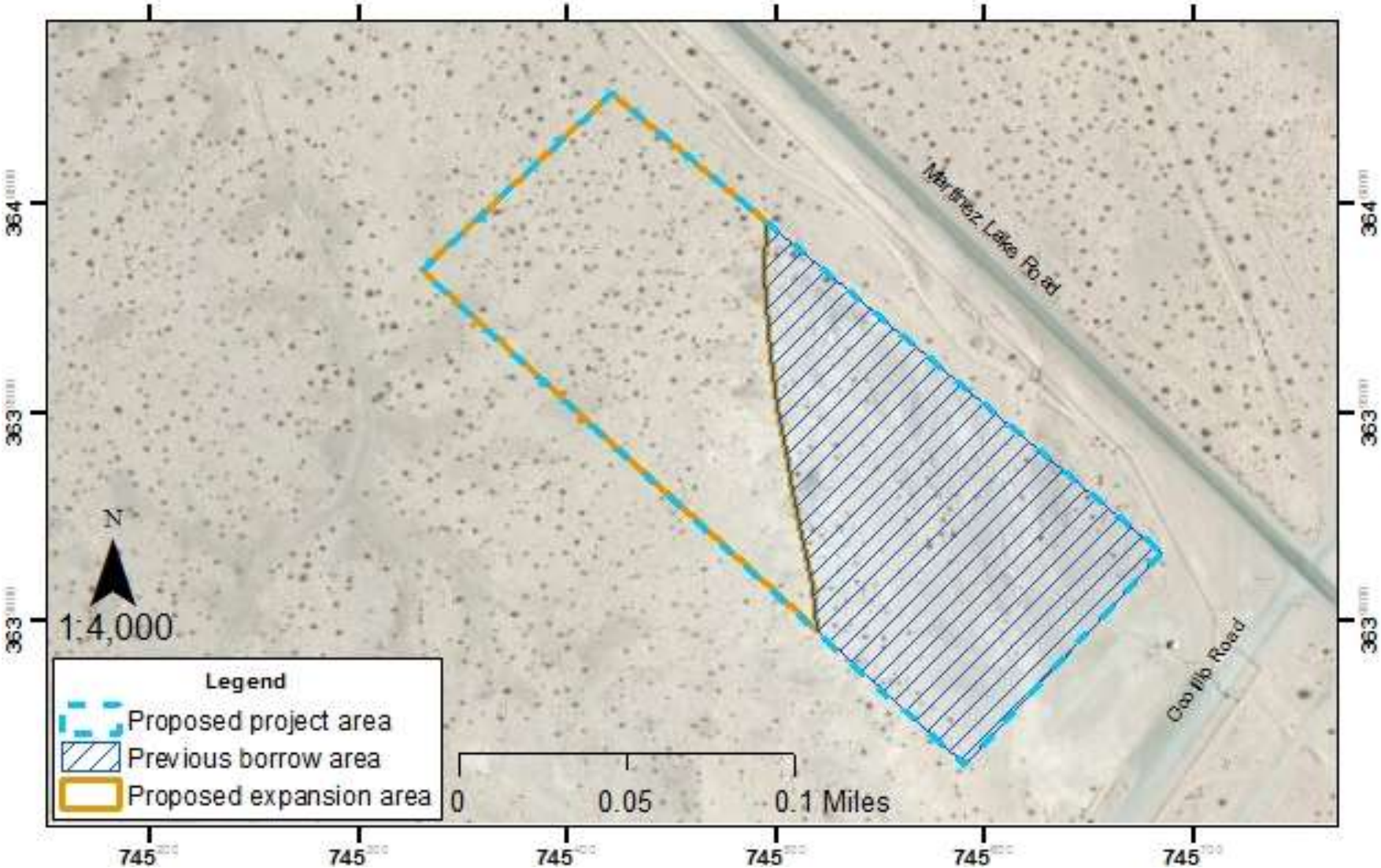
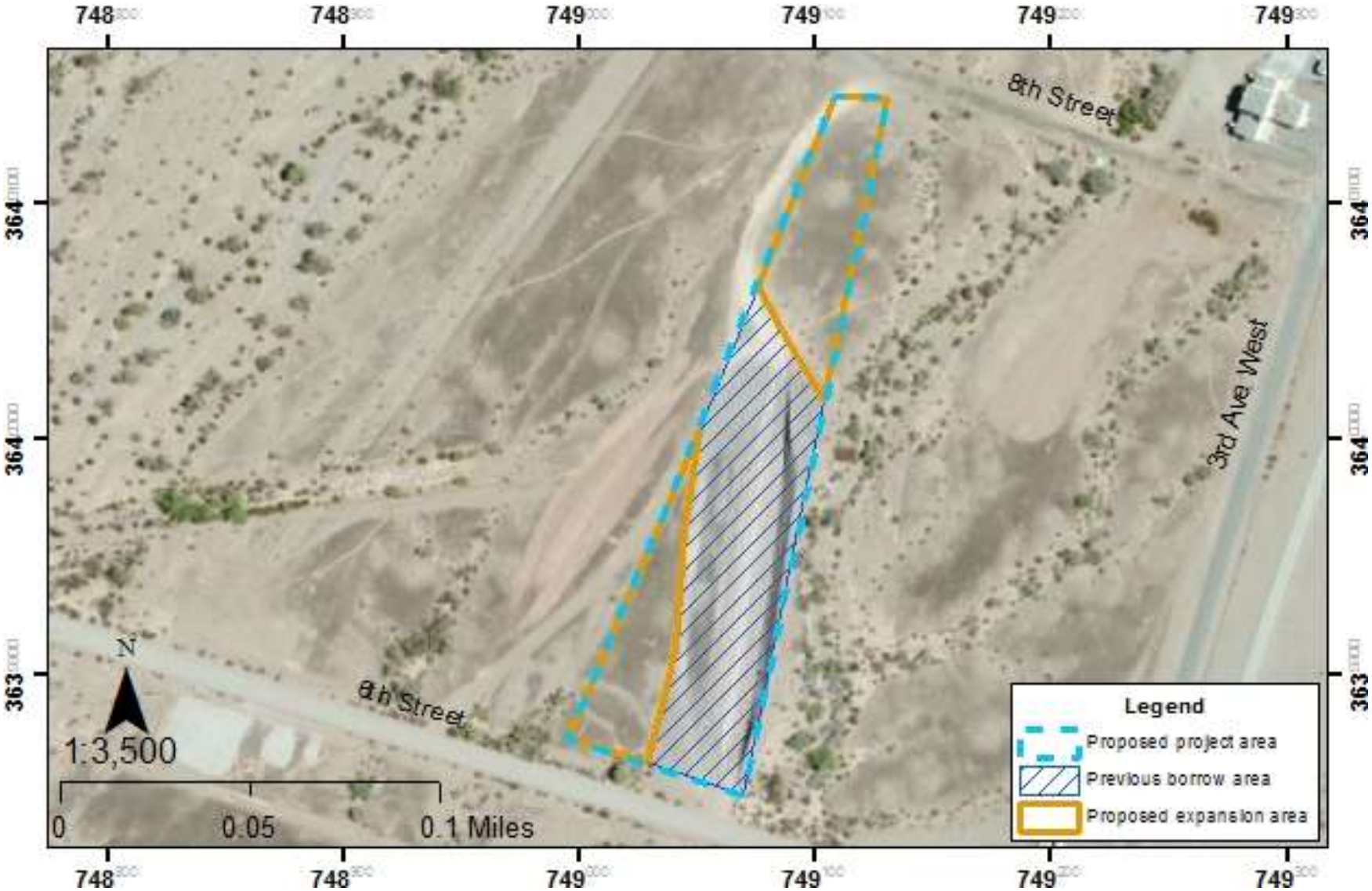
Figure 4. 6th Street Pit